SIEMENS

List Manual

SINAMICS

SINAMICS DCM

Edition 06/2023

www.siemens.com/drives

SIEMENS

SINAMICS

SINAMICS DCM

List Manual

Valid for

Drive	Firmware version
SINAMICS DCM	1.5 SP1 (based on 5.1 SP1)

06/2023
A5E34800804A

Legal information

Warning concept

This Manual contains information which you must observe to ensure your own personal safety as well as to avoid material damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to equipment damage have no safety alert symbol. Depending on the hazard level, warnings are indicated in a descending order as follows:

⚠ **DANGER**
indicates that death or serious injury **will** result if proper precautions are not taken.

⚠ **WARNING**
indicates that death or serious injury **could** result if proper precautions are not taken.

⚠ **CAUTION**
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one level of danger is simultaneously applicable, the warning notice for the highest level is used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified personnel

The product/system described in this documentation may only be operated by **personnel qualified** for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ **WARNING**
Siemens products are only permitted to be used for the applications envisaged in the catalog and in the associated technical documentation. If third-party products and components are to be used, they must be recommended or approved by Siemens. These products can only function correctly and safely if they are transported, stored, set up, mounted, installed, commissioned, operated and maintained correctly. The permissible ambient conditions must be adhered to. Information in the associated documentation must be observed.

Trademarks

All names identified by the trademark symbol ® are registered trademarks of Siemens AG. Other designations used in this document may be trademarks whose use by third parties for their own purposes could violate the rights of the trademark owners.

Disclaimer of liability

We have verified that the contents of this document correspond to the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. The information given in this document is reviewed at regular intervals and any corrections that might be necessary are made in the subsequent editions.

Siemens AG
Division Process Industries and Drives
P.O. Box 48 48
90026 NUREMBERG
GERMANY

Article number: A5E34800804A
06/2023 Subject to change without prior notice

Preface

Information about the SINAMICS documentation

The SINAMICS documentation is structured according to the following categories:

- General documentation/catalogs
- Manufacturer/service documentation

This documentation is part of the technical customer documentation for SINAMICS.

In the interests of clarity, this documentation does not contain all the detailed information for all product types and cannot take into account every possible aspect of installation, operation or maintenance.

The contents of this documentation are not part of an earlier or existing agreement, a promise, or a legal agreement, nor do they change this. All obligations on the part of Siemens can be found in the respective sales contract, which also contains the complete and sole warranty provisions. These contractual warranty provisions are neither extended nor curbed as a result of the statements made in this documentation.

Target group

This documentation addresses commissioning engineers and service personnel who use SINAMICS.

Objective

This manual contains information about all parameters, function diagrams, faults, and warnings required to commission and service the system.

This manual should be used in addition to the other manuals and tools provided for the product.

Search tools

The following guides are provided to help you locate information in this manual:

1. Table of contents
   – Table of contents for the complete manual (Page 7)
   – Table of contents for function diagrams (Page 718)
2. List of abbreviations (Page 1275)
3. Index (Page 1289)

Technical Support

Country-specific telephone numbers for technical support are provided at the following Internet address:

http://www.siemens.com/automation/service&support

SINAMICS

You can find information on SINAMICS at:

http://www.siemens.com/sinamics

Compliance with the General Data Protection Regulation

Siemens respects the principles of data protection, in particular the data minimization rules (privacy by design).

For this product, this means:
The product does not process neither store any person-related data, only technical function data (e.g. time stamps). If the user links these data with other data (e.g. shift plans) or if he stores person-related data on the same data medium (e.g. hard disk), thus personalizing these data, he has to ensure compliance with the applicable data protection stipulations.

Table of contents

Fundamental safety instructions

1

Content

1.1 General safety instructions

⚠ WARNING

Danger to life if the safety instructions and residual risks are not observed

If the safety instructions and residual risks in the associated hardware documentation are not observed, accidents involving severe injuries or death can occur.

- Observe the safety instructions given in the hardware documentation.
- Consider the residual risks for the risk evaluation.

⚠ WARNING

Malfunctions of the machine as a result of incorrect or changed parameter settings

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

- Protect the parameterization against unauthorized access.
- Handle possible malfunctions by taking suitable measures, e.g. emergency stop or emergency off.

1.2 Warranty and liability for application examples

Application examples are not binding and do not claim to be complete regarding configuration, equipment or any eventuality which may arise. Application examples do not represent specific customer solutions, but are only intended to provide support for typical tasks.

As the user you yourself are responsible for ensuring that the products described are operated correctly. Application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.

1.3 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that can be implemented, please visit:

Industrial security (https://www.siemens.com/industrialsecurity)

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at:

Industrial security
(https://new.siemens.com/global/en/products/services/cert.html#Subscriptions).

Further information is provided on the Internet:

Industrial Security Configuration Manual
(https://support.industry.siemens.com/cs/ww/en/view/108862708)

⚠ WARNING

Unsafe operating states resulting from software manipulation

Software manipulations (e.g. viruses, trojans, malware or worms) can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
- Make sure that you include all installed products into the holistic industrial security concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.
- On completion of commissioning, check all security-related settings.

Parameters

2

Content

2.1 Overview of parameters

2.1.1 Explanation of the parameter list

Basic structure of the parameter descriptions

The data in the following example have been chosen at random. The table below contains all the information that can be included in a parameter description. Some of the information is optional.

The "List of parameters (Page 28)" has the following structure:

- - - - - - - - - - - - Start of example -

pxxxx[0...n] **BICO: Full parameter name / abbreviated name**

Drive object (function module)

Can be changed: C1(x), C2(x), U, T	**Calculated:** CALC_MOD_REG	**Access level:** 2
Data type: Unsigned32 / Integer16	**Dyn. index:** CDS, p0170	**Func. diagram:** 8070
P-Group: Closed-loop control	**Unit group:** 7_1	**Unit selection:** p0505
Not for motor type: ASM	**Scaling:** p2000	**Expert list:** 1
Min	**Max**	**Factory setting**
0.00 [Nm]	10.00 [Nm]	0.00 [Nm]

Description: Text

Value:
0: Name and meaning of value 0
1: Name and meaning of value 1
2: Name and meaning of value 2
etc.

Recommendation: Text

Index:
[0] = Name and meaning of index 0
[1] = Name and meaning of index 1
[2] = Name and meaning of index 2
etc.

Bit field:

Bit	Signal name	1 signal	0 signal	FP
00	Name and meaning of bit 0	Yes	no	8060
01	Name and meaning of bit 1	Yes	no	
02	Name and meaning of bit 2	Yes	no	8065
	etc.			

Dependency: Text
Refer to: pxxxx, rxxxx
Refer to: Fxxxxx, Axxxxx

Danger: ⚠ **Warning:** ⚠ **Caution:** ⚠ Safety notices with a warning triangle

Notice: Safety notice without a warning triangle

Note: Information that might be useful.

- - - - - - - - - - - - End of example -

The individual pieces of information are described in detail below.

pxxxx[0...n] Parameter number

The parameter number is made up of a “p” or “r”, followed by the parameter number and the index (optional).

Examples of the representation in the parameter list:

- p... Adjustable parameters (read and write)
- r... Display parameters (read only)
- p0918 Adjustable parameter 918
- p0099[0...3] Adjustable parameter 99, indices 0 to 3
- p1001[0...n] Adjustable parameter 1001, indices 0 to n (n = configurable)
- r0944 Display parameter 944
- r2129.0...15 Display parameter 2129 with bit array from bit 0 (smallest bit) to bit 15 (largest bit)

Other examples of notation in the documentation:

- p1070[1] Adjustable parameter 1070, index 1
- p2098[1].3 Adjustable parameter 2098, index 1 bit 3
- r0945[2](3) Display parameter 945, index 2 of drive object 3
- p0795.4 Adjustable parameter 795, bit 4

The following applies to adjustable parameters:

The parameter value when shipped is specified under “Factory setting” with the relevant unit in square parentheses. The value can be adjusted within the range defined by “Min” and “Max”.

The term "linked parameterization" is used in cases where changes to adjustable parameters affect the settings of other parameters.

Linked parameterization can occur, for example, as a result of the following actions and parameters:

- Executing macros

  p0015, p0700, p1000, p1500
- Setting the PROFIBUS telegram (BICO interconnection)

  p0922
- Setting component lists

  p0400
- Automatically calculating and pre-assigning

  p0112, p0340, p3900
- Restoring the factory settings

  p0970

The following applies to display parameters:

The fields “Min”, “Max” and “Factory setting” are specified with a dash “-” and the relevant unit in square parentheses.

Note:

The parameter list can contain parameters that are not visible in the expert lists of the particular commissioning software (e.g. parameters for trace functions).

BICO: Full parameter name/Abbreviated name

The following abbreviations can appear in front of the parameter name:

- BI: Binector Input
  This parameter is used for selecting the source of a digital signal.
- BO: Binector Output
  This parameter is available as a digital signal for interconnection with other parameters.
- CI: Connector Input
  This parameter is used for selecting the source of an “analog” signal.
- CO: Connector Output
  This parameter is available as an “analog” signal for interconnection with other parameters.
- CO/BO: Connector/Binector Output
  This parameter is available as an "analog" and digital signal for interconnection with other parameters.

Note:

A connector input (CI) cannot be just interconnected with any connector output (CO, signal source).

When interconnecting a connector input using the commissioning software, only the signal sources that are actually possible are listed.

Drive object (function module)

A drive object (DO) is an independent, "self-contained" functional unit that has its own parameters and, in some cases, faults and alarms.

When carrying out commissioning using the commissioning software, you can select/deselect additional functions and their parameters by activating/deactivating function modules accordingly.

The parameter list specifies the associated drive object and function module for each individual parameter.

Example:

- r61000: PROFINET Name of Station
  CU_DC (PROFINET)
  The parameter is only available in the case of the CU_DC drive object with the “PROFINET” function module.

A parameter can belong to a single, multiple or all drive objects.

The following information relating to "Drive object" and "Function module" can be displayed under the parameter number:

Table 2-1 Data in the "Drive object (function module)" field

Drive object (function module)	Type	Meaning
All objects	-	This parameter is used by all drive objects.
CU_DC	6	Advanced Control Unit SINAMICS DCM (CUD) is to the left.
CU_DC_R	6	Advanced Control Unit SINAMICS DCM (CUD) is to the right.
CU_DC_S	6	Standard Control Unit SINAMICS DCM (CUD) is to the left.
CU_DC_R_S	6	Standard Control Unit SINAMICS DCM (CUD) is to the right.
CU_DC (PROFINET)	-	SINAMICS DCM Control Unit with "PROFINET" function module.
DC_CTRL	17	DC closed-loop control general or DC closed-loop control on the Advanced CUD left.
DC_CTRL_R	17	DC closed-loop control extended on the Advanced CUD right.
DC_CTRL_S	17	DC closed-loop control on the standard CUD right.
DC_CTRL_R_S	17	DC closed-loop control extended on the standard CUD right.
DC_CTRL (PROFINET)	-	DC closed-loop control with "PROFINET" function module.
TM31	200	Terminal Module 31.
TM31 (PROFINET)	-	Terminal Module 31 with "PROFINET" function module.
TM15DI_DO	204	Terminal Module 15 (for SINAMICS).
TM15DI_DO (PROFINET)	-	Terminal Module 15 (for SINAMICS) with "PROFINET" function module.
TM150	208	Terminal Module 150.
TM150 (PROFINET)	-	Terminal Module 150 with "PROFINET" function module.

Note:

The drive object type is used to identify the drive objects in the drive system (e.g. r0107, r0975[1]).

Can be changed

The "-" sign indicates that the parameter can be changed in any object state and that the change will be effective immediately.

The information "C1(x), C2(x), T, U" ((x): optional) means that the parameter can be changed only in the specified drive unit state and that the change will not take effect until the unit switches to another state. This can be a single state or multiple states.

The following states are available:

- C1(x) Device commissioning C1: **C**ommissioning **1**

  Device is being commissioned (p0009 > 0).

  Pulses cannot be enabled.

  The parameter can only be changed for the following device commissioning settings (p0009 > 0):

  - C1: Can be changed for all settings p0009 > 0.
  - C1(x): Can be changed only when p0009 = x.

  A modified parameter value does not take effect until the device commissioning mode is exited with p0009 = 0.

- C2(x) Drive object commissioning C2: **C**ommissioning **2**

  Drive commissioning is in progress (p0009 = 0 and p0010 > 0).

  Pulses cannot be enabled.

  The parameter can only be changed in the following drive commissioning settings (p0010 > 0):

  - C2: Can be changed for all settings p0010 > 0.
  - C2(x): Can only be changed for the settings p0010 = x.

  A modified parameter value does not take effect until drive commissioning mode is exited with p0010 = 0.

- U Operation U: R**u**n

  Pulses are enabled.

- T Ready T: Ready **t**o run

  The pulses are not enabled and the state "C1(x)" or "C2(x)" is not active.

Note

Parameter p0009 is CU-specific (belongs to the Control Unit).

Parameter p0010 is drive-specific (belongs to each drive object).

The operating state of individual drive objects is displayed in r0002.

Calculated

Specifies whether the parameter is influenced by automatic calculations.

The calculation attribute defines which activities influence the parameter.

The following attributes apply:

- CALC_MOD_ALL
  - p0340 = 1
- CALC_MOD_CON
  - p0340 = 1
- CALC_MOD_EQU
  - p0340 = 1
- CALC_MOD_LIM_REF
  - p0340 = 1, 5
- CALC_MOD_REG
  - p0340 = 1, 3

Note:

For p3900 > 0, p0340 = 1 is also called automatically.

Access level

Specifies the minimum access level required to be able to display and change the relevant parameter. The required access level can be set using p0003.

The system uses the following access levels:

- 1: Standard
- 2: Extended
- 3: Expert
- 4: Service

Note

Parameter p0003 is CU-specific (belongs to the Control Unit).

A higher access level will also include the functions of the lower levels.

Data type

The information on the data type can consist of the following two items (separated by a slash):

- First item

  Data type of the parameter.
- Second item (for binector or connector input only)

  Data type of the signal source to be interconnected (binector/connector output).

Parameters can have the following data types:

- Integer8 I8 8-bit integer number
- Integer16 I16 16-bit integer number
- Integer32 I32 32-bit integer number
- Unsigned8 U8 8 bits without sign
- Unsigned16 U16 16 bits without sign
- Unsigned32 U32 32 bits without sign
- FloatingPoint32 Float 32-bit floating point number

Depending on the data type of the BICO input parameter (signal sink) and BICO output parameter (signal source), the following combinations are possible when creating BICO interconnections:

Table 2-2 Possible combinations of BICO interconnections

	BICO input parameter			
	CI parameter			**BI parameter**
BICO output parameter	**Unsigned32 / Integer16**	**Unsigned32 / Integer32**	**Unsigned32 / FloatingPoint32**	**Unsigned32 / Binary**
CO: Unsigned8	x	x	–	–
CO: Unsigned16	x	x	–	–
CO: Integer16	x	x	r2050, r8850	–
CO: Unsigned32	x	x	–	–
CO: Integer32	x	x	r2060, r8860	–
CO: FloatingPoint32	x	x	x	–
BO: Unsigned8	–	–	–	x
BO: Unsigned16	–	–	–	x
BO: Integer16	–	–	–	x
BO: Unsigned32	–	–	–	x
BO: Integer32	–	–	–	x
BO: FloatingPoint32	–	–	–	–

Legend:
x : BICO interconnection permitted
–: BICO interconnection not permitted
rxxxx: BICO interconnection is only permitted for the specified CO parameters

Dynamic index

For parameters with a dynamic index [0...n], the following information is specified here:

- Data set (if available).
- Parameter for the number of indices (n = number - 1).

The following information can be contained in this field:

- "CDS, p0170" (Command Data Set, CDS count)

  Example:

  p1070[0] → main setpoint [command data set 0]

  p1070[1] → main setpoint [command data set 1], etc.
- "DDS, p0180" (Drive Data Set, DDS count)
- "EDS, p0140" (Encoder Data Set, EDS count)

Note:

Information on the data sets can be taken from the following references:

References: SINAMICS DC MASTER operating instructions
"Data sets" Chapter

Function diagram

The parameter is included in this function diagram. The structure of the parameter function and its relationship with other parameters is shown in the specified function diagram.

P group (only when accessing via BOP (Basic Operator Panel))

Specifies the functional group to which this parameter belongs. The required parameter group can be set via p0004.

Note:

Parameter p0004 is CU-specific (belongs to the Control Unit).

Unit, unit group and unit selection

The standard unit of a parameter is specified in square parentheses after the values for "Min", "Max", and "Factory setting".

Note:

The units cannot be switched over for SINAMICS DCM.

The information under unit group and unit selection has no relevance.

Parameter values

Min.	Minimum value of the parameter [unit]
Max	Maximum value of the parameter [unit]
Factory setting	Value when delivered [unit] In the case of a binector/connector input, the signal source of the default BICO interconnection is specified. A non-indexed connector output is assigned the index [0].

Not for motor type

This information is of no relevance for SINAMICS DC MASTER.

Scaling

Specification of the reference variable with which a signal value is automatically converted with a BICO interconnection.

The following reference variables are available:

- p2000 ... p2007: Reference speed, reference voltage, etc.
- PERCENT: 1.0 = 100 %
- 4000H: 4000 hex = 100 %

Expert list

Specifies whether this parameter is available in the expert list of the specified drive objects in the commissioning software.

1: Parameter exists in the expert list.

0: Parameter is not available in the expert list.

NOTICE

Users are themselves responsible for using parameters marked "Expert list: 0" (parameter does not exist in the expert list).

These parameters and their functionalities have not been tested and no further user documentation is available for them (e.g. description of functions). Furthermore, no support is provided for these parameters by "Technical Support" (hotline).

Description

Explanation of the function of a parameter

Values

Lists the possible values of a parameter.

Recommendation

Information about recommended settings.

Index

The name and meaning of each individual index is specified for indexed parameters.

The following applies to the values (Min, Max, Factory setting) of indexed adjustable parameters:

- Min, Max:

  The adjustment range and unit apply to all indices.

- Factory setting:

  When all indices have the same factory setting, index 0 is specified with the unit to represent all indices.

  When the indices have different factory settings, they are all listed individually with the unit.

Bit field

For parameters with bit fields, the following information is provided about each bit:

- Bit number and signal name
- Meaning for signal states 1 and 0
- Function diagram (optional)

  The signal is shown on this function diagram.

Dependency

Conditions that must be fulfilled in conjunction with this parameter. Also includes special effects that can occur between this parameter and others.

See also: List of other parameters to be additionally considered.

Safety guidelines

Important information that must be observed to avoid the risk of physical injury or material damage.

Information that must be observed to avoid any problems.

Information that the user may find useful.

Danger

The description of this safety notice can be found at the beginning of this manual, see "Legal information (Page 4)".

Warning

The description of this safety notice can be found at the beginning of this manual, see "Legal information (Page 4)".

Caution

The description of this safety notice can be found at the beginning of this manual, see "Legal information (Page 4)".

Notice
The description of this safety notice can be found at the beginning of this manual, see "Legal information (Page 4)".

Note
Information that the user may find useful.

2.1.2 Number ranges of parameters

Number ranges for SINAMICS in general

Note:

The following number ranges represent an overview for all the parameters available for the SINAMICS drive family.

The parameters for the product described in this List Manual are described in detail in "List of parameters (Page 28)".

Parameters are grouped into the following number ranges:

Table 2-3 Number ranges for SINAMICS

Range		Description
From	To	
0000	0099	Display and operation
0100	0199	Commissioning
0200	0299	Power section
0300	0399	Motor
0400	0499	Encoder
0500	0599	Technology and units, motor-specific data, probes
0600	0699	Thermal monitoring, maximum current, operating hours, motor data, central probe
0700	0799	Control Unit terminals, measuring sockets
0800	0839	CDS, DDS data sets, motor changeover
0840	0879	Sequence control (e.g. signal source for ON/OFF1)
0880	0899	ESR, parking, control and status words
0900	0999	PROFIBUS/PROFIdrive
1000	1199	Setpoint channel (e.g. ramp-function generator)
1200	1299	Functions (e.g. motor holding brake)
1300	1399	U/f control
1400	1799	Closed-loop control
1800	1899	Gating unit
1900	1999	Power unit and motor identification
2000	2009	Reference values
2010	2099	Communication (fieldbus)
2100	2139	Faults and alarms
2140	2199	Signals and monitoring
2200	2359	Technology controller
2360	2399	Staging, hibernation

Table 2-3 Number ranges for SINAMICS, continued

Range		Description
From	To	
2500	2699	Position control (LR) and basic positioning (EPOS)
2700	2719	Reference values, display
2720	2729	Load gearbox
2800	2819	Logic operations
2900	2930	Fixed values (e. g. percentage, torque)
3000	3099	Motor identification results
3100	3109	Real-time clock (RTC)
3110	3199	Faults and alarms
3200	3299	Signals and monitoring
3400	3659	Infeed closed-loop control
3660	3699	Voltage Sensing Module (VSM), Braking Module internal
3700	3779	Advanced Positioning Control (APC)
3780	3819	Synchronization
3820	3849	Friction characteristic
3850	3899	Functions (e. g. long stator)
3900	3999	Management
4000	4599	Terminal Board, Terminal Module (e. g. TB30, TM31)
4600	4699	Sensor Module
4700	4799	Trace
4800	4849	Function generator
4950	4999	OA application
5000	5169	Spindle diagnostics
5200	5230	Current setpoint filter 5 ... 10 (r0108.21)
5400	5499	System droop control (e. g. shaft generator)
5500	5599	Dynamic grid support (solar)
5600	5614	PROFIenergy
5900	6999	SINAMICS GM/SM/GL/SL
7000	7499	Parallel connection of power units
7500	7599	SINAMICS SH/GH
7700	7729	External messages
7770	7789	NVRAM, system parameters
7800	7839	EEPROM read/write parameters
7840	8399	Internal system parameters
8400	8449	Real-time clock (RTC)
8500	8599	Data and macro management

Table 2-3 Number ranges for SINAMICS, continued

Range		Description
From	To	
8600	8799	CAN bus
8800	8899	Communication Board Ethernet (CBE), PROFIdrive
8900	8999	Industrial Ethernet, PROFINET, CBE20
9000	9299	topology
9300	9399	Safety Integrated
9400	9499	Parameter consistency and storage
9500	9899	Safety Integrated
9900	9949	topology
9950	9999	Diagnostics, internal
10000	10199	Safety Integrated
11000	11299	Free technology controller 0, 1, 2
20000	20999	Free function blocks (FBLOCKS)
21000	25999	Drive Control Chart (DCC)
50000	53999	SINAMICS DC MASTER (closed-loop DC current control)
61000	61001	PROFINET

2.2 List of parameters

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng
Objects: CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

r0002 Control Unit operating display / CU op_display

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Calculated: -
Access level: 1
Data type: Integer16
Dyn. index: -
Function diagram: 2651
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1

Min:	Max:	Factory setting:
0	99	-

Description: Operating display for the Control Unit (CU).

Value:

0: Operation
10: Ready
20: Wait for run-up
25: Wait for automatic FW update of DRIVE-CLiQ components
31: Commissioning tool download active
33: Remove/acknowledge topology error
34: Exit commissioning mode
35: Carry out first commissioning
70: Initialization
80: Reset active
99: Internal software error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 Drive operating display / Drv op_display

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Calculated: -
Access level: 1
Data type: Integer16
Dyn. index: -
Function diagram: 2651
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1

Min:	Max:	Factory setting:
0	129	-

Description: Operating display for the drive.

Value:

0: o0.0 No torque direction switched on
1: o0.1 Torque direction I switched on
2: o0.2 Torque direction II switched on
9: o0.9 Wait for enable from master
10: o1.0 Wait time for brake opening time running
11: o1.1 Wait for operating enable at terminal 13
12: o1.2 Wait for operating enable (signal source acc. to p0852)
13: o1.3 Wait time running after withdrawing an OFF command
14: o1.4 Wait until the field has been reversed
15: o1.5 Wait for operating enable from the optimization run
16: o1.6 Wait for withdrawal of the immediate pulse inhibit
17: o1.7 Wait for SINAMICS DCM connected in parallel in status o0.0
18: o1.8 Operating state o1.8
19: o1.9 Operating state o1.9
20: o2.0 Wait for setpoint
21: o2.1 Operating state o2.1
22: o2.2 Operating state o2.2
30: o3.0 Wait for the thyristor check to be completed
31: o3.1 Wait for line supply symmetry
32: o3.2 Wait for a DC contactor to pick up
33: o3.3 Wait for the feedback signal "main contactor"
34: o3.4 Operating state o3.4
35: o3.5 Operating state o3.5
40: o4.0 Wait for voltage at 1U1, 1V1, 1W1
41: o4.1 Wait until fuse monitoring signals OK
42: o4.2 Operating state o4.2
43: o4.3 Operating state o4.3
44: o4.4 Operating state o4.4
45: o4.5 Wait until CCP precharged
50: o5.0 Wait for field current actual value
51: o5.1 Wait for voltage at 3U1, 3W1
52: o5.2 Operating state o5.2
53: o5.3 Operating state o5.3
60: o6.0 Wait until auxiliaries have been switched on
61: o6.1 Wait for small setpoint
62: o6.2 Operating state o6.2
63: o6.3 Operating state o6.3
70: o7.0 Wait for switch-on via terminal 12
71: o7.1 Wait for switch-on (signal source according to p0840)
72: o7.2 Stopping saved
73: o7.3 Wait for parallel master to switch on
74: o7.4 Start of an optimization run
75: o7.5 Wait until SINAMICS DCM are ready for switching on
76: o7.6 Operating state o7.6
77: o7.7 Operating state o7.7
78: o7.8 Operating state o7.8
79: o7.9 Operating state o7.9
80: o8.0 Switching on inhibited
81: o8.1 Simulation mode active
82: o8.2 Operating state o8.2
83: o8.3 Operating state o8.3
90: o9.0 Operating state o9.0
91: o9.1 Quick stop (OFF3) (signal source acc. to p0848) present
92: o9.2 Quick stop (OFF3) (signal source acc. to p0849) present
93: o9.3 Quick stop (OFF3) saved
94: o9.4 SS1 command (Safe Stop 1) present
95: o9.5 Operating state o9.5
96: o9.6 Operating state o9.6
97: o9.7 Operating state o9.7
98: o9.8 Operating state o9.8
99: o9.9 Operating state o9.9
100: o10.0 Operating state o10.0
101: o10.1 Voltage disconnect (OFF2) (signal source acc. to p0844)
102: o10.2 Voltage disconnect (OFF2) (signal source acc. to p0845)
103: o10.3 E stop (safety shutdown) (terminal 105/106)
104: o10.4 STO command (Safe Torque Off) present

105: o10.5 Operating state o10.5
106: o10.6 CUD right
107: o10.7 Operating state o10.7
108: o10.8 Operating state o10.8
109: o10.9 Operating state o10.9
110: o11.0 Fault present
120: o12.0 Initializ. of line voltage sensing for field in progress
121: o12.1 Initializ. of line voltage sensing for armature in progr.
122: o12.2 Operating state o12.2
123: o12.3 Reading out data of the gating modules
124: o12.4 Offset calibr. of curr. act. val. sensing being performed
125: o12.5 Read out data from the power unit
126: o12.6 Initializing the second processor (TMS320)
127: o12.7 Operating state o12.7
128: o12.8 Operating state o12.8
129: o12.9 Operating state o12.9

Dependency: See also: r0046

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

Note: OC: Operating condition
RFG: Ramp-function generator
COMM: Commissioning

r0002 TM150 operating display / TM150 op_display

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	250	-

Description: Operating display for Terminal Module 150 (TM150)

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module deactivated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 TM15DI/DO operating display / TM15D op_display

TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	250	-

Description: Operating display for Terminal Module 15 (TM15).

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module deactivated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

r0002 TM31 operating display / TM31 op_display

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	250	-

Description: Operating display for Terminal Module 31 (TM31).

Value:
0: Module in cyclic operation
40: Module not in cyclic operation
50: Alarm
60: Fault
70: Initialization
120: Module deactivated
200: Wait for booting/partial booting
250: Device signals a topology error

Notice: For several missing enable signals, the corresponding value with the highest number is displayed.

p0003 BOP access level / BOP acc_level

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	4	1

Description: Sets the access level for reading and writing parameters via the Basic Operator Panel (BOP).

Value:
1: Standard
2: Extended
3: Expert
4: Service

Note: A higher set access level also includes the lower one.
Access level 1 (standard):
Parameters for simplest possible operations.
Access level 2 (extended):
Parameters to operate the basic functions of the drive unit.
Access level 3 (experts):
Expert know-how is required for these parameters (e.g. BICO parameterization).
Access level 4 (service):
For these parameters, it is necessary that authorized service personnel enter the appropriate password (p3950).

p0004 BOP display filter / BOP disp_filter

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	0

Description: Sets the display filter for parameters with the Basic Operator Panel (BOP).

Value:
0: All parameters
1: Displays, signals
2: Power unit
3: Motor
4: Encoder/position encoder
5: Technology/units
7: Digital inputs/outputs, commands, sequence control
12: Functions
14: Control
15: Data sets
20: Communication
21: Faults, alarms, monitoring functions
28: Free function blocks
47: Trace and function generator
50: Technology Extensions
90: Topology
98: Command Data Sets (CDS)
99: Drive Data Sets (DDS)

Dependency: See also: p0003

Notice: The display filter via p0004 provides precise filtering and displays the corresponding parameters only when p0009 and p0010 = 0.

Note: The set access level via p0003 is also relevant for the display filter via p0004.

Examples (assumption: p0009 = p0010 = 0):

p0003 = 1, p0004 = 3

--> Only the parameters for the motor with access level 1 are displayed.

p0003 = 2, p0004 = 3

--> Only the parameters for the motor with access levels 1 and 2 are displayed.

p0005[0...1] BOP operating display selection / BOP op_disp sel

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 4 for the Basic Operator Panel (BOP).

Index:
[0] = Parameter number
[1] = Parameter index

Dependency: See also: p0006

Note: Procedure:

1.

The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.

If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.

2.

The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0005[0...1] BOP operating display selection / BOP op_disp sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	[0] 50000 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 4 for the Basic Operator Panel (BOP).

Index: [0] = Parameter number
[1] = Parameter index

Dependency: See also: p0006

Note: Procedure:

1.

The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.

If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.

2.

The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0005[0...1] BOP operating display selection / BOP op_disp sel

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	[0] 2 [1] 0

Description: Sets the parameter number and parameter index for display for p0006 = 2, 4 for the Basic Operator Panel (BOP).

Examples for the SERVO drive object:

p0005[0] = 21, p0005[1] = 0: Actual speed smoothed (r0021)

p0005[0] = 25, p0005[1] = 0: Output voltage smoothed (r0025)

Index: [0] = Parameter number
[1] = Parameter index

Dependency: See also: p0006

Note: Procedure:

1.

The parameter number to be displayed should be set in index 0. Only the monitoring parameters (read-only parameters) can be set that actually exist for the actual drive object.

If the set parameter number is not indexed, or if there is an index in index 1 that lies outside the valid range of the set parameter, then index 1 is automatically set to 0.

2.

The index that belongs to the parameter set in index 0 should be set in index 1. The permissible changes in index 1 always depend on the parameter number set in index 0.

p0006 BOP operating display mode / BOP op_ disp mode

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
4	4	4

Description: Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".

Value: 4: p0005

Dependency: See also: p0005

Note: Mode 4 is available for all drive objects.

p0006 BOP operating display mode / BOP op_ disp mode

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
4	4	4

Description: Sets the mode of the operating display for the Basic Operator Panel (BOP) in the operating states "ready for operation" and "operation".

Value: 4: p0005

Dependency: See also: p0005

Note: Mode 0 ... 3 can only be selected if also r0020, r0021 are available on the drive object.
Mode 4 is available for all drive objects.

p0007 BOP background lighting / BOP lighting

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [s]	2000 [s]	0 [s]

Description: Sets the delay time until the background lighting of the Basic Operator Panel (BOP) is switched off.
If no keys are actuated, then the background lighting automatically switches itself off after this time has expired.

Note: p0007 = 0: Background lighting is always switched on (factory setting).

p0008 BOP drive object after booting / BOP DO after boot

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	65535	2

Description: Sets the required drive object that is active at the Basic Operator Panel (BOP) after booting.

Note: The value from p0008 initializes the display on the Basic Operator Panel (BOP) at the top left after booting.
The drive object Control Unit is selected using the value 1.

p0009 Device commissioning parameter filter / Dev comm par_filt

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	55	1

Description: Sets the device and basic drive commissioning.

By appropriately setting this parameter, those parameters are filtered that can be written into in the various commissioning steps.

Value:

0: Ready
1: Device configuration
2: Defining the drive type/function module
3: Drive base configuration
4: Data set base configuration
29: Device download
30: Parameter reset
50: Configure Technology Extension
55: Install Technology Extension

Note: The drives can only be switched on outside the device commissioning (the drive enabled). In this case, p0009 must be 0 (Ready) and the individual drive objects must have already gone into operation (p0010).

p0009 = 0: ready

When changing into this state, the device configuration is checked and commissioning completed (a new start can be initiated).

p0009 = 1: Device configuration

At the first commissioning of the device, after booting, the device is in the "device configuration" state. To start the internal automatic first commissioning of the drive unit, p0009 should be set to 0 (Ready) after the ID for the actual topology (r0098) was transferred into the ID for the target topology (p0099). To do this, it is sufficient to set a single index value of p0099[x] the same as r0098[x]. Before the device has been completely commissioned, no other parameter can be changed. After the first commissioning was carried out, in this state, when required, other basic device configuration parameters can be adapted (e.g. the basic sampling time in p0110).

p0009 = 2: Defines the drive type / function module

In this state, the drive object types and/or the function modules can be changed or selected for the individual drive objects. To do this, the drive object type can be set using p0107[0...15] and the function can be set using p0108[0...15] (refer to p0101[0...15]).

p0009 = 3: Drive basic configuration

In this state, after the device has been commissioned for the first time, basic changes can be made for the individual drive objects (e.g. sampling times in p0111, p0112, p0115 and the number of data sets in p0120, p0130, p0140, p0170, p0180).

p0009 = 4: Data set basic configuration

In this state, after the device has been commissioned for the first time, for the individual drive objects changes can be made regarding the assignment of the components (p0121, p0131, p0141, p0151, p0161) to the individual data sets and the assignment of the power unit, motor and encoder to the drive data sets (p0185, ...).

p0009 = 29: Device download

In the case of a download via the commissioning tool, the device is automatically brought into this state. After the download has been completed, p0009 is automatically set to 0 (ready). It is not possible to manually set p0009 to this value.

p0009 = 30: Parameter reset

In order to bring the complete unit into the "first commissioning" state or to load the parameters saved using p0977, to start, p0009 must be set to this value. p0976 can then be changed to the required value.

p0009 = 50: configure Technology Extension

After the device has been commissioned for the first time, in this state, Technology Extensions can be activated/deactivated for the individual drive objects (p4956).

p0009 = 55: install Technology Extension

Technology Extensions can be installed/uninstalled in this state.

p0010 Drive commissioning parameter filter / Drv comm. par_filt

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	30	1

Description: Sets the parameter filter to commission a drive.
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.

Value:
0: Ready
1: Quick commissioning
4: Encoder commissioning
15: Data sets
29: Only Siemens internal
30: Reserved

Note: The drive can only be switched on outside the drive commissioning (drive enable). To realize this, this parameter must be set to 0.
By setting p3900 to a value other than 0, the quick commissioning is completed, and this parameter is automatically reset to 0.

p0010 TM150 commissioning parameter filter / TM150 com par_filt

TM150

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	30	0

Description: Sets the parameter filter for commissioning a Terminal Module 150 (TM150).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens internal
30: Parameter reset

Dependency: See also: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM15DI/DO commissioning the parameterizing filter / TM15D com par_filt

TM15DI_DO

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	30	0

Description: Sets the parameter filter for commissioning a Terminal Module 15 (TM15).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens internal
30: Parameter reset

Dependency: See also: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0010 TM31 commissioning parameter filter / TM31 comm par_filt

TM31	**Can be changed:** C2(1), T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
	P group: All groups	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	30	0

Description: Sets the parameter filter for commissioning a Terminal Module 31 (TM31).
Setting this parameter filters out the parameters that can be written into in the various commissioning steps.
For the BOP, this setting also causes the read access operations to be filtered.

Value:
0: Ready
29: Only Siemens internal
30: Parameter reset

Dependency: See also: p0970

Note: Only the following values are possible: p0010 = 0, 30
Procedure for "Reset parameter": Set p0010 to 30 and p0970 to 1.

p0011 BOP password entry (p0013) / BOP passw ent p13

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: Functions	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	65535	0

Description: Sets the password for the Basic Operator Panel (BOP).

Dependency: See also: p0012, p0013

p0012 BOP password acknowledgment (p0013) / BOP passw ackn p13

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: Functions	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	65535	0

Description: Acknowledges the password for the Basic Operator Panel (BOP).

Dependency: See also: p0011, p0013

p0013[0...49] BOP user-defined list / BOP list

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: Functions	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	65535	0

Description: Sets the required parameters to read and write via the Basic Operator Panel (BOP).
Activation:
1. p0003 = 3 (expert).
2. p0013[0...49] = requested parameter number.
3. If required, enter p0011 = password in order to prevent non-authorized deactivation.
4. p0016 = 1 --> activates the selected user-defined list.
Deactivation/change:
1. p0003 = 3 (expert).
2. If required, p0012 = p0011, in order to be authorized to change or deactivate the list.
3. If required p0013[0...49] = required parameter number.
4. p0016 = 1 --> activates the modified user-defined list.
5. p0003 = 0 --> deactivates the user-defined list.

Dependency: See also: p0009, p0011, p0012, p0976

Note: The following parameters can be read and written on the Control Unit drive object:
- p0003 (access stage)
- p0009 (device commissioning, parameter filter)
- p0012 (BOP password acknowledgment (p0013))

The following applies for the user-defined list:
- password protection is only available on the drive object Control Unit and is valid for all of the drive objects.
- p0013 cannot be included in the user-defined list for all drive objects.
- p0003, p0009, p0011, p0012, p0976 cannot, for the drive object Control Unit, be included in the user-defined list.
- the user-defined list can be cleared and deactivated "restore factory setting".

A value of 0 means: Entry is empty.

p0015 Macro drive unit / Macro drv unit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R	**Can be changed:** C1	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	999999	1

Description: Runs the corresponding macro files.
The selected macro file must be available on the memory card/device memory.
Example:
p0015 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.
When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning tool.
Macros available as standard are described in the technical documentation of the particular product.

p0015 Macro drive object / Macro DO

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: C2(1)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999999	0

Description: Runs the corresponding macro files.
The selected macro file must be available on the memory card/device memory.
Example:
p0015 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0700, p1000, p1500, r8570

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.
When executing a specific macro, the corresponding programmed settings are made and become active.
No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

Note: The macros in the specified directory are displayed in r8570. r8570 is not in the expert list of the commissioning tool.
Macros available as standard are described in the technical documentation of the particular product.

p0016 Activate BOP user-defined list / BOP user list act

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting for activating/deactivating the user-defined list for the Basic Operator Panel (BOP).
If p0016 = 1, then it is only possible to access parameters in the parameter list (p0013).

Value: 0: BOP user-defined list deactivated
1: BOP user-defined list activated

Dependency: See also: p0011, p0012, p0013

Note: The user-defined list can only be deactivated with p0011 = p0012

r0018 Control Unit basic firmware version / CU Basic FW Vers

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4294967295	-

Description: Displays the basic firmware version of the Control Unit.
The version of existing firmware on the device memory is displayed in r7844.

Dependency: See also: r0148, r0158, r0197, r0198, r7844

Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0019.0...14 CO/BO: Control word BOP / STW BOP

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9912
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the control word for the Basic Operator Panel (BOP).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	ON / OFF (OFF1)	ON	OFF (OFF1)	-
01	No coast-down / coast-down (OFF2)	No coast down	Coast down (OFF2)	-
02	No Quick Stop / Quick Stop (OFF3)	No Quick Stop	Quick Stop (OFF3)	-
07	Acknowledge fault (0 -> 1)	Yes	No	-
13	Motorized potentiometer raise	Yes	No	-
14	Motorized potentiometer lower	Yes	No	-

r0020 Speed setpoint smoothed / n_set smth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: Displays, signals	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual smoothed speed setpoint at the speed controller input.

Dependency: See also: r0060

Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0021 CO: Actual speed smoothed / n_act smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: Displays, signals	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the smoothed actual value of the motor speed.

Dependency: See also: r0022, p0045, r0063

Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The speed actual value is available smoothed (r0021, r0022, r0063[1] with p0045) and unsmoothed (r0063[0]).

r0022 Speed actual value rpm smoothed / n_act rpm smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the smoothed actual value of the motor speed.
r0022 is identical to r0021, however, it always has units of rpm and contrary to r0021 cannot be changed over.

Dependency: See also: r0021, p0045, r0063

Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The speed actual value is available smoothed (r0021, r0022, r0063[1] with p0045) and unsmoothed (r0063[0]).

r0027 CO: Absolute current actual value smoothed / I_act abs val smth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [A]	- [A]	- [A]

Description: Displays the smoothed absolute current actual value.
Dependency: See also: p0045, r0068
Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.
Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The absolute value of the current actual value is available smoothed (r0027, r0068[1] with p0045) and unsmoothed (r0068[0]).

r0031 Actual torque smoothed / M_act smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851
P group: Displays, signals	**Unit group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2003	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Nm]	- [Nm]	- [Nm]

Description: Displays the smoothed torque actual value.
Dependency: See also: p0045, r0080
Note: Smoothing time constant = 100 ms
The signal is not suitable as a process quantity and may only be used as a display quantity.
The torque actual value is available smoothed (r0031, r0080[1] with p0045) and unsmoothed (r0080[0]).

r0032 CO: Active power actual value smoothed / P_actv_act smth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2450
P group: Displays, signals	**Unit group:** 14_10	**Unit selection:** p0505
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [kW]	- [kW]	- [kW]

Description: Display and connector output for the smoothed actual value of the active power.
Notice: This smoothed signal is not suitable for diagnostics or evaluation of dynamic operations. In this case, the unsmoothed value should be used.
Note: Smoothing time constant = 100 ms
The active power is available smoothed (r0032, r0082[1] with p0045) and unsmoothed (r0082[0]).

r0035 CO: Motor temperature / Mot temp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7008, 8017
P group: Displays, signals	**Unit group:** 21_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [°C]	- [°C]	- [°C]

Description: Display and connector output for the actual temperature in the motor.

Note: For r0035 not equal to -200.0 °C, the following applies:
- this temperature display is valid.
- a KTY/PT1000 temperature sensor is connected.

For r0035 equal to -200.0 °C, the following applies:
- this temperature display is not valid (temperature sensor error).
- a PTC sensor or bimetallic NC contact is connected.

p0045 Display values smoothing time constant / Disp_val T_smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810, 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [ms]	10000.00 [ms]	1.00 [ms]

Description: Sets the smoothing time constant for the following display values:
r0063[1], r0068[1], r0080[1], r0082[1]

r0046.0...31 CO/BO: Missing enable signal / Missing enable sig

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 2655
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for missing enable signals that are preventing the closed-loop drive control from being commissioned.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	OFF1 enable missing	Yes	No	-
01	OFF2 enable missing	Yes	No	-
02	OFF3 enable missing	Yes	No	-
03	Operation enable missing	Yes	No	-
10	Ramp-function generator enable missing	Yes	No	-
11	Ramp-function generator start missing	Yes	No	-
12	Setpoint enable missing	Yes	No	-
16	OFF1 enable internal missing	Yes	No	-
17	OFF2 enable internal missing	Yes	No	-
18	OFF3 enable internal missing	Yes	No	-
19	Pulse enable internal missing	Yes	No	-
26	Drive inactive or not operational	Yes	No	-
28	Brake open missing	Yes	No	-
30	Speed controller inhibited	Yes	No	-
31	Jog setpoint active	Yes	No	-

Dependency: See also: r0002

Note: The value r0046 = 0 indicates that all enable signals are present.
Bit 00 = 1 (enable signal missing), if:
- the signal source in p0840 is a 0 signal.
- there is a "switching on inhibited".
Bit 01 = 1 (enable signal missing), if:
- the signal source in p0844 or p0845 is a 0 signal.
Bit 03 = 1 (enable signal missing), if:
- the signal source in p0852 is a 0 signal.
Bit 16 = 1 (enable signal missing), if:
- there is an OFF1 fault response. The system is only enabled if the fault is removed and was acknowledged and the "switching on inhibited" withdrawn with OFF1 = 0.
Bit 17 = 1 (enable signal missing), if:
- OFF2 fault response is active or the OFF1 signal source (p0840) is changed.

r0049[0...3] Encoder data set effective / EDS effective

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8565
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the effective Encoder Data Sets (EDS).

Index: [0] = Reserved
[1] = Encoder 1 Encoder Data Set EDS effective
[2] = Encoder 2 Encoder Data Set EDS effective
[3] = -

Dependency: See also: p0187, p0188

Note: Value 99 means the following: No encoder assigned (not configured).

r0050.0 CO/BO: Command Data Set CDS effective / CDS effective

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8560
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the effective Command Data Set (CDS).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	CDS effective bit 0	ON	OFF	-

Dependency: See also: p0810, r0836

Note: The Command Data Set selected using a binector input (e.g. p0810) is displayed using r0836.

r0051.0...1 CO/BO: Drive Data Set DDS effective / DDS effective

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8565
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the effective Drive Data Set (DDS).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DDS effective bit 0	ON	OFF	-
01	DDS effective bit 1	ON	OFF	-

Dependency: See also: p0820, p0821, r0837

r0056.13 CO/BO: Status word, closed-loop control / ZSW cl-loop ctrl

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2526
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the status word of the closed-loop control.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
13	Current/torque limiting	Active	Inactive	6060

r0060 CO: Speed setpoint before the setpoint filter / n_set before filt.

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: Displays, signals	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the actual speed setpoint at the speed controller input.

Dependency: See also: r0020

Note: The speed setpoint is available smoothed (r0020) and unsmoothed (r0060).

r0061[0...1] CO: Actual speed unsmoothed / n_act unsmoothed

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 1580, 4710, 6810
P group: Displays, signals	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the unsmoothed actual speed values sensed by the encoders.

Index: [0] = Encoder 1
[1] = Encoder 2

r0063[0...1] CO: Speed actual value / n_act

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: Displays, signals	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the speed actual value.

Index: [0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: See also: r0021, r0022, p0045, r0061

Note: The speed actual value is available smoothed (r0021 with 100 ms, r0022 with 100 ms, r0063 with p0045) and unsmoothed (r0063[0], r0061).

r0068[0...1] CO: Absolute current actual value / I_act abs val

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [A]	- [A]	- [A]

Description: Displays actual absolute current.

Index: [0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: See also: r0027, p0045

Note: The absolute value of the current actual value is available smoothed (r0027 with 100 ms, r0068[1] with p0045) and unsmoothed (r0068[0]).

r0080[0...1] CO: Torque actual value / M_act

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: Displays, signals	**Unit group:** 7_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2003	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Nm]	- [Nm]	- [Nm]

Description: Display and connector output for actual torque value.

Index: [0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: See also: r0031, p0045

Note: The value is available smoothed (r0031 with 100 ms, r0080[1] with p0045) and unsmoothed (r0080[0]).

In order that the torque actual value is correctly calculated, a certain value is required as reference torque (p2003). The torque which the motor produces in the following case must be entered in p2003:

- the rated device armature current flows in the armature circuit (r50072[1]).

and

- the rated field current flows in the field circuit (p50102).

r0082[0...1] CO: Active power actual value / P_act

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** 14_5	**Unit selection:** p0505
Not for motor type: -	**Scaling:** r2004	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [kW]	- [kW]	- [kW]

Description: Displays the instantaneous active power.

Index: [0] = Unsmoothed
[1] = Smoothed with p0045

Dependency: See also: r0032

Note: The active power is available smoothed (r0032 with 100 ms, r0082[1] with p0045) and unsmoothed (r0082[0]).

p0097 Select drive object type / Select DO type

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	15	0

Description: Executes an automatic device configuration.
In so doing, p0099, p0107 and p0108 are appropriately set.

Value:
0: No selection
15: Drive object type DC_CTRL

Dependency: See also: r0098, p0099
See also: A01330

Note: For p0097 = 0, p0099 is automatically set to the factory setting.

r0098[0...5] Actual device topology / Device_act topo

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the automatically detected actual device topology in coded form.

Index:
[0] = DRIVE-CLiQ socket X100
[1] = DRIVE-CLiQ socket X101
[2...5] = Reserved

Dependency: See also: p0097, p0099

Note: Topology coding: abcd efgh hex
a = 0
b = 0
c = 0
d = no. of motor encoders
e = no. of additional encoders
f = number of Terminal Modules
g = number of Terminal Boards
h = reserved
if the value 0 is displayed in all indices, then components are not detected via DRIVE-CLiQ.
If a value F hex occurs at a position of the coding (abcd efgh hex), then an overflow has occurred.

p0099[0...5] Device target topology / Device_target topo

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the device target topology in coded form (refer to r0098). The setting is made during commissioning.
Deactivated or non-available components are also counted

Index:
[0] = DRIVE-CLiQ socket X100
[1] = DRIVE-CLiQ socket X101
[2...5] = Reserved

Dependency: The parameter can only be written into for p0097 = 0.
To perform an automatic device configuration run, an index of the device target topology must be set to the value of the device actual topology in r0098 for acknowledgment. An index of the device actual topology with a value other than 0 must be selected.
See also: p0097, r0098
See also: A01330

Note: The parameter can only be set to the values 0, the value of the actual device topology, the value of the actual device target topology and FFFFFFFF hex.
If the value 0 is displayed in all of the indices, then the system has still not been commissioned.
The value FFFFFFFF hex indicates that the topology was not generated by the automatic device configuration, but was commissioned using the commissioning tool (e.g. using parameter download).

p0101[0...n] Drive object numbers / DO numbers

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	62	0

Description: The parameter contains the object number via which every drive object can be addressed.
The number of an existing drive object is entered into each index.
Value = 0: No drive object is defined.

Note: The numbers are automatically allocated.
For the commissioning tool, this object number cannot be entered using the expert list, but is automatically assigned when inserting an object.

r0102[0...1] Number of drive objects / DO count

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of existing or existing and prepared drive objects.

Index: [0] = Existing drive objects
[1] = Existing and prepared drive objects

Dependency: See also: p0101

Note: The numbers of the drive objects are in p0101.
For index [0]:
Displays the number of drive objects that have already been set up.
For index [1]:
Displays the number of drive objects that have already been set up and, in addition, the drive objects that still have to be set up.

p0103[0...n] Application-specific view / Appl_spec view

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999	0

Description: The application-specific view of an existing drive object is entered into each index.
The parameter cannot be changed.

Dependency: See also: p0107

Note: The application-specific views are defined in files on the memory card with the following structure:
PDxxxyyy.ACX
xxx: Application-specific view (p0103)
yyy: Type of drive object (p0107)
Example:
PD052017.ACX
--> "017" stands for the drive object of type DC_CTRL
--> "052" is the number of the view for this drive object

r0103 Application-specific view / Appl_spec view

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	-

Description: Displays the application-specific view of the individual drive object.
Dependency: See also: r0107

p0105 Activate/deactivate drive object / DO act/deact

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Setting to activate/deactivate a drive object.
Value:
0: Deactivate drive object
1: Activate drive object
Dependency: See also: r0106
Notice: The following applies when activating:
If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

p0105 Activate/deactivate drive object / DO act/deact

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Setting to activate/deactivate a drive object.
Value:
0: Deactivate drive object
1: Activate drive object
2: Drive object deactivate and not present
Dependency: See also: r0106
See also: A01314
Notice: The following applies when activating:
If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

p0105 Activate/deactivate drive object / DO act/deact

TM15DI_DO, TM150

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Setting to activate/deactivate a drive object.

Value:
0: Deactivate drive object
1: Activate drive object
2: Drive object deactivate and not present

Dependency: When activating drive objects with the safety functions enabled, the following applies:
After reactivating, a warm restart (p0009 = 30, p0976 = 2, 3) or POWER ON should be carried out.
See also: r0106
See also: A01314

Notice: The following applies when activating:
If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: For value = 0, 2:
When a drive object is deactivated it no longer outputs any errors.
If value = 0:
All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.
If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.
If value = 1:
All components of the drive object must be available for error-free operation.
If value = 2:
Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.
For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

p0105 Activate/deactivate drive object / DO act/deact

TM31

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Setting to activate/deactivate a drive object.

Value:
0: Deactivate drive object
1: Activate drive object
2: Drive object deactivate and not present

Dependency: See also: r0106
See also: A01314

Alarm: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while this parameter is being changed over.

Notice: The following applies when activating:
If components are inserted for the first time and the appropriate drive object is activated, then the drive system is automatically booted. To do this, the pulses of all of the drive objects must be suppressed.

Note: For value = 0, 2:
When a drive object is deactivated it no longer outputs any errors.
If value = 0:
All components of the drive object were completely commissioned and are deactivated using this value. They can be removed from the DRIVE-CLiQ without any error.
If a component has been deactivated, only the component with the correct serial number may be inserted, or none at all.
If value = 1:
All components of the drive object must be available for error-free operation.
If value = 2:
Components of a drive object in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the components are marked to be bypassed in the DRIVE-CLiQ line.
For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0106 Drive object active/inactive / DO act/inact

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	-

Description: Displays the "active/inactive" state of a drive object.

Value:
0: Drive object inactive
1: Drive object active

Dependency: See also: p0105

p0107[0...n] Drive object type / DO type

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	208	0

Description: The type of an existing drive object is entered into each index.

Value:
0: -
6: SINAMICS DC
17: DC_CTRL
200: TM31 (Terminal Module)
204: TM15 (Terminal Module for SINAMICS)
208: TM150 (Terminal Module)

Dependency: See also: p0103

Caution: If you change this parameter and exit the device commissioning mode, then the complete software will be set up again and all of the previous drive parameter settings are deleted.

Note: The number (p0101) and the associated drive object type are in the same index.

r0107 Drive object type / DO type

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
17	17	-

Description: Displays the type of each drive object.

Value:
17: DC_CTRL

Dependency: See also: r0103

r0107 Drive object type / DO type

TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
208	208	-

Description: Displays the type of each drive object.
Value: 208: TM150 (Terminal Module)
Dependency: See also: p0103

r0107 Drive object type / DO type

TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
204	204	-

Description: Displays the type of each drive object.
Value: 204: TM15 (Terminal Module for SINAMICS)
Dependency: See also: p0103

r0107 Drive object type / DO type

TM31

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
200	200	-

Description: Displays the type of each drive object.
Value: 200: TM31 (Terminal Module)
Dependency: See also: p0103

p0108[0...n] Drive objects function module / DO fct_mod

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (also refer to p0101, p0107).
The following bits are available for the Control Unit (Index 0):
Bit 18: Free function blocks
Bit 31: PROFINET
For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0108 of the drive object.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
	16	Bit 16	ON	OFF	-
	17	Bit 17	ON	OFF	-
	18	Bit 18	ON	OFF	-
	19	Bit 19	ON	OFF	-
	20	Bit 20	ON	OFF	-
	21	Bit 21	ON	OFF	-
	22	Bit 22	ON	OFF	-
	23	Bit 23	ON	OFF	-
	24	Bit 24	ON	OFF	-
	25	Bit 25	ON	OFF	-
	26	Bit 26	ON	OFF	-
	27	Bit 27	ON	OFF	-
	28	Bit 28	ON	OFF	-
	29	Bit 29	ON	OFF	-
	30	Bit 30	ON	OFF	-
	31	Bit 31	ON	OFF	-

Dependency: Active messages can prevent or influence activating a function module.
See also: p0171, p0172, p0173
See also: A07089, F13010

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive objects function module / DO fct_mod

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	16	Technology controller / Tech_ctrl	Activated	Not activated	-
	18	Free function blocks / FBLOCKS	Activated	Not activated	-
	31	PROFINET CBE20 / PN CBE20	Activated	Not activated	-

Dependency: See also: r0171, r0172, r0173

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0108 Drive objects function module / DO fct_mod

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the activated function module for the particular drive object.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
18	Free function blocks / FBLOCKS	Activated	Not activated	-
31	PROFINET CBE20 / PN CBE20	Activated	Not activated	-

Dependency: See also: r0171, r0172, r0173

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0110[0...2] Basic sampling times / t_basis

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the basic sampling times.
The sampling times are set using p0112 and p0115. The values for the basic sampling times are determined as a result of these settings.

Index: [0] = Basic sampling time 0
[1] = Basic sampling time 1
[2] = Basic sampling time 2

r0111 Basic sampling time selection / t_basis sel

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the selected basic sampling time for this drive object.

Dependency: See also: r0110

p0112 Sampling times pre-setting p0115 / t_sample for p0115

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	3

Description: Pre-assignment of the sampling times in p0115.
The clock cycles for the current controller / speed controller / - / setpoint channel / - / - / technology controller are defined as follows:
p0112 = 3: 1000 / 2000 / - / 4000 / - / - / 4000 µs

Value: 0: Expert
3: Standard

Note: For p0112 = 0 (expert) the individual sampling times in p0115 can be adjusted.

p0115[0] Sampling time for supplementary functions / t_samp suppl_fct

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [µs]	16000.00 [µs]	4000.00 [µs]

Description: Sets the basic sampling time for supplementary functions (DCC, free function blocks) on this object.
Only setting values that are an integer multiple of 125 µs are permissible.

Index: [0] = Basic sampling time

p0115[0...6] Sampling times for internal control loops / t_sample int ctrl

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1000.00 [µs]	16000.00 [µs]	[0] 1000.00 [µs] [1] 2000.00 [µs] [2] 8000.00 [µs] [3] 4000.00 [µs] [4] 8000.00 [µs] [5] 8000.00 [µs] [6] 4000.00 [µs]

Description: Sets the sampling times for the control loops.
The default setting is made using p0112 and can only be individually changed for p0112 = 0 (expert).

Index: [0] = Current controller
[1] = Speed controller
[2] = -
[3] = Setpoint channel
[4] = -
[5] = -
[6] = Technology controller

Dependency: The sampling times can only be separately set if p0112 is 0 (expert). If a sampling time is modified in the expert mode, then all of the sampling times with higher indices are automatically changed in the same ratio as the sampling time itself was changed. Slower time slices are only taken if the calculated sampling time is also permitted. Upper limit is 8 ms.
Higher-level controls must be calculated in integral ratios to lower-level controls (e.g. p0115[1] = N * p0115[0]; where N is an integer number). The sampling time of the speed controller (p0115[1]) can have as a maximum a value of 800% of the current controller sampling time (p0115[0]).
See also: r0110, r0111, p0112

Note: For function modules that can be activated (e.g. technology controller), the parameters values are pre-assigned.
The current controller sampling time (p0115[0]) is permanently set to 1 ms and cannot be changed.

p0115[0] Sampling time for supplementary functions / t_samp suppl_fct

TM31, TM15DI_DO, TM150

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [µs]	16000.00 [µs]	4000.00 [µs]

Description: Sets the sampling times for supplementary functions (DCC, free function blocks) on this object.
Only setting values that are an integer multiple of 125 µs are permissible.

Index: [0] = Basic sampling time

Note: This parameter only applies to set the sampling times of possible supplementary functions.
The sampling times for inputs/outputs must be set in p4099.

r0116[0...1] Drive object clock cycle recommended / DO_clock recom

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the recommended sampling time for the drive objects.
r00116[0] = recommended sampling time:
Recommended value which would then make the complete system operational.
r00116[1] = recommended sampling time:
Recommended value, which after changing other clock cycles on the DRIVE-CLiQ line, would result in an operational system.

Index: [0] = Change only for the actual drive object
[1] = Changing all objects on the DRIVE-CLiQ line

Dependency: See also: p0115

p0121[0...n] Power unit component number / PU comp_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** PDS	**Function diagram:** -
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: The power unit data set is assigned to a power unit using this parameter.
This unique component number is assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to a power unit.

Dependency: See also: r0107

p0124[0...n] Main component detection using LED / M_comp detect LED

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Converter	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Detection of the main components of the drive object selected via the index.

p0125[0...n] Activate/deactivate power unit components / PU_comp act/deact

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** PDS	**Function diagram:** -
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Setting to activate/deactivate a power unit component.

Value:
0: Deactivate component
1: Activate component
2: Component deactivate and not present

Recommendation: After inserting a component, before activating, first wait for Alarm A01317.

Dependency: See also: A01314, A01317

Caution: For a parallel connection, the following applies:

When deactivating individual power units using this parameter, it is not permissible that the power units of the parallel connection involved are connected. Infeed units should be disconnected from the line supply (for example, using a contactor). Motor feeder cables should be disconnected. In addition, defective power units should be disconnected from the DC link.

Notice: It is not permissible to deactivate drive objects with safety functions enabled.

Note: The activation of a component can be rejected if the component was inserted for the first time. In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.

For units connected in parallel, when one of the power units is deactivated, then the enable in p7001 is withdrawn.

For value = 0, 2:

When a component is deactivated it no longer outputs any errors.

If value = 0:

The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.

If value = 1:

The component must be available for error-free operation.

If value = 2:

A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start. This means that the component is marked to be bypassed in the DRIVE-CLiQ line.

For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

p0140 Number of Encoder Data Sets (EDS) / EDS count

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3), C2(15)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	16	1

Description: Sets the number of Encoder Data Sets (EDS).

Note: When parameterizing the drive with "no encoder" there must be at least one encoder data set (p0140 >= 1).

p0141[0...n] Encoder interface (Sensor Module) component number / Enc_interf comp_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Function diagram:** 4704, 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: This parameter is used to assign the encoder data set to an encoder evaluation (e.g. SMC).

This unique component number is assigned when parameterizing the topology.

Only a component number can be entered that corresponds to an encoder evaluation.

Note: If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.

For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

SMC: Sensor Module Cabinet

p0142[0...n] Encoder component number / Encoder comp_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: This parameter is used to assign the encoder data set to an encoder.
This assignment is made using the unique component number that was assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to an encoder.

Note: If the encoder evaluation and encoder are integrated (motor with DRIVE-CLiQ), then their component numbers are identical.
For an SMC, different component numbers are assigned for the SMC (p0141) and the (actual) encoder (p0142).

p0144[0...n] Sensor Module detection via LED / SM detection LED

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Detects the Sensor Module assigned to this drive and data set.

Note: While p0144 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Sensor Module.

p0145[0...n] Activate/deactivate encoder interface / Enc_intf act/deact

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Setting to activate/deactivate an encoder interface (Sensor Module).

Value:
0: Deactivate component
1: Activate component
2: Component deactivate and not present

Recommendation: After inserting a component, before activating, first wait for Alarm A01317.

Dependency: See also: r0146
See also: A01314, A01317

Note: The deactivation of an encoder interface corresponds to the"parking encoder" function and has the same effect.
The activation of a component can be rejected if the component was inserted for the first time.
In this case, it is only possible to activate the component when the pulses for all of the drive objects are inhibited.
With the encoder interface for encoder 1 (motor encoder), the relevant drive object for writing the parameter must be in the "Ready for operation" state.
With the encoder interface for encoders 2 and 3, the parameter can also be written during operation.
For value = 0, 2:
When a component is deactivated it no longer outputs any errors.
If value = 0:
The component was completely commissioned and is deactivated using this value. It can be removed from the DRIVE-CLiQ without any error.
If value = 1:
The component must be available for error-free operation.
If value = 2:
A component in a project generated offline and set to this value must never be inserted in the actual topology from the very start.
For components that comprise several individual components (e.g. Double Motor Modules), it is not permissible to set just one subset to this value.

r0146[0...n] Encoder interface active/inactive / Enc_intf act/inact

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	-

Description: Displays the "active" or "inactive" state of an encoder interface (Sensor Module).
Value: 0: Component inactive
1: Component active
Dependency: See also: p0105, p0145, p0480

r0147[0...n] Sensor Module EEPROM data version / SM EEPROM version

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the version of the EEPROM data of the Sensor Module.
Dependency: See also: r0157
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0148[0...n] Sensor Module firmware version / SM FW version

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the firmware version of the Sensor Module.
Dependency: See also: r0018, r0158, r0197, r0198
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0151 Terminal Module component number / TM comp_no

TM31, TM15DI_DO, TM150

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: Sets the component number for the Terminal Module.
This unique component number is assigned when parameterizing the topology.
Only component numbers can be entered into this parameter that correspond to a Terminal Module.

p0154 Terminal Module detection via LED / TM detection LED

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Detects the Terminal Module assigned to this drive and data set.
Note: While p0154 = 1, the READY LED flashes green/orange or red/orange with 2 Hz at the appropriate Terminal Module.

r0157 Terminal Module EEPROM data version / TM EEPROM version

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the version of the EEPROM data of the Terminal Module.
Dependency: See also: r0147
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0158 Terminal Module firmware version / TM FW version

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the firmware version of the Terminal Module.
Dependency: See also: r0018, r0148, r0197, r0198
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0170 Number of Command Data Sets (CDS) / CDS count

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
2	2	2

Description: Sets the number of Command Data Sets (CDS).

Note: It is possible to toggle between command parameters (BICO parameters) using this data set changeover.

p0171[0...n] Drive objects function module 1 / DO fct_mod 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (see p0101, p0107).

The following bits are available in p0171 for the Control Unit (Index 0):

- still none

For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0171 of the drive object.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Dependency: Active messages can prevent or influence activating a function module.
See also: p0108, p0172, p0173
See also: A07089, F13010
Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0171 Drive objects function module 1 / DO fct_mod 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the activated function module for the particular drive object.
Dependency: See also: r0108, r0172, r0173
Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0172[0...n] Drive objects function module 2 / DO fct_mod 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (see p0101, p0107).
The following bits are available in p0172 for the Control Unit (Index 0):
- still none
For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0172 of the drive object.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-
19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-

22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Dependency: Active messages can prevent or influence activating a function module.
See also: p0108, p0171, p0173
See also: A07089, F13010

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0172 Drive objects function module 2 / DO fct_mod 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the activated function module for the particular drive object.

Dependency: See also: r0108, r0171, r0173

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0173[0...n] Drive objects function module 3 / DO fct_mod 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(2)	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: The function module of an existing drive object is entered into each index (see p0101, p0107).
The following bits are available in p0173 for the Control Unit (Index 0):
- still none
For all other drive objects (Index > 0), the significance of the bits should be taken from the display parameters r0173 of the drive object.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-
16	Bit 16	ON	OFF	-
17	Bit 17	ON	OFF	-
18	Bit 18	ON	OFF	-

19	Bit 19	ON	OFF	-
20	Bit 20	ON	OFF	-
21	Bit 21	ON	OFF	-
22	Bit 22	ON	OFF	-
23	Bit 23	ON	OFF	-
24	Bit 24	ON	OFF	-
25	Bit 25	ON	OFF	-
26	Bit 26	ON	OFF	-
27	Bit 27	ON	OFF	-
28	Bit 28	ON	OFF	-
29	Bit 29	ON	OFF	-
30	Bit 30	ON	OFF	-
31	Bit 31	ON	OFF	-

Dependency: Active messages can prevent or influence activating a function module.
See also: p0108, p0171, p0172
See also: A07089, F13010

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

r0173 Drive objects function module 3 / DO fct_mod 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the activated function module for the particular drive object.

Dependency: See also: r0108, r0171, r0172

Note: A "function module" is a functional expansion of a drive object that can be activated when commissioning.

p0180 Number of Drive Data Sets (DDS) / DDS count

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3), C2(15)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8565
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
4	4	4

Description: Sets the number of Drive Data Sets (DDS).

p0187[0...n] Encoder 1 encoder data set number / Enc 1 EDS number

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Function diagram:** 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 1.
The value corresponds to the number of the assigned encoder data set.
Example:
Encoder 1 in drive data set 2 should be assigned encoder data set 0.
--> p0187[2] = 0

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

p0188[0...n] Encoder 2 encoder data set number / Enc 2 EDS number

DC_CTRL, DC_CTRL_R

Can be changed: C1(4), C2(15)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** DDS, p0180	**Function diagram:** 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	99

Description: Assign a drive data set (= index) the corresponding encoder data set (EDS) for encoder 2.
The value corresponds to the number of the assigned encoder data set.
Example:
Encoder 2 in drive data set 2 should be assigned to encoder data set 1.
--> p0188[2] = 1

Note: A value of 99 means that no encoder has been assigned to this drive data set (not configured).

r0196[0...255] Topology component status / Top comp stat

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status of the components.
r0196[0]: group status of all components
r0196[1]: Status of component with component number 1
...
r0196[255]: Status of component with component number 255

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Component status bit 0	High	Low	-
01	Component status bit 1	High	Low	-
02	Component status bit 2	High	Low	-
03	Component status bit 3	High	Low	-
04	Component state	Active	Inactive/parking	-
06	Topology problem active	Yes	No	-
07	Part of the target topology	Yes	No only act topo	-
08	Alarm present	Yes	No	-
09	Safety message present	Yes	No	-
10	Fault present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note: For bit 03 ... 00:
Bit 3, 2, 1, 0 = 0, 0, 0, 0 --> component not available.
Bit 3, 2, 1, 0 = 0, 0, 0, 1 --> power up, non-cyclic DRIVE-CLiQ communication (LED = orange).
Bit 3, 2, 1, 0 = 0, 0, 1, 0 --> operating mode, cyclic DRIVE-CLiQ communication (LED = green).
Bit 3, 2, 1, 0 = 0, 0, 1, 1 --> alarm (LED = green).
Bit 3, 2, 1, 0 = 0, 1, 0, 0 --> fault (LED = red).
Bit 3, 2, 1, 0 = 0, 1, 0, 1 --> detection via LED and operating mode (LED = green/orange).
Bit 3, 2, 1, 0 = 0, 1, 1, 0 --> detection via LED and alarm (LED = green/orange).
Bit 3, 2, 1, 0 = 0, 1, 1, 1 --> detection via LED and fault (LED = red/orange).
Bit 3, 2, 1, 0 = 1, 0, 0, 0 --> firmware being downloaded (LED = green/red with 0.5 Hz).
Bit 3, 2, 1, 0 = 1, 0, 0, 1 --> firmware download completed, wait for POWER ON (LED = green/red with 2.0 Hz).
For bits 12 ... 11:
These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r0197[0...1] Bootloader version / Bootloader vers

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the bootloader version.
Index 0:
Displays the bootloader version.
Index 1:
Displays the bootloader version 3 (for CU320-2 and CU310-2)
A value of 0 indicates that bootloader 3 is not available.
Dependency: See also: r0018, r0148, r0158, r0198
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r0198[0...2] BIOS/EEPROM data version / BIOS/EEPROM vers

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the BIOS and EEPROM data version.
r0198[0]: BIOS version
r0198[1]: EEPROM data version EEPROM 0
r0198[2]: EEPROM data version EEPROM 1
Dependency: See also: r0018, r0148, r0158, r0197
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

p0199[0...24] Drive object name / DO name

All objects

Can be changed: C1	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Freely assignable name for a drive object.
For the commissioning tool, this name cannot be entered using the expert list, but is specified in the configuration wizards. The object name can be subsequently modified in the Project Navigator using standard Windows resources.

Note: The parameter is not influenced by setting the factory setting.

r0200[0...n] Power unit code number actual / PU code no. act

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** PDS	**Function diagram:** -
P group: Converter	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the unique code number of the power unit.

Note: r0200 = 0: No power unit found

p0201[0...n] Power unit code number / PU code no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** PDS	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Code number of the power unit.
Each time the system boots, the code number is transferred from the data of the power unit to r0200 and to p0201.

r0203[0...15] Firmware package name / FW pkg name

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the name of the firmware package on the memory card/device memory.
r0203[0]: Name character 1
...
r0203[15]: Name character 16
For the commissioning tool, the ASCII characters are displayed uncoded.

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

p0340[0...n] Automatic calculation motor/control parameters / Calc auto par

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Motor	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to automatically calculate motor parameters and closed-loop control parameters from rating plate data.

Value:
0: No calculation
1: Complete calculation

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

p0400[0...n] Encoder type selection / Enc_typ sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** 1580, 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	20000	0

Description: Selects the encoder from the list of encoder types supported.

Value:
0: No encoder
1001: Resolver 1 speed
1002: Resolver 2 speed
1003: Resolver 3 speed
1004: Resolver 4 speed
3001: 1024 HTL A/B R
3002: 1024 TTL A/B R
3003: 2048 HTL A/B R
3005: 1024 HTL A/B
3006: 1024 TTL A/B
3007: 2048 HTL A/B
3008: 2048 TTL A/B
3009: 1024 HTL A/B unipolar
3011: 2048 HTL A/B unipolar
3020: 2048 TTL A/B R, with sense
3081: SSI, Singleturn, 24 V
3082: SSI, Multiturn 4096, 24 V
3088: 1024, HTL, A/B, SSI, singleturn
3090: 4096, HTL, A/B, SSI, Singleturn
9999: User-defined
20000: Encoder from OEM encoder list

Notice: An encoder type with p0400 < 9999 defines an encoder for which there is an encoder parameter list.

When selecting a catalog encoder (p0400 < 9999) the parameters from the encoder parameter list cannot be changed (write protection). To remove write protection, the encoder type should be set to a third-party encoder (p0400 = 9999).

Note: The encoder data (e.g. pulse number p0408) can only be changed when p0400 = 9999.

When using an encoder with track A/B and zero pulse, as standard, fine synchronization is not set using a zero mark.

p0401[0...n] Encoder type OEM selection / Enc type OEM sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32767	0

Description: Selects the encoder from the list of encoder types that the OEM supports.

Note: No OEM encoders are available for the SINAMICS DCM.

p0402[0...n] Gearbox type selection / Gearbox type sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	10100	9999

Description: Selects the gearbox type to pre-set the inversion and the gearbox factor.
Measuring gear factor = motor or load revolutions / encoder revolutions.

Value:
1: Gearbox 1:1 not inverted
2: Gearbox 2:7 inverted
3: Gearbox 4:17 inverted
4: Gearbox 2:10 inverted
9999: Gearbox user-defined
10000: Identify gearbox
10100: Identify gearbox

Dependency: See also: p0410, p0432, p0433

Note: For p0402 = 1:
Automatic setting of p0410 = 0000 bin, p0432 = 1, p0433 = 1.
For p0402 = 2:
Automatic setting of p0410 = 0011 bin, p0432 = 7, p0433 = 2.
For p0402 = 3:
Automatic setting of p0410 = 0011 bin, p0432 = 17, p0433 = 4.
For p0402 = 4:
Automatic setting of p0410 = 0011 bin, p0432 = 10, p0433 = 2.
For p0402 = 9999:
No automatic setting of p0410, p0432, p0433. The parameters should be manually set.
For p0402 = 10000:
It is only possible to identify the gearbox type for a motor with DRIVE-CLiQ. Parameters p0410, p0432 and p0433 are set corresponding to the identified gearbox. If an identification is not possible, then p0402 is set to 9999.

p0404[0...n] Encoder configuration effective / Enc_config eff

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Settings for the basic encoder properties.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B square-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excitation	Yes	No	-

Notice:

This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note:

ZM: Zero mark

SMC: Sensor Module Cabinet

If a technique to determine the commutation information/data has not been selected (e.g. track C/D, Hall sensor), and the encoder pulse number is an integer multiple of the pole number, then the following applies:

The track A/B is adjusted to match the magnetic position of the motor.

For bit 01, 02 (absolute encoder, multiturn encoder):

These bits can only be selected for EnDat encoders, SSI encoders or DRIVE-CLiQ encoders.

For bit 10 (DRIVE-CLiQ encoder):

This bit is only used for the large-scale integrated DRIVE-CLiQ encoders that provide their encoder data directly in DRIVE-CLiQ format without converting this data. This bit is not, therefore, set for first-generation DRIVE-CLiQ encoders.

For bit 12 (equidistant zero mark):

The zero marks occur at regular intervals (e.g. rotary encoder with 1 zero mark per revolution or linear encoder with constant zero mark distance).

The bit activates monitoring of the zero mark distance (p0424/p0425, linear/rotary) or in the case of the linear encoder with 1 zero mark and p0424 = 0 zero mark monitoring is activated.

For bit 13 (irregular zero mark):

The zero marks occur at irregular intervals (e.g. a linear scale with only 1 zero mark in the traversing range). The zero mark distance is not monitored.

For bit 14 (distance-coded zero mark):

The distance (clearance) between two or several consecutive zero marks allows the absolute position to be calculated.

For bit 15 (commutation with zero mark):

Only applicable for synchronous motors.

The function can be de-selected by priority via p0430.23.

For distance-coded zero marks, the following applies:

The phase sequence of the C/D track (if available) must be the same as the phase sequence of the encoder (A/B track).

The phase sequence of the Hall signal (if available) must be the same as the phase sequence of the motor. Further, the position of the Hall sensor must be mechanically adjusted to the motor EMF.

The fine synchronization is only started after two zero marks have been passed.

p0405[0...n] Square-wave encoder track A/B / Sq-wave enc A/B

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 1111 bin

Description: Settings for the track A/B in a square-wave encoder.

For square-wave encoders, p0404.3 must also be 1.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Signal	Bipolar	Unipolar	-
01	Level	TTL	HTL	-
02	Track monitoring	A/B <> -A/B	None	-
03	Zero pulse	Same as A/B track	24 V unipolar	-
04	Switching threshold	High	Low	-
05	Pulse/direction	Active	Inactive	-

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For bit 02:

When the function is activated, track monitoring can be deactivated by setting p0437.26.

For bit 05:

When the function is activated, a frequency setpoint and a direction for traveling can be entered via an encoder interface.

p0407[0...n] Linear encoder grid division / Enc grid div

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [nm]	250000000 [nm]	16000 [nm]

Description: Sets the grid division for a linear encoder.

In conjunction with the values in p0418/p0419, the grid division defines the transfer format for position actual values Gn_XIST1 (r0482) and Gn_XIST2 (r0483).

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).

When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The lowest permissible value is 250 nm.

This value does not always correspond to the grid division of the measuring device. For a DRIVE-CLiQ encoder, a value is entered here that facilitates optimum transfer of the resolution (p0422).

p0408[0...n] Rotary encoder pulse number / Rot enc pulse No.

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	16777215	2048

Description: Sets the number of pulses for a rotary encoder.

In conjunction with the values in p0418/p0419, the pulse number defines the transfer format for position actual values Gn_XIST1 (r0482) and Gn_XIST2 (r0483).

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The smallest permissible value is 1 pulse.
The number of pole pairs for a resolver is entered here.
This value does not always correspond to the pulse number of the measuring device. For a DRIVE-CLiQ encoder, a value is entered here that facilitates optimum transfer of the resolution (p0423).

p0410[0...n] Encoder inversion actual value / Enc inv act value

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** 4710, 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Setting to invert actual values.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Invert speed actual value	Yes	No	4710
01	Invert position actual value	Yes	No	4704

Note: The inversion influences the following parameters:
Bit 00: r0061, r0094
Bit 01: r0482, r0483

p0411[0...n] Measuring gear configuration / Meas gear config

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Sets the configuration for position tracking of a measuring gear.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Measuring gear activate position tracking	Yes	No	-
01	Axis type	Linear axis	Rotary axis	-
02	Measuring gear reset position	Yes	No	-
03	Meas. gearbox, activate pos. tracking for incremental encoders	Yes	No	-

Notice: For p0411.3 = 1 the following applies:
If position tracking is activated for incremental encoders, only the position actual value is stored. Axis or encoder motion is not detected when deactivated! Any tolerance window entered in p0413 has no effect.

Note: For the following events, the non-volatile, saved position values are automatically reset:
- when an encoder replacement has been identified.
- when changing the configuration of the Encoder Data Set (EDS).

p0412[0...n] Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4194303	0

Description: Sets the number of rotations that can be resolved for a rotary encoder with activated position tracking of the measuring gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking (p0411.0 = 1) and for an incremental encoder with activated position tracking (p0411.3 = 1).

Note: The resolution that is set must be able to be represented using r0483.
For rotary axes/modulo axes, the following applies:
p0411.0 = 1:
This parameter is pre-set with p0421 and can be changed.
p0411.3 = 1:
The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
For linear axes, the following applies:
p0411.0 = 1:
This parameter is pre-assigned with p0421, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.
p0411.3 = 1:
The parameter value is pre-set to the highest possible value. The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).

p0413[0...n] Measuring gear position tracking tolerance window / Pos track window

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00	4294967300.00	0.00

Description: Sets a tolerance window for position tracking.
After the system is switched on, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:
Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.
Difference outside the tolerance window --> An appropriate message is output.

Dependency: See also: F31501, F32501

Caution: Rotation, for example through a complete encoder range is not detected.

Note: The value is entered in integer (complete) encoder pulses.
For p0411.0 = 1, the value is automatically pre-assigned quarter of the encoder range.
Example:
Quarter of the encoder range = (p0408 * p0421) / 4
It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

p0414[0...n] Redundant coarse position value relevant bits (identified) / Relevant bits

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	16	16

Description: Sets the number of relevant bits for the redundant coarse position value.

p0415[0...n] Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	31	14

Description: Sets the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Note: MSB: Most Significant Bit

p0416[0...n] Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4294967295	22000

Description: Sets the non safety-relevant measuring steps of POS1.

Dependency: See also: r0473

p0417[0...n] Encoder safety comparison algorithm (detected) / Safety comp_algo

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	255

Description: Sets the comparison algorithm for the encoder position monitoring functions.

Value:
0: Reserved
10: Reserved
11: DQL linear non-binary safety algorithm
12: SMC30 safety algorithm
255: Safety algorithm unknown

p0418[0...n] Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Function diagram:** 1580, 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
2	18	11

Description: Sets the fine resolution in bits of the incremental position actual values.

Note: The parameter applies for the following process data:
- Gx_XIST1
- Gx_XIST2 for reference mark or flying measurement

The fine resolution specifies the fraction between encoder pulses. Depending on the physical measurement principle, an encoder pulse can be broken down into a different number of fractions (e.g. squarewave encoder: 2 bit = resolution 4, sin/cos encoder: Typical 11 bit = resolution 2048).

For a squarewave encoder, with the factory setting, the least significant bits have the value zero, i.e. they do not supply any useful information.

For especially high quality measuring systems, the fine resolution must be increased corresponding to the available accuracy.

p0419[0...n] Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** EDS, p0140	**Function diagram:** 1580, 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
2	18	9

Description: Sets the fine resolution in bits of the absolute position actual values.

Dependency: See also: p0418

Note: This parameter applies to process data Gx_XIST2 when reading the absolute value.

p0420[0...n] Encoder connection / Enc_connection

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Selecting the encoder connection.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	SUB-D	Yes	No	-
01	Terminal	Yes	No	-

p0421[0...n] Absolute encoder rotary multiturn resolution / Enc abs multiturn

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4294967295	4096

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0422[0...n] Absolute encoder linear measuring step resolution / Enc abs meas step

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [nm]	4294967295 [nm]	100 [nm]

Description: Sets the resolution of the absolute position for a linear absolute encoder.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: The serial protocol of an absolute encoder provides the position with a certain resolution (e.g. 100 nm). This value must be entered here.

p0423[0...n] Absolute encoder rotary singleturn resolution / Enc abs singleturn

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1073741823	8192

Description: Sets the number of measuring steps per revolution for a rotary absolute encoder.
The resolution refers to the absolute position.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0424[0...n] Encoder linear zero mark distance / Enc lin ZM_dist

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [mm]	65535 [mm]	20 [mm]

Description: Sets the distance between two zero marks for a linear encoder.
This information is used for zero mark monitoring.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks this parameter signifies the basic distance.

p0425[0...n] Encoder rotary zero mark distance / Enc rot dist ZM

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704, 8570
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	16777215	2048

Description: Sets the distance in pulses between two zero marks for a rotary encoder.
This information is used for zero mark monitoring.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For distance-coded zero marks this parameter signifies the basic distance.

p0426[0...n] Encoder zero mark differential distance / Enc ZM Dif_dist

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	65535	1

Description: Sets the differential pitch for distance-coded zero marks (signal periods).
The value corresponds to jump displacement of "zero mark with interference".

Dependency: This function can only be used when a Sensor Module property is available (r0459.9 = 1).

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0427[0...n] Encoder SSI baud rate / Enc SSI baud rate

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [kHz]	65535 [kHz]	100 [kHz]

Description: Sets the baud rate for an SSI encoder.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: SSI: Synchronous Serial Interface

p0428[0...n] Encoder SSI monoflop time / Enc SSI t_monoflop

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [µs]	65535 [µs]	30 [µs]

Description: Sets the minimum delay time between two data transfers of the absolute value for an SSI encoder.

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

p0429[0...n] Encoder SSI configuration / Enc SSI config

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 bin

Description: Sets the configuration for an SSI encoder.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Transfer code	Binary code	Gray code	-
02	Transfer absolute value twice	Yes	No	-
06	Data line during the monoflop time	High level	Low level	-

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).
When selecting a catalog encoder, this parameter cannot be changed (write protection). Information in p0400 should be carefully observed when removing write protection.

Note: For bit 06:
The quiescent signal level of the data line corresponds to the inverted, set level.

p0430[0...n] Sensor Module configuration / SM config

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1110 0000 0000 1000 0000 0000 0000 0000 bin

Description: Sets the configuration of the Sensor Module.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
17	Burst oversampling	Yes	No	-
18	Continuous oversampling (reserved)	Yes	No	-
19	Safety position actual value sensing	Yes	No	-
20	Speed calculation mode (only SMC30)	Incremental diff	Flank time meas	-

21	Zero mark tolerance	Yes	No	-
22	Rotor position adaptation	Yes	No	-
23	De-select commutation with zero mark	Yes	No	-
24	Commutation with selected zero mark	Yes	No	-
25	Switch off encoder voltage supply during parking	Yes	No	-
27	Extrapolate position values	Yes	No	-
28	Cubic correction	Yes	No	-
29	Phase correction	Yes	No	-
30	Amplitude correction	Yes	No	-
31	Offset correction	Yes	No	-

Notice: A bit-wise configuration is only possible if the corresponding property is also present in r0458.

Note: For bit 17 (burst oversampling):

- if bit = 1, burst oversampling is switched on.

For bit 18 (continuous oversampling):

- if bit = 1, continuous oversampling is switched on.

For bit 19 (Safety position actual value sensing):

- if bit = 1, the Safety position actual value is transferred in the cyclic telegram.

For bit 20 (speed calculation mode):

- if bit = 1, the speed is calculated via incremental difference without extrapolation.
- if bit = 0, the speed is calculated via edge time measurement with extrapolation. p0453 is effective in this mode.

For bit 21 (zero mark tolerance):

- if bit = 1, a one-off zero mark distance error is tolerated. In the event of a defect, the fault F3x100/F3x101 does not appear, but alarm A3x400/A3x401 does.

For bit 22 (rotor position adaptation):

- if bit = 1, the rotor position is corrected automatically. The correction speed is +/-1/4 encoder pulse per zero mark distance.

For bit 23 (de-select commutation with zero mark):

- the bit should only be set for encoders that have not been adjusted.

For bit 24 (commutation with selected zero mark):

- if bit = 1, the commutation position is corrected via a selected zero mark.

For bit 25 (disconnect the encoder power supply on parking):

- if bit = 1, the encoder power supply is switched off on parking (0 V).
- if bit = 0, the encoder power supply is not switched off on parking, it is reduced from 24 V to 5 V.

For bit 27 (extrapolate position values):

- if bit = 1, the extrapolation of the position values is activated.

For bit 28 (cubic correction);

- if bit = 1, the cubic correction for track A/B sine is activated.

For bit 29 (phase correction):

- if bit = 1, the phase correction for track A/B sine is activated.

For bit 30 (amplitude correction):

- if bit = 1, the amplitude correction for track A/B sine is activated.

For bit 31 (offset correction):

- if bit = 1, the offset correction for track A/B sine is activated.

p0431[0...n] Angular commutation offset / Ang_com offset

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-180.00 [°]	180.00 [°]	0.00 [°]

Description: Sets the angular commutation offset.

Notice: The angular commutation offset cannot be generally taken from other drive systems.

Note: Angular commutation offset, angular difference between electrical position of encoder and flux position.
For p0404.5 = 1 (track C/D) the following applies:
The angular offset in p0431 acts on track A/B, the zero mark on track C/D.
For p0404.6 = 1 (Hall sensor) the following applies:
The angular offset in p0431 acts on track A/B and the zero mark.

p0432[0...n] Gearbox factor encoder revolutions / Grbx_fact enc_rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704, 4710, 4711
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	1048576	1

Description: Sets the encoder revolutions for the gearbox factor of the encoder evaluation.
The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.
See also: p0402, p0410, p0433

Note: Negative gearbox factors should be implemented with p0410.

p0433[0...n] Gearbox factor motor/load revolutions / Grbx_fact mot_rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Function diagram:** 4704, 4710, 4711
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	1048576	1

Description: Sets the motor and load revolutions for the gearbox factor of the encoder evaluation.
The gearbox factor specifies the ratio between the encoder shaft and motor shaft (for motor encoders) or between the encoder shaft and the load.

Dependency: This parameter can only be set for p0402 = 9999.
See also: p0402, p0410, p0432

Note: Negative gearbox factors should be implemented with p0410.

p0434[0...n] Encoder SSI error bit / Enc SSI error bit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the position and level of the error bit in the SSI protocol.

Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.

Note: Value = dcba
ba: Position of the error bit in the protocol (0 ... 63).
c: Level (0: Low level, 1: High level).
d: Status of the evaluation (0: Off, 1: On with 1 error bit, 2: On with 2 error bits ... 9: On with 9 error bits).
For several error error bits, the following applies:
- the position specified under ba and the additional bits are assigned increasing consecutively.
- the level set under c applies to all error bits.
Example:
p0434 = 1013
--> The evaluation is switched in and the error bit is at position 13 with a low level.
p0434 = 1113
--> The evaluation is switched in and the error bit is at position 13 with a high level.

p0435[0...n] Encoder SSI alarm bit / Enc SSI alarm bit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the position and level of the alarm bit in the SSI protocol.
Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.
Note: Value = dcba
ba: Position of the alarm bit in protocol (0 ... 63).
c: Level (0: Low level, 1: High level).
d: Status of the evaluation (0: Off, 1: On with 1 alarm bit, 2: On with 2 alarm bits ... 9: On with 9 alarm bits).
The following applies for several alarm bits:
- the position specified under ba and the additional bits are assigned increasing consecutively.
- the level set under c applies to all error bits.
Example:
p0435 = 1014
--> The evaluation is switched in and the alarm bit is at position 14 with a low level.
p0435 = 1114
--> The evaluation is switched in and the alarm bit is at position 14 with a high level.

p0436[0...n] Encoder SSI parity bit / Enc SSI parity bit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the position and parity of the parity bit in the SSI protocol.
Notice: The bit may only be positioned before (p0446) or after (p0448) the absolute value in the SSI protocol.
Note: Value = dcba
ba: Position of the parity bit in the protocol (0 ... 63).
c: Parity (0: even, 1: uneven).
d: State of the evaluation (0: Off, 1: On).
Example:
p0436 = 1015
--> The evaluation is switched in and the parity bit is at position 15 with even parity.
p0436 = 1115
--> The evaluation is switched in and the parity bit is at position 15 with uneven parity.

p0437[0...n] Sensor Module configuration extended / SM config ext

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0011 0000 0000 0000 0000 1000 0000 0000 bin

Description: Sets the extended configuration of the Sensor Module.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Do not accumulate the number of incorrect pulses	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Support absolute position for incremental encoder	Yes	No	4750
22	Resolution absolute position as factor	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Deselect track monitoring	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: See also: p0430, r0459

Note:

A value of zero is displayed if an encoder is not present.

For bit 00:

When the data logger (trace) is activated, in the case of a fault, data before and after the event are recorded (traced) and saved in files on the non-volatile memory medium. Experts can then evaluate this data.

For bit 01:

If bit = 0, the zero mark is evaluated by ANDing tracks A and B and the zero mark.

For bit = 1, the zero mark is evaluated depending on the direction of rotation detected. For a positive direction of rotation, the positive edge of the zero mark is considered and for a negative direction of rotation, the negative edge of the zero mark.

For bit 02:

When the bit is set, for a deviation less than the tolerance window for the zero mark (p4681, p4682), the pulse number is corrected. If the bit is not set, encoder fault F3x131 is triggered.

For bits 05, 04:

The actual hardware only supports 1x or 4x signal evaluation.

Bit 5/4 = 0/0: Signal evaluation per period, 4x.

Bit 5/4 = 1/0: signal evaluation per period, 4x with speed calculation over the complete pulse.

Bit 5/4 = 0/1: Signal evaluation per period, 1x.

Bit 5/4 = 1/1: Illegal setting.

For bit 06:

If the function is active, when dn/dt monitoring responds, the speed actual value is internally frozen for a time equivalent to two current controller sampling times. The rotor position continues to be integrated. The actual value is then re-enabled after this time has expired.

For bit 07:

When the bit is not set, the incorrect pulses that have occurred up until now are accumulated in p4688.

When the bit is not set, p4688 indicates the incorrect pulses that have still not been corrected.

For bit 11:

If the bit is set, the Sensor Module checks within a certain time grid whether the fault cause is still present. This enables the Sensor Module to switch from the fault state to the operating state and provide valid actual values automatically. The faults are displayed until the user acknowledges them.

For bit 12:

Additional fault messages can be activated for extended fault diagnostics.

For bit 13:

When the bit is set, for an incremental encoder with zero mark, the absolute value in Gn_XIST2 can be requested via Gn_STW.13. The absolute value is only valid after passing the zero mark.

For bit 22:

When the bit is set, the resolution of the absolute position in the serial protocol is set using distribution factor in p4630. The resolution for the absolute position is then calculated using p0407/p4630.

For bit 26:

Track monitoring is deactivated for the square-wave encoders when the bit is set, even if the monitoring function is selected in p0405.2.

For bit 28:

Monitoring of the difference between incremental and absolute position in the case of linear encoders.

For bit 29:

When the bit is set, the EnDat encoder is initialized under a certain speed and, therefore, with high accuracy. If initialization at a higher speed is requested, fault F31151, F32151, or F33151 is output.

For bit 31:

When monitoring is active, the levels of the individual track signals and the corresponding inverted track signals are monitored separately.

p0438[0...n] Squarewave encoder filter time / Enc t_filt

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [µs]	100.00 [µs]	0.64 [µs]

Description: Sets the filter time for a squarewave encoder.
The hardware of the squarewave encoder only supports the following values:
0: No filtering
0.04 µs
0.64 µs
2.56 µs
10.24 µs
20.48 µs

Dependency: See also: r0452

Notice: If the filter time is too long, the track signals A/B/R may be suppressed and the appropriate messages output.

Note: The most suitable filter time depends on the number of pulses and maximum speed of the square-wave encoder.
The filter time is automatically corrected to the next value when entering a non-specified value. In this case, no message is output.
The effective filter time is displayed in r0452.

p0439[0...n] Encoder ramp-up time / Enc ramp-up time

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	65535 [ms]	0 [ms]

Description: Sets the ramp-up time for the encoder.
The encoder supplies stable track signals once this time has elapsed.

Dependency: This function can only be used when a Sensor Module property is available (r0459.9 = 1).

Notice: This parameter is automatically preassigned for encoders from the encoder list and for identify encoder (p0400).

p0440[0...n] Copy encoder serial number / Copy enc ser_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Copies the actual serial number of the encoder belonging to this Encoder Data Set (EDS) to p0441 ... p0445.
Example:
For p0440[0] = 1, the serial number of the encoder belonging EDS0 is copied to p0441[0] ... p0445[0].

Value:
0: No action
1: Transfer serial number

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464

Note: For encoders with serial number, encoder replacement is monitored in order to request angular commutation calibration (adjustment) for motor encoders and absolute calibration for direct measuring systems with absolute value data. The serial number, which from then onwards is used for monitoring purposes, can be transferred using p0440.
Copying is automatically started in the following cases:
1.) When commissioning 1FT6, 1FK6, 1FK7 motors.
2.) When writing into p0431.
3.) For p1990 = 1.
p0440 is automatically set to 0 when the copying has been completed.
In order to permanently accept the copied values, it is necessary to save in a non-volatile fashion (p0977).

p0441[0...n] Encoder commissioning serial number part 1 / Enc comm ser_no 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 1 of the encoder for the commissioning.
Dependency: See also: p0440, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Note: A value of zero is displayed if an encoder is not present.

p0442[0...n] Encoder commissioning serial number part 2 / Enc comm ser_no 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 2 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0443, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Note: A value of zero is displayed if an encoder is not present.

p0443[0...n] Encoder commissioning serial number part 3 / Enc comm ser_no 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 3 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0442, p0444, p0445, r0460, r0461, r0462, r0463, r0464
Note: A value of zero is displayed if an encoder is not present.

p0444[0...n] Encoder commissioning serial number part 4 / Enc comm ser_no 4

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 4 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0442, p0443, p0445, r0460, r0461, r0462, r0463, r0464
Note: A value of zero is displayed if an encoder is not present.

p0445[0...n] Encoder commissioning serial number part 5 / Enc comm ser_no 5

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** CALC_MOD_ALL	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Serial number part 5 of the encoder for the commissioning.
Dependency: See also: p0440, p0441, p0442, p0443, p0444, r0460, r0461, r0462, r0463, r0464
Note: A value of zero is displayed if an encoder is not present.

r0452[0...2] Squarewave encoder filter time display / Enc t_filt displ

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the effective filter time for a squarewave encoder.
The filter time is set using p0438.
Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -
Dependency: See also: p0438
Note: A value of zero is displayed if an encoder is not present.

p0453[0...n] Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.10 [ms]	10000.00 [ms]	1000.00 [ms]

Description: Sets the measuring time for evaluating zero speed.
If no pulses are detected from track A/B during this time, a speed actual value of zero is output.
Dependency: See also: r0452
Note: This function is required for slow-running motors so that actual speeds close to zero can be output correctly.

p0454[0...n] Sensor Module configuration extended Part 2 / SM config ext 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Sets the extended configuration Part 2 of the Sensor Module.
Dependency: See also: r0457

r0455[0...2] Encoder configuration recognized / Enc_config recog

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the detected encoder configuration.
In this case, the encoder must automatically support the function (e.g. encoder with EnDat interface).

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Linear encoder	Yes	No	-
01	Absolute encoder	Yes	No	-
02	Multiturn encoder	Yes	No	-
03	Track A/B square-wave	Yes	No	-
04	Track A/B sine	Yes	No	-
05	Track C/D	Yes	No	-
06	Hall sensor	Yes	No	-
08	EnDat encoder	Yes	No	-
09	SSI encoder	Yes	No	-
10	DRIVE-CLiQ encoder	Yes	No	-
11	Digital encoder	Yes	No	-
12	Equidistant zero mark	Yes	No	-
13	Irregular zero mark	Yes	No	-
14	Distance-coded zero mark	Yes	No	-
15	Commutation with zero mark (not ASM)	Yes	No	-
16	Acceleration	Yes	No	-
17	Track A/B analog	Yes	No	-
20	Voltage level 5 V	Yes	No	-
21	Voltage level 24 V	Yes	No	-
22	Remote sense (only SMC30)	Yes	No	-
23	Resolver excitation	Yes	No	-

Dependency: See also: p0404

Note: ZM: Zero mark
This parameter is only used for diagnostics.
A value of zero is displayed if an encoder is not present.
For bit 20, 21 (voltage level 5 V, voltage level 24 V):
The voltage level cannot be detected. Therefore, these bits are always set to 0.

r0456[0...2] Encoder configuration supported / Enc_config supp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder configuration supported by the Sensor Module.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Linear encoder	Yes	No	-
	01	Absolute encoder	Yes	No	-
	02	Multiturn encoder	Yes	No	-
	03	Track A/B square-wave	Yes	No	-
	04	Track A/B sine	Yes	No	-
	05	Track C/D	Yes	No	-
	06	Hall sensor	Yes	No	-
	08	EnDat encoder	Yes	No	-
	09	SSI encoder	Yes	No	-
	10	DRIVE-CLiQ encoder	Yes	No	-
	11	Digital encoder	Yes	No	-
	12	Equidistant zero mark	Yes	No	-
	13	Irregular zero mark	Yes	No	-
	14	Distance-coded zero mark	Yes	No	-
	15	Commutation with zero mark (not ASM)	Yes	No	-
	16	Acceleration	Yes	No	-
	17	Track A/B analog	Yes	No	-
	20	Voltage level 5 V	Yes	No	-
	21	Voltage level 24 V	Yes	No	-
	22	Remote sense (only SMC30)	Yes	No	-
	23	Resolver excitation	Yes	No	-

Dependency: See also: p0404

Note: ZM: Zero mark
This parameter is only used for diagnostics.
A value of zero is displayed if an encoder is not present.

r0457[0...2] Sensor Module properties extended Part 2 / SM prop ext 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the extended properties part 2, supported by the Sensor Module.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Reserved	Yes	No	-
	02	Shift factor XIST2 supported	Yes	No	-

Dependency: See also: p0454

Note: A value of zero is displayed if an encoder is not present.

r0458[0...2] Sensor Module properties / SM properties

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the Sensor Module configuration.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Encoder data available	Yes	No	-
	01	Motor data available	Yes	No	-
	02	Temperature sensor connection available	Yes	No	-
	03	Connection for PTC for motor with DRIVE-CLiQ also available	Yes	No	-
	04	Module temperature available	Yes	No	-
	05	Absolute encoder p0408/p0421 no power of 2	Yes	No	-
	06	Sensor Module permits parking/unparking	Yes	No	-
	07	Hall sensor can be combined with actual value inversion	Yes	No	-
	08	Evaluation through several temperature channels possible	Yes	No	-
	09	Encoder fault and its associated information available	Yes	No	-
	10	Speed diagnostics in the Sensor Module	Yes	No	-
	11	Configuring without park state possible	Yes	No	-
	12	Extended functions available	Yes	No	-
	13	Extended encoder fault handling	Yes	No	-
	14	Extended singleturn/multiturn information available	Yes	No	-
	15	Evaluation function reserve	Yes	No	-
	16	Pole position identification	Yes	No	-
	17	Burst oversampling	Yes	No	-
	18	Continuous oversampling	Yes	No	-
	19	Safety position actual value sensing	Yes	No	-
	20	Extended speed calculation being used (only SMC30)	Yes	No	-
	21	Zero mark tolerance	Yes	No	-
	22	Rotor position adaptation	Yes	No	-
	23	Commutation with zero mark can be de-selected	Yes	No	-
	24	Commutation with selected zero mark	Yes	No	-
	25	Disconnection of encoder power supply on parking supported	Yes	No	-
	26	Parking with temperature evaluation	Yes	No	-
	27	SSI position value extrapolation	Yes	No	-
	28	Cubic correction	Yes	No	-
	29	Phase correction	Yes	No	-
	30	Amplitude correction	Yes	No	-
	31	Offset correction	Yes	No	-

Dependency: See also: p0437, p0601

Note: A value of zero is displayed if an encoder is not present.

For bit 11:

When the property is set, the following parameters can be changed without the actual value in the encoder interface becoming invalid (state r0481.14 = 1 "parking encoder active"):

p0314, p0315, p0430, p0431, p0441, p0442, p0443, p0444, p0445

For bit 12:

The extended functions can be configured using p0437.

For bit 13:

Encoder faults can be acknowledged via Gn_STW.15.

For bit 14:

Only for internal Siemens use.

For bit 23:

When the property is set, commutation with zero mark can be de-selected using p0430.23.

For bit 24:

If the property is set, commutation to the selected zero mark can be carried out.

r0459[0...2] Sensor Module properties extended / SM prop ext

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the extended properties supported by the Sensor Module.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Data logger	Yes	No	-
01	Zero mark edge detection	Yes	No	-
02	Correction position actual value XIST1	Yes	No	-
04	Edge evaluation bit 0	Yes	No	-
05	Edge evaluation bit 1	Yes	No	-
06	Freeze the speed actual value for dn/dt errors	Yes	No	-
07	Accumulate uncorrected encoder pulses	Yes	No	-
09	Function p0426, p0439 supported	Yes	No	-
10	Pulse/direction interface	Yes	No	-
11	Fault handling after PROFIdrive	Yes	No	-
12	Activate additional messages	Yes	No	-
13	Absolute position for incremental encoder supported	Yes	No	-
14	Spindle functionality	Yes	No	-
15	Additional temperature sensor available	Yes	No	-
16	Internal encoder temperature available	Yes	No	-
17	Extended multiturn resolution	Yes	No	-
18	PT1000 temperature sensor evaluation	Yes	No	-
22	Resolution absolute position as factor	Yes	No	-
23	Commutation with 180°	Yes	No	-
24	Multiturn via battery	Yes	No	-
25	Deselect monitoring multiturn representation in Gx_XIST2	Yes	No	-
26	Track monitoring de-selection	Yes	No	-
28	EnDat linear encoder monitoring incremental/absolute	Yes	No	-
29	EnDat encoder initialization with high accuracy	Yes	No	-
30	Extended functions available	Yes	No	-
31	Analog unipolar track monitoring	Yes	No	-

Dependency: See also: p0437

Note: A value of zero is displayed if an encoder is not present.

For bit 09:

Parameter p0426 or p0439 has been modified. These functions are not supported by the connected Sensor Module.

r0460[0...2] Encoder serial number part 1 / Enc ser_no 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number part 1 of the appropriate encoder.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0461, r0462, r0463, r0464

r0461[0...2] Encoder serial number part 2 / Enc ser_no 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number part 2 of the appropriate encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0462, r0463, r0464

r0462[0...2] Encoder serial number part 3 / Enc ser_no 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number part 3 of the appropriate encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0463, r0464

r0463[0...2] Encoder serial number part 4 / Enc ser_no 4

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number part 4 of the appropriate encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0464

r0464[0...2] Encoder serial number part 5 / Enc ser_no 5

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number part 5 of the appropriate encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0441, p0442, p0443, p0444, p0445, r0460, r0461, r0462, r0463

r0465[0...27] Encoder 1 identification number/serial number / Enc1 ID_no/Ser_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the identification/serial number of encoder 1.
Index 0 = first character of the identification number
...
Index x = 20 hex (blank) --> separation between the identification number of serial number
Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
Index x + 3 = first character of the serial number
...
Index y with contents = last character of the serial number

Dependency: See also: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0466[0...27] Encoder 2 identification number/serial number / Enc2 ID_no/Ser_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the identification/serial number of encoder 2.
Index 0 = first character of the identification number
...
Index x = 20 hex (blank) --> separation between the identification number of serial number
Index x + 1 = 2F hex (slash) --> separation between the identification number of serial number
Index x + 2 = 20 hex (blank) --> separation between the identification number of serial number
Index x + 3 = first character of the serial number
...
Index y with contents = last character of the serial number

Dependency: See also: r0460, r0461, r0462, r0463, r0464

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: The individual characters of the identification number/serial number are available coded as ASCII characters.

r0469[0...2] Absolute encoder linear measuring step / Enc lin meas step

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [nm]	- [nm]	- [nm]

Description: Displays the resolution of the absolute position for a linear absolute encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: See also: p0422

r0470[0...2] Redundant coarse position value valid bits / Valid bits

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the valid bits of the redundant coarse position value.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

r0471[0...2] Redundant coarse position value fine resolution bits / Fine bit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of valid bits for the fine resolution of the redundant coarse position value.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

r0472[0...2] Redundant coarse position value relevant bits / Relevant bits

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of relevant bits for the redundant coarse position value.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

r0473[0...2] Non safety-relevant measuring steps position value pos1 / nsrPos1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the non safety-relevant measuring steps of POS1.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Dependency: See also: p0416

r0474[0...2] Redundant coarse position value configuration / Red pos config

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder configuration for the redundant coarse position value.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Incrementer	Yes	No	-
01	Encoder CRC least significant byte first	Yes	No	-
02	Redundant coarse position val. most significant bit left-aligned	Yes	No	-
04	Binary comparison not possible	Yes	No	-
05	Single-channel encoder	Yes	No	-

r0475[0...2] Gx_XIST1 coarse position safe most significant bit / Gx_XIST1 safe MSB

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the bit number for the safe most significant bit (MSB) of the Gx_XIST1 coarse position.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Note: MSB: Most Significant Bit

r0477[0...2] CO: Measuring gear position difference / Meas gear pos diff

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the position difference before the measuring gear between switching off and switching on.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: F31501, F32501

Note: The increments are displayed in the format the same as r0483. The position difference should be read in encoder increments.

r0479[0...2] CO: Diagnostics encoder position actual value Gn_XIST1 / Diag Gn_XIST1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive for diagnostics.

In contrast to r0482, the value is updated in each DRIVE-CLiQ basic clock cycle and displayed with sign.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Caution: ⚠ Following ramping-up or after a data set changeover, the new value is present at connector inputs which are interconnected to connector output r0479 and under certain circumstances take 100 ms to become available.

Reason:

These interconnections are updated in the background, unlike interconnections involving other connector outputs (e.g. CO: r0482).

The value is immediately available when non-cyclically reading r0479 (e.g. via the expert list).

p0480[0...2] CI: Encoder control word Gn_STW signal source / Enc Gn_STW S_src

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 1580, 4720, 4750
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the encoder control word Gn_STW according to PROFIdrive.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Note: When the function module "basic positioner" (r0108.4 = 1) is activated, the following BICO interconnection is established:

CI: p0480[0] = r2520[0], CI: p0480[1] = r2520[1] and CI: p0480[2] = r2520[2]

r0481[0...2] CO: Encoder status word Gn_ZSW / Enc Gn_ZSW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 4704, 4730
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder status word Gn_ZSW according to PROFIdrive.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Function 1 active	Yes	No	-
01	Function 2 active	Yes	No	-
02	Function 3 active	Yes	No	-
03	Function 4 active	Yes	No	-
04	Value 1	Displayed in r0483	Not present	-
05	Value 2	Displayed in r0483	Not present	-
06	Value 3	Displayed in r0483	Not present	-
07	Value 4	Displayed in r0483	Not present	-
08	Measuring probe 1 deflected	Yes	No	-
09	Measuring probe 2 deflected	Yes	No	-
11	Encoder fault acknowledge active	Yes	No	9676
13	Absolute value cyclically	Displayed in r0483	No	-
14	Parking encoder active	Yes	No	-
15	Encoder fault	Displayed in r0483	None	-

Note:

For bit 14:

Displays the acknowledgment for "activate parking encoder" (Gn_STW.14 = 1) or encoder position actual value (Gn_XIST1) invalid.

For bit 14, 15:

r0481.14 = 1 and r0481.15 = 0 can have one of the following causes:

- the encoder is parked.
- the encoder is deactivated.
- the encoder is being commissioned.
- no parameterized encoder available.
- encoder data set is being changed over.

r0481.14 = 1 and r0481.15 = 1 has the following significance:

An encoder error has occurred and the encoder position actual value (Gn_XIST1) is invalid.

r0482[0...2] CO: Encoder actual position value Gn_XIST1 / Enc Gn_XIST1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 1580, 4704, 4735
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the encoder actual position value Gn_XIST1 according to PROFIdrive.

Index:

[0] = Encoder 1
[1] = Encoder 2
[2] = -

Note: - this value is reset if necessary when the "parking encoder" (r0481.14) function is de-selected.
- in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).
- the update time for the position control (EPOS) corresponds to the position controller clock cycle (p0115[4]).
- the update time in isochronous operation corresponds to the bus cycle time r2064[1].
- the update time in isochronous operation and with position control (EPOS) corresponds to the position controller sampling time (p0115[4]).
- the update time in non-isochronous operation or without position control (EPOS) must be determined from the default bus cycle time and the minimum cycle time:
The default bus cycle time is the lowest common multiple (LCM) of all current controller sampling times (p0115[0]) in the drive group (infeed + drives).
The minimum cycle time is four times the maximum of all current controller sampling times (p0115[0]) in the drive group (infeed + drives).
If the minimum cycle time is greater than the default bus cycle time, then the update time corresponds to the minimum cycle time; otherwise, the update time corresponds to the default bus cycle time.
The minimum update time is 1 ms.
Example 1: infeed, servo
Default bus cycle time = KGV(250 µs, 125 µs) = 250 µs
Minimum cycle time = 4 * MAX(250 µs, 125 µs) = 4 * 250 µs = 1 ms
-> update time = 1 ms
Example 2: infeed, servo, vector
Default bus cycle time = KGV(250 µs, 125 µs, 400 µs) = 2 ms
Minimum cycle time = 4 * MAX(250 µs, 125 µs, 400 µs) = 4 * 400 µs = 1.6 ms
-> update time = 2 ms

r0483[0...2] CO: Encoder actual position value Gn_XIST2 / Enc Gn_XIST2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 1580, 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder actual position value Gn_XIST2 according to PROFIdrive.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note: - in this value, the measuring gear (p0432, p0433) is only taken into account when the position tracking is activated (p0411.0 = 1).
- if GxZSW.15 = 1 (r0481), then an error code with the following significance is located in Gx_XIST2 (r0483):
1: Encoder fault.
2: Possible position shift in Gx_XIST1.
3: Encoder parking not possible.
4: Cancellation, reference block search (e.g. reference mark not available or input terminal for external zero mark not set). Zero mark is requested, however according to p0404.12/13/14 there is no zero mark (alarm A07565).
5: Cancellation, fetch reference value (e.g. illegal change from reference mark search to flying measurement).
6: cancellation, flying measurement (e.g. input terminal for probe not set).
7: Cancellation, fetch measured value (e.g. illegal change from flying measurement to reference mark search).
8: Abort, absolute value transfer.
3841: Function not supported.
4097: Abort, reference mark search due to an initialization error. Possible cause: defective Control Unit hardware.
4098: Abort, flying measurement due to an initialization error. Possible cause: defective Control Unit hardware.
4099: Abort, reference mark search due to a measuring error. Possible cause: too many measuring pulses have occurred.
4100: Abort, flying measurement due to a measuring error. Possible cause: too many measuring pulses have occurred.

r0484[0...2] CO: Redundant coarse encoder position + CRC / Enc red pos+CRC

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the redundant coarse encoder position including CRC (Cyclic Redundancy Check).
Upper 16 bits:
CRC over the redundant coarse encoder position.
Lower 16 bits:
Redundant coarse encoder position.
On an SMx Sensor Module, the encoder coarse position count direction is opposite to r0482 (encoder actual value Gn_XIST1). The value contains 2 bit fine resolution.
With a DRIVE-CLiQ encoder, the encoder coarse position count direction is the same as r0482.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: The values are valid when the safety position actual value sensing is activated (p0430.19 = 1).
See also: p0430

Note: This absolute value does not change, contrary to r0482, when de-selecting the function "parking axis".

r0485[0...2] CO: Measuring gear encoder raw value incremental / Enc raw val incr

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the raw value of the incremental encoder actual value before the measuring gear.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

r0486[0...2] CO: Measuring gear encoder raw value absolute / Enc raw val abs

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the raw value of the absolute encoder actual value before the measuring gear.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

r0487[0...2] Diagnostic encoder control word Gn_STW / Enc Gn_STW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 1580, 4704, 4720, 4735
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder control word Gn_STW according to PROFIdrive for diagnostics.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = -

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Request function 1	Yes	No	-
01	Request function 2	Yes	No	-
02	Request function 3	Yes	No	-
03	Request function 4	Yes	No	-
04	Request command bit 0	Yes	No	-
05	Request command bit 1	Yes	No	-
06	Request command bit 2	Yes	No	-
07	Flying measurement mode/search for reference mark	Flying measurement	Reference marks	-
13	Request absolute value cyclic	Yes	No	-
14	Request parking encoder	Yes	No	-
15	Request acknowledge encoder fault	Yes	No	-

Notice: Information on Gn_STW/Gn_ZSW should be taken from the corresponding product documentation.

Note: The signal source for the encoder control word is set with p0480.

p0492 Square-wave encoder maximum speed difference per sampling cycle / n_dif max/samp_cyc

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** CALC_MOD_REG	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [rpm]	210000.00 [rpm]	0.00 [rpm]

Description: Sets the maximum permissible speed difference within the current controller sampling time for squarewave encoders.

When the value is exceeded, depending on p0491, either encoderless closed-loop speed/torque control is selected or the drive is switched off.

Dependency: See also: F31118, A31418, F32118, A32418

Note: For a value of 0.0, the speed change monitoring is disabled.

if the set maximum speed difference is only exceeded for one sampling time of the current controller, then an appropriate alarm is output. However, if the maximum speed difference is exceeded over several sampling times, then a corresponding fault is output.

p0496[0...2] Encoder diagnostic signal selection / Enc diag select

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	86	0

Description: Selects the trace signal to be output in r0497, r0498 and r0499 for encoder diagnostics.

Value:

0: Inactive
1: r0497: Mechanical revolution
7: r0498: oversampling channel A with fault trigger
8: r0498: oversampling channel A with fault trigger
9: r0497: sum of the squares AB in 0.1 mV
10: r0498: Raw value track A, r0499: Raw value track B
11: r0498: Fine position X (-A/2), r0499: Fine position Y (-B/2)
12: r0498: Fine position Phi, r0499: -
13: r0498: Offset correction X, r0499: Offset correction Y
14: r0498: Phase correction X, r0499: Amplitude correction Y
15: r0498: Cubic correction X, r0499: Fine position X
16: r0498: oversampling channel A, r0499: oversampling channel B
17: r0498: fan-out amount, r0499: fan-out number
18: r0498: Oversampling angle, r0499: Oversampling amount
19: r0498: Fault counter AB, r0499: raw value track A
20: r0498: Raw value track C, r0499: Raw value track D
21: r0498: CD position X (-D/2), r0499: CD position Y (C/2)
22: r0498: CD position Phi, r0499: CD pos. Phi - mech. revolution
23: r0497: Zero mark status
24: r0498: Raw value track R, r0499: Zero mark status
25: r0498: Raw value track A, r0499: Raw value track R
26: r0498: Sum of squares AB, r0499: sector number
30: r0497: Absolute position serial
31: r0497: Absolute position incremental
32: r0497: Zero mark position
33: r0497: Correction absolute position difference
40: r0498: Raw temperature, r0499: Temperature in 0.1 °C
41: r0498: Resistance in 0.1 Ohm, r0499: Temperature in 0.1 °C
42: r0497: Resistance 2500 Ohm
51: r0497: Absolute speed difference (dn/dt)
52: r0497: Xact1 corrected quadrants
60: Analog sensor: r0498: raw val chann. A, r0499: raw val chann. B
61: Analog sensor: r0498: fine pos chann. A,r0499: fine pos chann. B
62: Analog sensor: r0498: Fine pos before characteristic, r0499: -
70: Resolver: r0498: Transformation ratio, r0499: phase
80: Spindle: r0498: Sensor S1 (raw), r0499: Sensor S4 (raw)
81: Spindle: r0498: Sensor S5 (raw), r0499: -
85: Spindle: r0498: Sensor S1 (cal), r0499: Sensor S4 (cal)
86: Spindle: r0498: Sensor S5 (cal), r0499: -

Index:

[0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: r0497, r0498, r0499

Notice: The setting option depends on the following properties:

Sensor Module type, hardware version, firmware version (Sensor Module and Control Units), Article number (last digit).

Not all combinations are supported.

Note:
For p0496 = 1: 360 ° <--> 2^32
For p0496 = 7, 8: input voltage in mV
For p0496 = 10 (resolver): 2900 mV <--> 26214 dec
For p0496 = 10, 20 (sin/cos 1 Vpp, EnDat): 500 mV <--> 21299 dec
For p0496 = 11 (resolver): 2900 mV <--> 13107 dec, internal processor offset is corrected
For p0496 = 11, 21 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec, internal processor offset is corrected
For p0496 = 12: 180 ° fine position <--> 32768 dec
For p0496 = 13 (resolver): 2900 mV <--> 13107 dec
For p0496 = 13 (sin/cos 1 Vpp, EnDat): 500 mV <--> 10650 dec
For p0496 = 14: 1 ° <--> 286 dec, 100 % <--> 16384 dec
For p0496 = 15: 100 % <--> 16384 dec
For p0496 = 16 (resolver): channel A: 2900 mV <--> 26214 dec, channel B: 2900 mV <--> 26214 dec, channel A and channel B can be shifted by one sample (in time)
For p0496 = 16: (sin/cos 1 Vpp, EnDat) channel A: 500 mV <--> 21299 dec, channel B: 500 mV <--> 21299 dec, channel A and channel B can be shifted by one sample (in time)
For p0496 = 17 (resolver): absolute value: 2900 mV <--> 13107 dec, number: 1 ... 8
For p0496 = 17 (sin/cos 1 Vpp, EnDat): absolute value 500 mV <--> 10650 dec, number: 1 ... 8
For p0496 = 18 (resolver): angle: signal period <--> 2^16, absolute value: 2900 mV <--> 13107 dec
For p0496 = 18 (sin/cos 1 Vpp, EnDat): angle: signal period <--> 2^16, absolute value: 500 mV <--> 10650 dec
For p0496 = 19 (resolver): counter: dec, channel A: 2900 mV <--> 26214 dec
For p0496 = 19 (sin/cos 1 Vpp, EnDat): counter: dec, channel A: 500 mV <--> 21299 dec
For p0496 = 22: 180 ° <--> 32768 dec
For p0496 = 23, 24: r0497.31 (r0499.15) set for at least 1 current controller sampling time when encoder zero mark detected
For p0496 = 24, 25: 500 mV <--> 21299 dec
For p0496 = 30: Rotary: 1 singleturn measuring step <--> 1 dec, linear: 1 measuring step <--> 1 dec
For p0496 = 31: Absolute position, incremental in 1/4 encoder pulses
For p0496 = 32: Zero mark position in 1/4 encoder pulses
For p0496 = 33: counter offset absolute value in 1/4 encoder pulses
For p0496 = 40: r0498 <--> (R_KTY/1 kOhm - 0.9) * 32768
For p0496 = 42: 2500 Ohm <--> 2^32
For p0496 = 51: 1 rpm <--> 1000 dec
For p0496 = 52: In 1/4 encoder pulses
For p0496 = 60: voltage, channel A in mV, voltage, channel B in mV
For p0496 = 61: Channel A: encoder periods <--> 2^16, channel B: encoder periods <--> 2^16
For p0496 = 62: encoder periods <--> 2^16
For p0496 = 70: r: 100% <--> 10000 dec, phase: 180 ° <--> 18000 dec
For p0496 = 80, 81, 85, 86: 1V <--> 1000 inc

r0497[0...2] CO: Encoder diagnostic signal double word / Enc diag DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description:
Displays the trace signal for encoder diagnostics (double word).
The signal to be output is selected in p0496.

Index:
[0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency:
See also: p0496, r0498, r0499

r0498[0...2] CO: Encoder diagnostic signal low word / Enc diag low word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace signal for encoder diagnostics (low component).
The signal to be output is selected in p0496.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0496, r0497, r0499

r0499[0...2] CO: Encoder diagnostic signal high word / Enc diag high word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace signal for encoder diagnostics (high component).
The signal to be output is selected in p0496.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0496, r0497, r0498

p0595 Technological unit selection / Tech unit select

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: C2(5)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Applications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	32	1

Description: Selects the units for the parameters of the technology controller.
For p0595 = 1, 2, the reference variable set in p0596 is not active.

Value:
1: %
2: 1 referred no dimensions
3: bar
4: °C
5: Pa
6: ltr/s
7: m³/s
8: ltr/min
9: m³/min
10: ltr/h
11: m³/h
12: kg/s
13: kg/min
14: kg/h
15: t/min
16: t/h
17: N
18: kN
19: Nm
20: psi
21: °F
22: gallon/s
23: inch³/s
24: gallon/min
25: inch³/min
26: gallon/h
27: inch³/h
28: lb/s
29: lb/min
30: lb/h
31: lbf
32: lbf ft

Dependency: Only the unit of the technology controller parameters are switched over (unit group 9_1).
See also: p0596

Note: When switching over from % into another unit, the following sequence applies:
- set p0596
- set p0595 to the required unit

p0596 Technological unit reference quantity / Tech unit ref qty

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.01	340.28235E36	1.00

Description: Sets the reference quantity for the technological units.
When changing over using changeover parameter p0595 to absolute units, all of the parameters involved refer to the reference quantity.

Dependency: See also: p0595

Notice: When changing over from one technological unit into another, or when changing the reference parameter, a changeover is not made.

p0601[0...n] Motor temperature sensor type / Mot_temp_sens type

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** MDS	**Function diagram:** -
P group: Motor	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	6	0

Description: Sets the sensor type for the motor temperature monitoring.

Value:
0: No sensor
2: KTY84
6: PT1000

Dependency: See also: r0458

p0700[0...n] Macro Binector Input (BI) / Macro BI

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999999	0

Description: Runs the corresponding macro files.
The binector inputs of the corresponding command data set are appropriately interconnected.
The selected macro file must be available on the memory card/device memory.
Example:
p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: See also: p0015, p1000, p1500, r8571

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!
When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning tool.
Macros available as standard are described in the technical documentation of the particular product.
BI: Binector Input
CDS: Command Data Set

p0700 Macro Binector Input (BI) for TMs / Macro BI TM

TM31, TM15DI_DO

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999999	0

Description: Runs the corresponding macro files.
The selected macro file must be available on the memory card/device memory.
Example:
p0700 = 6 --> macro file PM000006.ACX is run.

Dependency: See also: r8571

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!
When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8571. r8571 is not in the expert list of the commissioning tool.
Macros available as standard are described in the technical documentation of the particular product.
BI: Binector Input
CDS: Command Data Set

p0802 Data transfer: memory card as source/target / mem_card src/targ

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: Sets the number for data transfer of a parameter backup from/to memory card.
Transfer from memory card to device memory (p0804 = 1):
- sets the source of parameter backup (e.g. p0802 = 48 --> PS048xxx.ACX is the source).
Transfer from non-volatile device memory to memory card (p0804 = 2):
- sets the target of parameter backup (e.g. p0802 = 23 --> PS023xxx.ACX is the target).

Dependency: See also: p0803, p0804

Note: The volatile device memory is not influenced by data transfer.

p0803 Data transfer: device memory as source/target / Dev_mem src/targ

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	30	0

Description: Sets the number for data transfer of a parameter backup from/to the non-volatile device memory.
Transfer from memory card to device memory (p0804 = 1):
- sets the target of the parameter backup (e.g. p0803 = 10 --> PS010xxx.ACX is the target).
Transfer from non-volatile device memory to memory card (p0804 = 2):
- sets the source of the parameter backup (e.g. p0803 = 11 --> PS011xxx.ACX is the source).

Value:
0: Source/target standard
10: Source/target with setting 10
11: Source/target with setting 11
12: Source/target with setting 12
20: Source/target with setting 20
30: Source/target with setting 30

Dependency: See also: p0802, p0804

Note: The volatile device memory is not influenced by data transfer.

p0804 Data transfer start / Data transf start

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1100	0

Description: Sets the transfer direction and start of data transfer between the memory card and non-volatile device memory.

Example 1:

The parameter backup is to be transferred from the non-volatile device memory to the memory card with setting 0. The parameter backup is to be stored on the memory card with setting 22.

p0802 = 22 (parameter backup stored on memory card as target with setting 22)

p0803 = 0 (parameter backup stored in device memory as source with setting 0)

p0804 = 2 (start data transfer from device memory to memory card)

--> PS000xxx.ACX is transferred from device memory to memory card and stored as PS022xxx.ACX.

--> the parameter backup PS022xxx.ACX on the memory card can be used for data backup.

Example 2:

The parameter backup is to be transferred from the memory card to the non-volatile device memory with setting 22. The parameter backup is to be stored in the device memory as setting 10.

p0802 = 22 (parameter backup stored on memory card as source with setting 22)

p0803 = 10 (define parameter backup with setting 10 as target in the device memory)

p0804 = 1 (start data transfer from memory card to device memory)

--> PS022xxx.ACX is transferred from memory card to device memory and stored as PS010xxx.ACX.

--> this parameter backup can be loaded to the volatile device memory using p0009 = 30 and p0976 = 10.

--> to permanently save in the device memory and also on the memory card, this parameter backup should be saved using p0977 = 1.

Value:

0: Inactive
1: Memory card to device memory
2: Device memory to memory card
1001: File on memory card cannot be opened
1002: File in device memory cannot be opened
1003: Memory card not found
1100: File cannot be transferred

Dependency: See also: p0802, p0803

Notice: The memory card must not be removed while data is being transferred.

Note: If a parameter backup with setting 0 is detected on the memory card when the Control Unit is switched on (PS000xxx.ACX), this is transferred automatically to the device memory.

When the memory card is inserted, a parameter backup with setting 0 (PS000xxx.ACX) is automatically written to the memory card when the parameters are saved in a non-volatile memory (e.g. by means of "Copy RAM to ROM").

Once the data has been successfully transferred, this parameter is automatically reset to 0. If an error occurs, the parameter is set to a value > 1000. Possible fault causes:

p0804 = 1001:

The parameter backup set in p0802 as the source on the memory card does not exist or there is not sufficient memory space available on the memory card.

p0804 = 1002:

The parameter backup set in p0803 as the source in the device memory does not exist or there is not sufficient memory space available in the device memory.

p0804 = 1003:

No memory card has been inserted.

p0806 BI: Inhibit master control / PcCtrl inhibit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to block the master control.

Dependency: See also: r0807

Note: The commissioning tool (drive control panel) uses the master control, for example.

r0807.0 BO: Master control active / PcCtrl active

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays what has the master control.

The drive can be controlled via the BICO interconnection or from external (e.g. the commissioning tool).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Master control active	Yes	No	2580, 3113, 3130

Dependency: See also: p0806

Notice: The master control only influences control word 1 and speed setpoint 1. Other control word/setpoints can be transferred from another automation device.

Note: Bit 0 = 0: BICO interconnection active

Bit 0 = 1: Master control for PC/AOP

The commissioning tool (drive control panel) uses the master control, for example.

p0809[0...2] Copy Command Data Set CDS / Copy CDS

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8560
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	15	0

Description: Copies one Command Data Set (CDS) into another.

Index: [0] = Source Command Data Set
[1] = Target Command Data Set
[2] = Start copying procedure

Note: Procedure:

1. In Index 0, enter which command data set should be copied.
2. In index 1, enter the command data set that is to be copied into.
3. Start copying: set index 2 from 0 to 1.

p0809[2] is automatically set to 0 when copying is completed.

p0810 BI: Command data set selection CDS bit 0 / CDS select., bit 0

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8560
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to select the Command Data Set bit 0 (CDS bit 0).
Dependency: See also: r0050, r0836
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: The Command Data Set selected using the binector inputs is displayed in r0836.
The currently effective command data set is displayed in r0050.
A Command Data Set can be copied using p0809.

p0819[0...2] Copy Drive Data Set DDS / Copy DDS

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(15)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8565
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	31	0

Description: Copies one Drive Data Set (DDS) into another.
Index: [0] = Source Drive Data Set
[1] = Target Drive Data Set
[2] = Start copying procedure
Note: Procedure:
1. In Index 0, enter which drive data set is to be copied.
2. In index 1, enter the drive data set data that is to be copied into.
3. Start copying: set index 2 from 0 to 1.
p0819[2] is automatically set to 0 when copying is completed.

p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 8565, 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 0 (DDS, bit 0).
Dependency: See also: r0051, r0837
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0821[0...n] BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 8565, 8570
P group: Data sets	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to select the Drive Data Set, bit 1 (DDS, bit 1).
Dependency: See also: r0051, r0837
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r0835.2 CO/BO: Data set changeover status word / Data set sw ZSW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8575
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the status word of the data set switchover.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
02	Internal parameter calculation active	Yes	No	-

Note: For bit 02:
A data set changeover is delayed by the time required for the internal parameter calculation.

r0836.0 CO/BO: Command Data Set CDS selected / CDS selected

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8560
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the command data set (CDS) selected via the binector input.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	CDS selection bit 0	ON	OFF	-

Dependency: See also: r0050, p0810

Note: Command data sets are selected via binector input p0810.
The currently effective command data set is displayed in r0050.

r0837.0...1 CO/BO: Drive Data Set DDS selected / DDS selected

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8565
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the drive data set (DDS) selected via the binector input.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DDS selection bit 0	ON	OFF	-
01	DDS selection bit 1	ON	OFF	-

Dependency: See also: r0051, p0820, p0821

Note: Drive data sets are selected via binector input p0820 and following.
The currently effective drive data set is displayed in r0051.

p0840[0...n] BI: ON / OFF (OFF1) / ON / OFF (OFF1)

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "ON/OFF (OFF1)".
For the PROFIdrive profile, this command corresponds to control word 1 bit 0 (STW1.0).

Recommendation: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: See also: p1055, p1056

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: For binector input p0840 = 0 signal, the motor can be moved, jogging using binector input p1055 or p1056.
The command "ON/OFF (OFF1)" can be issued using binector input p0840 or p1055/p1056.
For binector input p0840 = 0 signal, the switching on inhibited is acknowledged.
Only the signal source that originally switched on can also switch off again.
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For drives with closed-loop speed control (p50084 = 1), the following applies:
- BI: p0840 = 0 signal: OFF1 (braking with the ramp-function generator, then pulse suppression and switching on inhibited)

For drives with closed-loop torque control (p50084 = 2), the following applies:
- BI: p0840 = 0 signal: immediate pulse suppression

For drives with closed-loop speed/torque control, the following applies:
- BI: p0840 = 0/1 signal: ON (pulses can be enabled)

p0844[0...n] BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the first signal source for the command "No coast down/coast down (OFF2)".
The following signals are AND'ed:
- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).
BI: p0844 = 0 signal or BI: p0845 = 0 signal
- OFF2 (immediate pulse suppression and switching on inhibited)

BI: p0844 = 1 signal and BI: p0845 = 1 signal
- no OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0845[0...n] BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the second signal source for the command "No coast down/coast down (OFF2)".
The following signals are AND'ed:
- BI: p0844 "No coast-down / coast-down (OFF2) signal source 1"
- BI: p0845 "No coast-down / coast-down (OFF2) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 1 (STW1.1).
BI: p0844 = 0 signal or BI: p0845 = 0 signal
- OFF2 (immediate pulse suppression and switching on inhibited)

BI: p0844 = 1 signal and BI: p0845 = 1 signal
- no OFF2 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.

p0848[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the first signal source for the command "No quick stop/quick stop (OFF3)".
The following signals are AND'ed:
- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
BI: p0848 = 0 signal or BI: p0849 = 0 signal
- OFF3 (braking along the OFF3 ramp (p50296), then pulse suppression and switching on inhibited)

BI: p0848 = 1 signal and BI: p0849 = 1 signal
- no OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0849[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the second signal source for the command "No quick stop/quick stop (OFF3)".
The following signals are AND'ed:
- BI: p0848 "No quick stop / quick stop (OFF3) signal source 1"
- BI: p0849 "No quick stop / quick stop (OFF3) signal source 2"

For the PROFIdrive profile, the result of the AND logic operation corresponds to control word 1 bit 2 (STW1.2).
BI: p0848 = 0 signal or BI: p0849 = 0 signal
- OFF3 (braking along the OFF3 ramp (p50296), then pulse suppression and switching on inhibited)

BI: p0848 = 1 signal and BI: p0849 = 1 signal
- no OFF3 (enable is possible)

Caution: When "master control from PC" is activated, this binector input is effective.

p0852[0...n] BI: Enable operation/inhibit operation / Enable operation

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "enable operation/inhibit operation".
For the PROFIdrive profile, this command corresponds to control word 1 bit 3 (STW1.3).
BI: p0852 = 0 signal
Inhibit operation (suppress pulses).
BI: p0852 = 1 signal
Enable operation (pulses can be enabled).

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p0854[0...n] BI: Control by PLC/no control by PLC / Master ctrl by PLC

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "control by PLC/no control by PLC".
For the PROFIdrive profile, this command corresponds to control word 1 bit 10 (STW1.10).
BI: p0854 = 0 signal
No control by PLC
BI: p0854 = 1 signal
Master control by PLC.

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: This bit is used to initiate a response for the drives when the control fails (F07220). If there is no control available, then binector input p0854 should be set to 1.

If a control is available, then STW1.10 must be set to 1 (PZD1) so that the received data is updated. This applies regardless of the setting in p0854 and even in the case of free telegram configuration (p0922 = 999).

p0855[0...n] BI: Unconditionally release holding brake / Uncond open brake

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the command "unconditionally open holding brake".

Dependency: See also: p0858

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: The signal via binector input p0858 "Unconditionally close holding brake" has a higher priority than via binector input p0855 "Unconditionally open holding brake".

p0856[0...n] BI: Enable speed controller / n_ctrl enable

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "enable speed controller" (r0898.12).

0 signal: Set the I component and speed controller output to zero.

1 signal: Enable speed controller.

Dependency: See also: r0898

Note: If "enable speed controller" is withdrawn, then an existing brake will be closed.

If "enable speed controller" is withdrawn, the pulses are not suppressed.

p0858[0...n] BI: Unconditionally close holding brake / Uncond close brake

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the command "unconditionally close holding brake".

Dependency: See also: p0855

Note: The signal via binector input p0858 "Unconditionally close holding brake" has a higher priority than via binector input p0855 "Unconditionally open holding brake".

For a 1 signal via binector input p0858, the command "unconditionally close the holding brake" is executed and internally a zero setpoint is entered.

r0898.0...14 CO/BO: Control word sequence control / STW seq_ctrl

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 2580
P group: Displays, signals
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Display and connector output for the control word of the sequence control.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
02	OC / OFF3	Yes	No	-
03	Enable operation	Yes	No	-
04	Enable ramp-function generator	Yes	No	-
05	Continue ramp-function generator	Yes	No	-
06	Enable speed setpoint	Yes	No	-
07	Command open brake	Yes	No	-
08	Jog 1	Yes	No	-
09	Jog 2	Yes	No	-
10	Master control by PLC	Yes	No	-
12	Speed controller enable	Yes	No	-
14	Command close brake	Yes	No	-

Note: OC: Operating condition

r0899.0...15 CO/BO: Status word sequence control / ZSW seq_ctrl

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 2585, 2750, 3150, 3151, 3152, 6810, 6830
P group: Displays, signals
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the status word of the sequence control.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Ready for switching on	Yes	No	-
01	Ready	Yes	No	-
02	Operation enabled	Yes	No	-
03	Jog active	Yes	No	-
04	No coasting active	OFF2 inactive	OFF2 active	-
05	No Quick Stop active	OFF3 inactive	OFF3 active	-
06	Switching on inhibited active	Yes	No	-
07	Drive ready	Yes	No	-
08	Controller enable	Yes	No	-
09	Control request	Yes	No	-
11	Pulses enabled	Yes	No	-
12	Open holding brake	Yes	No	-
13	Command close holding brake	Yes	No	-
14	Pulse enable from the brake control	Yes	No	-
15	Setpoint enable from the brake control	Yes	No	-

Note: For bits 00, 01, 02, 04, 05, 06, 09:
For PROFIdrive, these signals are used for status word 1.

p0918 PROFIBUS address / PB address

CU_DC_R_S, CU_DC_R

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 1520, 2410
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	126	125

Description: Sets the PROFIBUS address for PROFIBUS interface (X126) on the Control Unit.
The address can be set as follows:
Via p0918
--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0918 PROFIBUS address / PB address

CU_DC_S, CU_DC

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 1520, 2410
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	126	126

Description: Sets the PROFIBUS address for PROFIBUS interface (X126) on the Control Unit.
The address can be set as follows:
Via p0918
--> The address is saved in a non-volatile fashion using the function "copy from RAM to ROM".
--> A change only becomes effective after a POWER ON.

Note: Permissible PROFIBUS addresses: 1 ... 126
Address 126 is used for commissioning.
Every PROFIBUS address change only becomes effective after a POWER ON.

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 1520, 2420
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
390	999	999

Description: Sets the send and receive telegram.

Value:
390: SIEMENS telegram 390, PZD-2/2
999: Free telegram configuration with BICO

p0922 IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 1520, 2420
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	999	999

Description: Sets the send and receive telegram.

Value:
1: Standard telegram 1, PZD-2/2
3: Standard telegram 3, PZD-5/9
4: Standard telegram 4, PZD-6/14
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Note: If a value is not equal to 999, a telegram is set and the automatically set interconnections in the telegram are inhibited.
The inhibited interconnections can only be changed again after setting value 999.

r0924[0...1] ZSW bit pulses enabled / ZSW pulse enab

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the position of the "Pulses enabled" status signal in the PROFIdrive telegram.
Index: [0] = Signal number
[1] = Bit position

r0944 CO: Counter for fault buffer changes / Fault buff change

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the counter for changes of the fault buffer.
This counter is incremented every time the fault buffer changes.
Recommendation: Used to check whether the fault buffer has been read out consistently.
Dependency: See also: r0945, r0947, r0948, r0949, r2109

r0945[0...63] Fault code / Fault code

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the numbers of faults that have occurred.
Dependency: See also: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122
Notice: The properties of the fault buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Fault buffer structure (general principle):
r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1
. . .
r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8
r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1
. . .
r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8
. . .
r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1
. . .
r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0945[0...63] Fault code / Fault code

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the numbers of faults that have occurred.
Dependency: See also: r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122
Notice: The properties of the fault buffer should be taken from the corresponding product documentation.
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Fault buffer structure (general principle):
r0945[0], r0949[0], r0948[0], r2109[0], r3115[0] --> actual fault case, fault 1
. . .
r0945[7], r0949[7], r0948[7], r2109[7], r3115[7] --> actual fault case, fault 8
r0945[8], r0949[8], r0948[8], r2109[8], r3115[8] --> 1st acknowledged fault case, fault 1
. . .
r0945[15], r0949[15], r0948[15], r2109[15], r3115[15] --> 1st acknowledged fault case, fault 8
. . .
r0945[56], r0949[56], r0948[56], r2109[56], r3115[56] --> 7th acknowledged fault case, fault 1
. . .
r0945[63], r0949[63], r0948[63], r2109[63], r3115[63] --> 7th acknowledged fault case, fault 8

r0946[0...65534] Fault code list / Fault code list

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Lists the fault codes stored in the drive unit.
The indices can only be accessed with a valid fault code.
Example:
r0946[0...999] = 0 --> fault code 0 ... 999 is not available
r0946[1000] = 1000 --> fault code 1000 is available
r0946[1001] = 1001 --> fault code 1001 is available
...
r0946[1008] = 0 --> fault code 1008 is not available
...
Dependency: The parameter assigned to the fault code is entered in r0951 under the same index.

r0947[0...63] Fault number / Fault number

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: This parameter is identical to r0945.

r0947[0...63] Fault number / Fault number

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: This parameter is identical to r0945.

r0948[0...63] Fault time received in milliseconds / t_fault recv ms

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault occurred.
Dependency: See also: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122
Notice: The time comprises r2130 (days) and r0948 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.
When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0948[0...63] Fault time received in milliseconds / t_fault recv ms

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault occurred.
Dependency: See also: r0945, r0947, r0949, r2109, r2114, r2130, r2133, r2136, r3115, r3120, r3122
Notice: The time comprises r2130 (days) and r0948 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.
When the parameter is read via PROFIdrive, the TimeDifference data type applies.

r0949[0...63] Fault value / Fault value

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the fault that occurred (as integer number).
Dependency: See also: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r0949[0...63] Fault value / Fault value

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the fault that occurred (as integer number).
Dependency: See also: r0945, r0947, r0948, r2109, r2130, r2133, r2136, r3115, r3120, r3122
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p0952 Fault cases counter / Fault cases qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Number of fault situations that have occurred since the last reset.
Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.
See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

p0952 Fault cases counter / Fault cases qty

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 6700, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Number of fault situations that have occurred since the last reset.
Dependency: The fault buffer is deleted (cleared) by setting p0952 to 0.
See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136

r0963 PROFIBUS baud rate / PB baud rate

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the corresponding value for the PROFIBUS baud rate.

Value:
0: 9.6 kbit/s
1: 19.2 kbit/s
2: 93.75 kbit/s
3: 187.5 kbit/s
4: 500 kbit/s
6: 1.5 Mbit/s
7: 3 Mbit/s
8: 6 Mbit/s
9: 12 Mbit/s
10: 31.25 kbit/s
11: 45.45 kbit/s
255: Unknown

r0964[0...6] Device identification / Device ident

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the device identification.

Index:
[0] = Company (Siemens = 42)
[1] = Device type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = Number of drive objects
[6] = Firmware patch/hot fix

Note: Example:
r0964[0] = 42 --> SIEMENS
r0964[1] = device type, see below
r0964[2] = 403 --> first part of the firmware version V04.03 (for second part, refer to index 6)
r0964[3] = 2010 --> year 2010
r0964[4] = 1705 --> 17th of May
r0964[5] = 2 --> 2 drive objects
r0964[6] = 200 --> second part, firmware version (complete version: V04.03.02.00)
Device type:
r0964[1] = 5490 --> SINAMICS DCM

r0965 PROFIdrive profile number / PD profile number

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIdrive profile number and profile version.
Constant value = 0329 hex.
Byte 1: Profile number = 03 hex = PROFIdrive profile
Byte 2: Profile version = 29 hex = Version 4.1

Note: When the parameter is read via PROFIdrive, the Octet String 2 data type applies.

p0969 System runtime relative / t_System relative

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8060
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	4294967295 [ms]	0 [ms]

Description: Displays the system runtime in ms since the last POWER ON.

Note: The value in p0969 can only be reset to 0.
The value overflows after approx. 49 days.
When the parameter is read via PROFIdrive, the TimeDifference data type applies.

p0970 Reset drive parameters / Drive par reset

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C2(30)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: The parameter is used to initiate the reset of the parameters of an individual drive unit.
Parameters p0100, p0205 (only for VECTOR) and the parameters of the basic drive commissioning (p0009) are not reset (p0107, p0108, p0111, p0112, p0115, p0121, p0130, p0131, p0140, p0141, p0142, p0170, p0186 ... p0189). These can only be reset using the factory setting of the complete drive unit (p0976).

Value:
0: Inactive
1: Start a parameter reset
5: Starts a safety parameter reset
6: Start reset non-safety/safety parameters
10: Start loading parameters saved with p0971 = 10
11: Start loading parameters saved with p0971 = 11
12: Start loading parameters saved with p0971 = 12
30: Start loading delivery condition saved with p0971 = 30
100: Start a BICO interconnection reset

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.
Parameter reset has been completed if p0970 and p0010 have been set to 0.
For p0970 = 5 the following applies:
The password for Safety Integrated must be set.
When Safety Integrated is enabled, this can result in error messages, which then require an acceptance test to be performed.
Then save the parameters and carry out a POWER ON.

p0970 TM150 reset parameters / TM150 par reset

TM150

Can be changed: C2(30)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 150 (TM150).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Dependency: See also: p0010

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM15DI/DO reset parameter / TM15D par reset

TM15DI_DO

Can be changed: C2(30)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 15 (TM15).
The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Dependency: See also: p0010

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0970 TM31 reset parameters / TM31 par reset

TM31

Can be changed: C2(30)	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: The parameter is used to initiate a reset of the parameters on Terminal Module 31 (TM31).
The sampling time p4099 is not reset if in so doing a conflict occurs with the basic clock cycle.
Parameter p0151 is not reset. It is only reset if the entire drive unit is reset to the factory settings (p0976).

Value:
0: Inactive
1: Start a parameter reset
100: Start a BICO interconnection reset

Dependency: See also: p0010

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: A factory setting run can only be started if p0010 was first set to 30 (parameter reset).
At the end of the calculations, p0970 is automatically set to 0.

p0971 Save drive object parameters / Drv_obj par save

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to save the parameter of the particular drive object in the non-volatile memory.
When saving, only the adjustable parameters intended to be saved are taken into account.

Value:
0: Inactive
1: Save drive object

Dependency: See also: p0977, r3996

Alarm: If the Control Unit power supply is switched off while data is being saved, then the backup of all adjustable parameters can be lost, and the Control Unit must be recommissioned.

Caution: If a memory card (optional) is inserted, the following applies:
The parameters are also saved on the card and therefore overwrite any existing data!

Notice: The Control Unit power supply may only be switched off after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).
Writing to parameters is inhibited while saving.
The progress while saving is displayed in r3996.

Note: Starting from the particular drive object, the following parameters are saved:
CU3xx: Device-specific parameters and PROFIBUS device parameters.
Other objects: Parameters of the actual object and PROFIBUS device parameters.
Prerequisite:
Before saving with p0971, all parameters (topology, all drive objects) must have been saved at least once using p0977 = 1.

p0971 Save drive object parameters / Drv_obj par save

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to save the parameter of the particular drive object in the non-volatile memory.
When saving, only the adjustable parameters intended to be saved are taken into account.

Value:
0: Inactive
1: Save drive object

Dependency: See also: p0977, r3996

Alarm: If the Control Unit power supply is switched off while data is being saved, then the backup of all adjustable parameters can be lost, and the Control Unit must be recommissioned.

Notice: The Control Unit power supply may only be switched off after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).
Writing to parameters is inhibited while saving.
The progress while saving is displayed in r3996.

Note: Starting from the particular drive object, the following parameters are saved:
CU3xx: Device-specific parameters and PROFIBUS device parameters.
Other objects: Parameters of the actual object and PROFIBUS device parameters.
Prerequisite:
Before saving with p0971, all parameters (topology, all drive objects) must have been saved at least once using p0977 = 1.

p0972 Drive unit reset / Drv_unit reset

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the required procedure to execute a hardware reset for the drive unit.

Value:
0: Inactive
1: Hardware-Reset immediate
2: Hardware reset preparation
3: Hardware reset after cyclic communication has failed

Danger: It must be absolutely ensured that the system is in a safe condition.
The memory card/device memory of the Control Unit must not be accessed.

Note: If value = 1:
Reset is immediately executed and communications interrupted.
After communications have been established, check the reset operation (refer below).
This value cannot be set in operation.
If value = 2:
Help to check the reset operation.
Firstly, set p0972 = 2 and then read back. Secondly, set p0972 = 1 (it is possible that this request is possibly no longer acknowledged). The communication is then interrupted.
After communications have been established, check the reset operation (refer below).
If value = 3:
The reset is executed after interrupting cyclic communication. This setting is used to implement a synchronized reset by a control for several drive units.
If cyclic communication is not active, then the reset is immediately executed.
If the cyclic communication is active for both PROFIdrive interfaces, then the reset is executed after completing both cycle communications.
After communications have been established, check the reset operation (refer below).
To check the reset operation:
After the drive unit has been restarted and communications have been established, read p0972 and check the following:
p0972 = 0 --> the reset was successfully executed.
p0972 > 0 --> the reset was not executed.

r0975[0...10] Drive object identification / DO identification

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the identification of the drive object.

Index: [0] = Company (Siemens = 42)
[1] = Drive object type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = PROFIdrive drive object type class
[6] = PROFIdrive drive object sub-type Class 1
[7] = Drive object number
[8] = Reserved
[9] = Reserved
[10] = Firmware patch/hot fix

Note: Example:
r0975[0] = 42 --> SIEMENS
r0975[1] = 11 --> SERVO drive object type
r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)
r0975[3] = 2003 --> year 2003
r0975[4] = 1401 --> 14th of January
r0975[5] = 1 --> PROFIdrive drive object, type class
r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
r0975[7] = 2 --> drive object number = 2
r0975[8] = 0 (reserved)
r0975[9] = 0 (reserved)
r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

r0975[0...10] Drive object identification / DO identification

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the identification of the drive object.

Index: [0] = Company (Siemens = 42)
[1] = Drive object type
[2] = Firmware version
[3] = Firmware date (year)
[4] = Firmware date (day/month)
[5] = PROFIdrive drive object type class
[6] = PROFIdrive drive object sub-type Class 1
[7] = Drive object number
[8] = Reserved
[9] = Reserved
[10] = Firmware patch/hot fix

Note: Example:
r0975[0] = 42 --> SIEMENS
r0975[1] = 17 --> DC_CTRL drive object type
r0975[2] = 102 --> first part, firmware version V01.02 (second part, refer to index 10)
r0975[3] = 2003 --> year 2003
r0975[4] = 1401 --> 14th of January
r0975[5] = 1 --> PROFIdrive drive object, type class
r0975[6] = 9 --> PROFIdrive drive object sub-type class 1
r0975[7] = 2 --> drive object number = 2
r0975[8] = 0 (reserved)
r0975[9] = 0 (reserved)
r0975[10] = 600 --> second part, firmware version (complete version: V01.02.06.00)

p0976 Reset and load all parameters / Reset load all par

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(30), C2(30)	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1013	0

Description: Resets or downloads all parameters of the drive system.

Value:
0: Inactive
1: Start reset of all parameters to factory setting
2: Start dnload of param. saved in non-volatile mem w/ p0977=1
3: Start download of volatile parameters from RAM
10: Start dnload of param. saved in non-volatile mem w/ p0977=10
11: Start dnload of param. saved in non-volatile mem w/ p0977=11
12: Start dnload of param. saved in non-volatile mem w/ p0977=12
20: Start load of param. saved in non-volatile mem w/ p0977=20
30: Start loading the delivery state saved with p0977=30
100: Start resetting of all BICO interconnections
200: Start deleting all user data
1011: Start dnload of param. saved in volatile mem w/ p0977=1011
1012: Start dnload of param. saved in volatile mem w/ p0977=1012
1013: Start dnload of param. saved in volatile mem w/ p0977=1013

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

After executing p0976 = 200, the Control Unit is powered on automatically.

Note: After all of the parameters have been reset to their factory setting, the system must be commissioned for the first time again.

Resetting or loading is realized in the non-volatile memory.

Procedure:

1. Set p0009 = 30 (parameter reset).
2. Set p0976 to "required value". The system is rebooted.

p0976 is automatically set to 0 after execution.

p0977 Save all parameters / Save all par

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Factory settings	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1013	0

Description: Saves all parameters of the drive system to the non-volatile memory.

When saving, only the adjustable parameters intended to be saved are taken into account.

Value:
0: Inactive
1: Save in non-volatile memory - loaded at POWER ON
10: Save as opt. in non-vol. memory - loaded with p0976=10
11: Save as opt. in non-vol. memory - loaded with p0976=11
12: Save as opt. in non-vol. memory - loaded with p0976=12
20: Save as opt. in non-vol. memory - loaded with p0976=20
30: State when delivered, save in non-volatile memory as setting 30
80: Save in non-volatile memory time-optimized (reserved)
1011: Save in volatile memory, downloaded with p0976=1011
1012: Save in volatile memory, downloaded with p0976=1012
1013: Save in volatile memory, downloaded with p0976=1013

Dependency: See also: p0976, r3996

Caution: Memory card inserted:

The drive parameterization is also saved on the card. Any backed-up data is overwritten!

Notice: The Control Unit power supply may only be switched off after data has been saved (i.e. after data save has been started, wait until the parameter again has the value 0).
Writing to parameters is inhibited while saving.
The progress while saving is displayed in r3996.
For p0977 = 30:
The original state when delivered is overwritten when executing this memory function.

Note: Parameters saved with p0977 = 10, 11 or 12 can be downloaded again with p0976 = 10, 11 or 12.
The identification and maintenance data (I&M data, p8806 and following) are only saved for p0977 = 1.

p0978[0...n] List of drive objects / List of the DO

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	[0] 1 [1...24] 0

Description: This parameter is an image of p0101 in conformance with PROFIdrive.
Parameters p0101 and p0978 contain the following information:
1) The same number of drive objects
2) The same drive objects
In this sense, they are consistent.
Difference between p0101 and p0978:
p0978 can be re-sorted and a zero inserted in order to identify those drive objects that participate in the process data exchange and to define their sequence in the process data exchange. Drive objects that are listed after the first zero, are excluded from the process data exchange.
For p0978, in addition, the value 255 can be inserted a multiple number of times.
p0978[n] = 255 means: The drive object is visible for the PROFIBUS master and is empty (without any actual process data exchange). This allows cyclic communications of a PROFIBUS master with unchanged configuring to the drive units with a lower number of drive objects.

Dependency: See also: p0101, p0971, p0977

Note: p0978 cannot be changed when the drive system is first commissioned. The reason for this is that at this time the actual topology has still not been acknowledged (p0099 is still not equal to r0098 and p0009 is set to 0).

r0979[0...30] PROFIdrive encoder format / PD encoder format

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual position encoder used according to PROFIdrive.

Index: [0] = Header
[1] = Type encoder 1
[2] = Resolution encoder 1
[3] = Shift factor G1_XIST1
[4] = Shift factor G1_XIST2
[5] = Distinguishable revolutions encoder 1
[6...10] = Reserved
[11] = Type encoder 2
[12] = Resolution encoder 2
[13] = Shift factor G2_XIST1
[14] = Shift factor G2_XIST2
[15] = Distinguishable revolutions encoder 2
[16...20] = Reserved
[21] = Type encoder 3
[22] = Resolution encoder 3
[23] = Shift factor G3_XIST1
[24] = Shift factor G3_XIST2
[25] = Distinguishable revolutions encoder 3
[26...30] = Reserved

Note: Information about the individual indices can be taken from the following literature:
PROFIdrive Profile Drive Technology

r0980[0...299] List of existing parameters 1 / List avail par 1

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0981, r0989

Note: Modified parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.
This list consists solely of the following parameters:
r0980[0...299], r0981[0...299] ... r0989[0...299]
The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0981[0...299] List of existing parameters 2 / List avail par 2

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0980, r0989

Note: Modified parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here. In a long list, index 299 contains the parameter number at which position the list continues.
This list consists solely of the following parameters:
r0980[0...299], r0981[0...299] ... r0989[0...299]
The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0989[0...299] List of existing parameters 10 / List avail par 10

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the parameters that exist for this drive.

Dependency: See also: r0980, r0981

Note: Modified parameters are displayed in indices 0 to 298. If an index contains the value 0, then the list ends here.

This list consists solely of the following parameters:

r0980[0...299], r0981[0...299] ... r0989[0...299]

The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0990[0...99] List of modified parameters 1 / List chang par 1

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: See also: r0991, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0991[0...99] List of modified parameters 2 / List chang par 2

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 0
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: See also: r0990, r0999

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here. In a long list, index 99 contains the parameter number at which position the list continues.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

r0999[0...99] List of modified parameters 10 / List chang par 10

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays those parameters with a value other than the factory setting for this drive.

Dependency: See also: r0990, r0991

Note: Modified parameters are displayed in indices 0 to 98. If an index contains the value 0, then the list ends here.

This list consists solely of the following parameters:

r0990[0...99], r0991[0...99] ... r0999[0...99]

The parameters in this list are not displayed in the expert list of the commissioning tool. However, they can be read from a higher-level control system (e.g. PROFIBUS master).

p1000[0...n] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999999	0

Description: Runs the corresponding macro files.

The Connector Inputs (CI) for the speed setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.

The selected macro file must be available on the memory card/device memory.

Example:

p1000 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0015, p0700, p1500, r8572

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!

When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8572. r8572 is not in the expert list of the commissioning tool.

Macros available as standard are described in the technical documentation of the particular product.

CI: Connector Input

p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to continually increase the setpoint for the motorized potentiometer.

The setpoint change (CO: r1050) depends on the set ramp-up time (p1047) and the duration of the signal that is present (BI: p1035).

Dependency: See also: p1036

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1036[0...n] BI: Motorized potentiometer lower setpoint / Mop lower

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to continuously lower the setpoint for the motorized potentiometer.
The setpoint change (CO: r1050) depends on the set ramp-down time (p1048) and the duration of the signal that is present (BI: p1036).

Dependency: See also: p1035

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1055[0...n] BI: Jog bit 0 / Jog bit 0

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for jog 1.

Recommendation: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: See also: p0840

Notice: The drive is enabled for jogging using BI: p1055 or BI: p1056.
The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056.
Only the signal source that was used to switch on can also be used to switch off again.

p1056[0...n] BI: Jog bit 1 / Jog bit 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for jog 2.

Recommendation: When the setting for this binector input is changed, the motor can only be switched on by means of an appropriate signal change of the source.

Dependency: See also: p0840

Notice: The drive is enabled for jogging using BI: p1055 or BI: p1056.
The command "ON/OFF1" can be issued using BI: p0840 or using BI: p1055/p1056.
Only the signal source that was used to switch on can also be used to switch off again.

p1070[0...n] CI: Main setpoint / Main setpoint

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3113
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52011[0]

Description: Sets the signal source for the main setpoint.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1113[0...n] BI: Setpoint inversion / Setp inv

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2442, 3113
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to invert the setpoint.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1140[0...n] BI: Enable ramp-function generator/inhibit ramp-function generator / Enable RFG

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "enable ramp-function generator/inhibit ramp-function generator".
For the PROFIdrive profile, this command corresponds to control word 1 bit 4 (STW1.4).
BI: p1140 = 0 signal:
Inhibits the ramp-function generator (the ramp-function generator output is set to zero).
BI: p1140 = 1 signal:
Enable ramp-function generator.

Dependency: See also: p1141, p1142

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p1141[0...n] BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "continue ramp-function generator/freeze ramp-function generator".
For the PROFIdrive profile, this command corresponds to control word 1 bit 5 (STW1.5).
BI: p1141 = 0 signal:
Freezes the ramp-function generator.
BI: p1141 = 1 signal:
Continue ramp-function generator.

Dependency: See also: p1140, p1142

Caution: When "master control from PC" is activated, this binector input is ineffective.

p1142[0...n] BI: Enable setpoint/inhibit setpoint / Setpoint enable

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2580
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the command "enable setpoint/inhibit setpoint".
For the PROFIdrive profile, this command corresponds to control word 1 bit 6 (STW1.6).
BI: p1142 = 0 signal
Inhibits the setpoint (the ramp-function generator input is set to zero).
BI: p1142 = 1 signal
Setpoint enable.

Dependency: See also: p1140, p1141

Caution: When "master control from PC" is activated, this binector input is ineffective.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: When the function module "position control" (r0108.3 = 1) is activated, this binector input is interconnected as follows as standard:
BI: p1142 = 0 signal

r1407.7 CO/BO: Status word speed controller / ZSW n_ctrl

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the status word of the speed controller.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
07	Torque limit reached	Yes	No	6060

p1441[0...n] Actual speed smoothing time / n_act T_smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** CALC_MOD_CON	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 4711
P group: Closed-loop control	**Unit group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [ms]	50.00 [ms]	0.00 [ms]

Description: Sets the smoothing time constant (PT1) for the speed actual value.

Dependency: See also: r0063

Note: The speed actual value should be smoothed for encoders with a low pulse number or for resolvers.
After this parameter has been changed, we recommend that the speed controller is adjusted and/or the speed controller settings Kp (r50219) and Tn (r50218) checked.

p1500[0...n] Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: REL	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	999999	0

Description: Runs the corresponding macro files.
The Connector Inputs (CI) for the torque setpoints of the appropriate Command Data Set (CDS) are appropriately interconnected.
The selected macro file must be available on the memory card/device memory.
Example:
p1500 = 6 --> the macro file PM000006.ACX is run.

Dependency: See also: p0015, p0700, p1000, r8573

Notice: No errors were issued during quick commissioning (p3900 = 1) when writing to parameters of the QUICK_IBN group!
When executing a specific macro, the corresponding programmed settings are made and become active.

Note: The macros in the specified directory are displayed in r8573. r8573 is not in the expert list of the commissioning tool.
Macros available as standard are described in the technical documentation of the particular product.
CI: Connector Input

p1821[0...n] Direction of rotation / Dir of rot

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 4704, 4710, 4711
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to change the direction of rotation.
Changing the parameter reverses the direction of the encoder actual value.

Value:
0: Clockwise
1: Counter-clockwise

Notice: An appropriate fault is output for a drive data set changeover where the direction of rotation changes and the pulses are enabled.

p1982[0...n] PolID selection / PolID selection

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** MDS	**Function diagram:** -
P group: Motor identification	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Activates the pole position identification routine to determine the commutation angle and to carry out a plausibility check.

Value:
0: Pole position identification off
1: Pole position identification for commutation
2: Pole position identification for plausibility check

Recommendation: For p1982 = 1:
This is used for synchronous motors with motor encoder without absolute data.
The information/data regarding the absolute commutation angle is supplied via a track C/D, Hall sensors, an absolute encoder or from the pole position identification routine.
For p1982 = 2:
This is used for synchronous motor with motor encoder with absolute data to check this data.

Note: PolID: Pole position identification

p2000 Reference speed / n_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1), T | **Calculated:** CALC_MOD_ALL | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3113, 9566, 9568, 9572
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
6.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]

Description: Sets the reference quantity for speed.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Dependency: See also: p2001, p2002, p2003, r2004

p2001 Reference voltage / Reference voltage

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T | **Calculated:** CALC_MOD_ALL | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
10 [Vrms]	100000 [Vrms]	1000 [Vrms]

Description: Sets the reference quantity for voltages.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: For the automatic calculation (p0340 = 1, p3900 > 0) an appropriate pre-assignment is only made if the parameter is not inhibited from being overwritten using p0573 = 1.
If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.
For infeed units, the parameterized device supply voltage (p0210) is pre-assigned as the reference quantity.
Example:
The actual value of the DC link voltage (r0070) is connected to a test socket (e.g. p0771[0]). The actual voltage value is cyclically converted into a percentage of the reference voltage (p2001) and output according to the parameterized scaling.

p2002 Reference current / I_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T | **Calculated:** CALC_MOD_ALL | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.10 [Arms]	100000.00 [Arms]	100.00 [Arms]

Description: Sets the reference quantity for current.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Note: All referred current actual values refer to the rated device variables (rated armature current or rated field current).
Reference current p2002 is only used as reference value, if a current actual value in amps is interconnected with a connector input, which expects a referred value (i.e. connector inputs with PERCENT or 4000H scaling).
Example:
CI: p2051 = r0027 (absolute current actual value smoothed [A])

p2003 Reference torque / M_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T | **Calculated:** CALC_MOD_ALL | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** 7_2 | **Unit selection:** p0505
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [Nm]	20000000.00 [Nm]	1.00 [Nm]

Description: Sets the reference quantity for torque.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

r2004 Reference power / P_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: - | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9566, 9568, 9572
P group: Communications | **Unit group:** 14_10 | **Unit selection:** p0505
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
- [kW]	- [kW]	- [kW]

Description: Displays the reference quantity for power.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Dependency: This value is calculated as follows:
Closed-loop control: Calculated from torque times speed.
See also: p2000, p2001, p2002, p2003

Note: If a BICO interconnection is established between different physical quantities, then the particular reference quantities are used as internal conversion factor.
The reference power is calculated as follows:
- 2 * Pi * reference speed / 60 * reference torque (motor)

p2005 Reference angle / Reference angle

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T | **Calculated:** CALC_MOD_ALL | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
90.00 [°]	180.00 [°]	90.00 [°]

Description: Sets the reference quantity for angle.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

p2006 Reference temperature / Ref temp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM150

Can be changed: T | **Calculated:** CALC_MOD_ALL | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
50.00 [°C]	300.00 [°C]	100.00 [°C]

Description: Sets the reference quantity for temperature.
All temperatures specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

p2007 Reference acceleration / a_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.01 [rev/s²]	500000.00 [rev/s²]	0.01 [rev/s²]

Description: Sets the reference quantity for acceleration.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

p2011 Comm IF address / Comm add

CU_DC_R_S, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	127	5

Description: Sets the address for the commissioning interface (PPI).
Note: Only odd-numbered addresses can be set.
Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

p2011 Comm IF address / Comm add

CU_DC_S, CU_DC

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	127	3

Description: Sets the address for the commissioning interface (PPI).
Note: Only odd-numbered addresses can be set.
Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

r2019[0...7] Comm IF error statistics / Comm err

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the receive errors at the commissioning interface (RS232).
Index: [0] = Number of error-free telegrams
[1] = Number of rejected telegrams
[2] = Number of framing errors
[3] = Number of overrun errors
[4] = Number of parity errors
[5] = Number of starting character errors
[6] = Number of checksum errors
[7] = Number of length errors

p2020 Field bus interface baud rate / Field bus baud

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
4	13	8

Description: Sets the baud rate for the fieldbus interface USS.

Value:
4: 2400 baud
5: 4800 baud
6: 9600 baud
7: 19200 baud
8: 38400 baud
9: 57600 baud
10: 76800 baud
11: 93750 baud
12: 115200 baud
13: 187500 baud

Note: Fieldbus IF: Fieldbus interface
Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.
The parameter is set to the factory setting when the protocol is reselected.

p2021 Field bus interface address / Field bus address

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	31	0

Description: Sets the address for the fieldbus interface USS.

Dependency: See also: p2030

Note: Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.
The parameter is set to the factory setting when the protocol is reselected.

p2022 Field bus int USS PZD no. / Field bus USS PZD

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** -
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	16	2

Description: Sets the number of 16-bit words in the PZD part of the USS telegram for the field bus interface.

Dependency: See also: p2030

Note: The parameter is not influenced by setting the factory setting.

p2023 Field bus interface USS PKW count / Field bus USS PKW

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	127	127

Description: Sets the number of 16-bit words in the PKW part of the USS telegram for the field bus interface.

Value:
0: PKW 0 words
3: PKW 3 words
4: PKW 4 words
127: PKW variable

Dependency: See also: p2030

Note: The parameter is not influenced by setting the factory setting.

p2024[0...2] Fieldbus interface times / Fieldbus times

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	[0] 1000 [ms] [1] 0 [ms] [2] 0 [ms]

Description: Sets the time values for the fieldbus interface.
For Modbus the following applies:
p2024[0, 1]: Not relevant.
p2024[2]: Telegram pause time (pause time between two telegrams).

Index:
[0] = Max. processing time
[1] = Character delay time
[2] = Telegram pause time

Dependency: See also: p2020, p2030

Note: For p2024[2] (Modbus):
If the field bus baud rate is changed (p2020), the default time setting is restored.
The default setting corresponds to a time of 3.5 characters (dependent on the baud rate that has been set).

r2029[0...7] Field bus interface error statistics / Field bus error

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the receive errors on the field bus interface (USS).

Index:
[0] = Number of error-free telegrams
[1] = Number of rejected telegrams
[2] = Number of framing errors
[3] = Number of overrun errors
[4] = Number of parity errors
[5] = Number of starting character errors
[6] = Number of checksum errors
[7] = Number of length errors

p2030 Field bus interface protocol selection / Field bus protocol

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	3

Description: Sets the communication protocol for the field bus interface.

Value:
0: No protocol
1: USS
3: PROFIBUS

Note: Changes only become effective after POWER ON.
The parameter is not influenced by setting the factory setting.

r2032 Master control control word effective / PcCtrl STW eff

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the effective control word 1 (STW1) of the drive for the master control.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	ON/OFF1	Yes	No	-
01	OC / OFF2	Yes	No	-
02	OC / OFF3	Yes	No	-
03	Enable operation	Yes	No	-
04	Enable ramp-function generator	Yes	No	-
05	Start ramp-function generator	Yes	No	-
06	Enable speed setpoint	Yes	No	-
07	Acknowledge fault	Yes	No	-
08	Jog bit 0	Yes	No	3030
09	Jog bit 1	Yes	No	3030
10	Master control by PLC	Yes	No	-

Notice: The master control only influences control word 1 and speed setpoint 1. Other control word/setpoints can be transferred from another automation device.

Note: OC: Operating condition

p2035 Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	62	2

Description: Sets the drive object number for communication via the field bus interface (USS).

Dependency: See also: p0978

Note: p2035 defines the destination for USS parameter requests (PIV).
p0978[0] defines the destination for USS process data (PZD).
The parameter is available globally on all drive objects.
The parameter is not influenced by setting the factory setting.

p2037 IF1 PROFIdrive STW1.10 = 0 mode / IF1 PD STW1.10=0

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the processing mode for PROFIdrive STW1.10 "master control by PLC".

Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.

Value:
0: Freeze setpoints and continue to process sign-of-life
1: Freeze setpoints and sign-of-life
2: Do not freeze setpoints

Recommendation: Do not change the setting p2037 = 0.

Note: If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.

p2038 IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Displays the interface mode of the PROFIdrive control words and status words.

Value:
0: SINAMICS
2: VIK-NAMUR

Dependency: See also: p0922, p2079

Notice: The parameter is protected and cannot be changed.

Note: For telegram selection p0922 (p2079) = 20, then p2038 is automatically set = 2.

When another telegram is selected, then p2038 is automatically set = 0.

p2039 Select debug monitor interface / Debug monit select

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	1

Description: Sets the serial interface for the debug monitor.

With p2039 = 1, the serial interface COM2 (X179) is set.

Other values are not permitted.

p2040 Fieldbus interface monitoring time / Fieldbus t_monit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	1999999 [ms]	100 [ms]

Description: Sets the monitoring time to monitor the process data received via the fieldbus interface.

If no process data is received within this time, then an appropriate message is output.

Dependency: See also: p2030
Note: The parameter is only relevant for the following fieldbus protocol.
- USS (p2030 = 1)
Value = 0: Monitoring is deactivated.

p2042 PROFIBUS Ident Number / PB ident No.

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the PROFIBUS ident number (PNO-ID).
SINAMICS can be operated with various identities on PROFIBUS. This allows the use of a PROFIBUS GSD that is independent of the device (e.g. PROFIdrive VIK-NAMUR with ident number 3AA0 hex).
Value: 0: SINAMICS
1: VIK-NAMUR
Note: Every change only becomes effective after a POWER ON.

r2043.0...2 BO: IF1 PROFIdrive PZD state / IF1 PD PZD state

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIdrive PZD state.
Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint failure	Yes	No	-
02	Fieldbus operation	Yes	No	-

Dependency: See also: p2044
Note: When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p2044 IF1 PROFIdrive fault delay / IF1 PD fault delay

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [s]	100 [s]	0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.
The time until the fault is initiated can be used by the application. This means that is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).
Dependency: See also: r2043

p2047 PROFIBUS additional monitoring time / PB suppl t_monit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	20000 [ms]	0 [ms]

Description: Sets the additional monitoring time to monitor the process data received via PROFIBUS.
Enables short bus faults to be compensated.
If no process data is received within this time, then an appropriate message is output.

Recommendation: In the isochronous mode, the additional monitoring time should not be set.

Note: For controller STOP, the additional monitoring time is not effective.

p2048 IF1 PROFIdrive PZD sampling time / IF1 PZD t_sample

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the cyclic interface 1 (IF1).

Note: The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.
For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r2050[0...19] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note: IF1: Interface 1

r2050[0...63] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2440
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Dependency: See also: r2060

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r2050 or r2060.

Note: IF1: Interface 1

r2050[0...4] CO: IF1 PROFIdrive PZD receive word / IF1 PZD recv word

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with word format received from the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF1: Interface 1

p2051[0...24] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2450, 2483
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

p2051[0...63] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2450, 2470, 2483
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Dependency: See also: p2061

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: IF1: Interface 1

p2051[0...4] CI: IF1 PROFIdrive PZD send word / IF1 PZD send word

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) with word format to be sent to the fieldbus controller.
Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: IF1: Interface 1

r2053[0...24] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2483
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.
Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2053[0...63] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2450, 2470
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p2051, p2061

Note: IF1: Interface 1

r2053[0...4] IF1 PROFIdrive diagnostics PZD send word / IF1 diag send word

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD (actual values) with word format sent to the fieldbus controller.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2054 PROFIBUS status / PB status

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4	-

Description: Status display for the PROFIBUS interface.

Value:
0: OFF
1: No connection (search for baud rate)
2: Connection OK (baud rate found)
3: Cyclic connection with master (data exchange)
4: Cyclic data OK

Note:
For r2054 = 2:
If the state is not exited, then set or check the PROFIBUS address in p0918.
For r2054 = 3:
In state 3 (the LED flashes green), a cyclic connection has been established to the PROFIBUS master; however, one of the following prerequisites is missing for cyclic operation:
- no setpoints are being received as the PROFIBUS master is in the STOP condition.
Only for isochronous operation, the following applies:
- the drive is not in synchronism as the global control (GC) has an error.
For r2054 = 4:
In the status 4 (LED green), the cyclic connection to the PROFIBUS master has been established and setpoints are being received. The clock cycle synchronization is OK, the global control (GC) is error-free.
This state does not provide any statement regarding the quality of the clock cycle synchronous sign-of-life characters on the drive objects.

r2055[0...2] PROFIBUS diagnostics standard / PB diag standard

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Diagnostics display for the PROFIBUS interface.

Index:
[0] = Master bus address
[1] = Master input total length bytes
[2] = Master output total length bytes

r2060[0...62] CO: IF1 PROFIdrive PZD receive double word / IF1 PZD recv DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 2440, 2460
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect PZD (setpoints) with double word format received from the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Dependency: See also: r2050

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r2050 or r2060.
A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

p2061[0...62] CI: IF1 PROFIdrive PZD send double word / IF1 PZD send DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Function diagram:** 2450, 2470
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) with double word format to be sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Dependency: See also: p2051

Notice: A BICO interconnection for a single PZD can only take place either on p2051 or p2061.
The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: IF1: Interface 1

r2063[0...62] IF1 PROFIdrive diagnostics PZD send double word / IF1 diag send DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 2450, 2470
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD (actual values) with double word format sent to the fieldbus controller.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
	16	Bit 16	ON	OFF	-
	17	Bit 17	ON	OFF	-
	18	Bit 18	ON	OFF	-
	19	Bit 19	ON	OFF	-
	20	Bit 20	ON	OFF	-
	21	Bit 21	ON	OFF	-
	22	Bit 22	ON	OFF	-
	23	Bit 23	ON	OFF	-
	24	Bit 24	ON	OFF	-
	25	Bit 25	ON	OFF	-
	26	Bit 26	ON	OFF	-
	27	Bit 27	ON	OFF	-
	28	Bit 28	ON	OFF	-
	29	Bit 29	ON	OFF	-
	30	Bit 30	ON	OFF	-
	31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF1: Interface 1

r2064[0...7] PB/PN diagnostics clock cycle synchronism / PB/PN diag clock

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the last parameter received from the PROFIBUS/PROFINET controller for clock synchronism.

The parameters for clock synchronism are created when configuring the bus and are transferred at the start of cyclic operation from the controller to the device.

Index:
[0] = Clock synchronous mode activated
[1] = Bus cycle time (Tdp) [µs]
[2] = Master cycle time (Tmapc) [µs]
[3] = Instant of actual value acquisition (Ti) [µs]
[4] = Instant of setpoint acquisition (To) [µs]
[5] = Data exchange interval (Tdx) [µs]
[6] = PLL window (Tpll-w) [1/12 µs]
[7] = PLL delay time (Tpll-d) [1/12 µs]

r2065 PB/PN controller sign of life diagnostics / PB/PN ctr SoL diag

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays how often the sign-of-life from the clock synchronous PROFIBUS/PROFINET controller last failed.

r2067[0...1] IF1 PZD maximum interconnected / IF1 PZDmaxIntercon

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display for the maximum interconnected PZD in the receive/send direction
Index 0: receive (r2050, r2060)
Index 1: send (p2051, p2061)

p2072 Response receive value after PZD failure / Resp aft PZD fail

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Sets the response for the receive value (r2090) after PZD failure.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Unconditionally open holding brake (p0855)	Freeze value	Zero the value	-

r2074[0...19] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note:
IF1: Interface 1
Value range:
0 - 125: Bus address of the sender
65535: Not assigned

r2074[0...63] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF1: Interface 1
Value range:
0 - 125: Bus address of the sender
65535: Not assigned

r2074[0...4] IF1 PROFIdrive diagnostics bus address PZD receive / IF1diag addr recv

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIBUS address of the sender from which the process data (PZD) is received.
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
Note: IF1: Interface 1
Value range:
0 - 125: Bus address of the sender
65535: Not assigned

r2075[0...19] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2075[0...63] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2075[0...4] IF1 PROFIdrive diagnostics telegram offset PZD receive / IF1 diag offs recv

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive receive telegram (controller output).
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2076[0...24] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2076[0...63] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2076[0...4] IF1 PROFIdrive diagnostics telegram offset PZD send / IF1 diag offs send

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD byte offset in the PROFIdrive send telegram (controller input).
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
Note: IF1: Interface 1
Value range:
0 - 242: Byte offset
65535: Not assigned

r2077[0...15] PROFIBUS diagnostics peer-to-peer data transfer addresses / PB diag peer addr

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the addresses of the slaves (peers) where peer-to-peer data transfer has been configured via PROFIBUS.

p2079 IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
390	999	999

Description: Sets the send and receive telegram.
Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.
Value: 390: SIEMENS telegram 390, PZD-2/2
999: Free telegram configuration with BICO
Note: For p0922 < 999 the following applies:
p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.
For p0922 = 999 the following applies:
p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.
For p0922 = 999 and p2079 < 999 the following applies:
The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2079 IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	999	999

Description: Sets the send and receive telegram.

Contrary to p0922, a telegram can be selected using p2079 and subsequently expanded.

Value:
1: Standard telegram 1, PZD-2/2
3: Standard telegram 3, PZD-5/9
4: Standard telegram 4, PZD-6/14
20: Standard telegram 20, PZD-2/6
220: SIEMENS telegram 220, PZD-10/10
352: SIEMENS telegram 352, PZD-6/6
999: Free telegram configuration with BICO

Dependency: See also: p0922

Note: For p0922 < 999 the following applies:

p2079 has the same value and is inhibited. All of the interconnections and extensions contained in the telegram are inhibited.

For p0922 = 999 the following applies:

p2079 can be freely set. If p2079 is also set to 999, then all of the interconnections can be set.

For p0922 = 999 and p2079 < 999 the following applies:

The interconnections contained in the telegram are inhibited. However, the telegram can be extended.

p2080[0...15] BI: Binector-connector converter status word 1 / Bin/con ZSW1

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2472
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.

The individual bits are combined to form status word 1.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2081[0...15] BI: Binector-connector converter status word 2 / Bin/con ZSW2

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2472
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form status word 2.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

Note: For clock synchronous operation, bit 12 to 15 to transfer the sign-of-life are reserved in status word 2 - and may not be freely interconnected.

p2082[0...15] BI: Binector-connector converter status word 3 / Bin/con ZSW3

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2472
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form free status word 3.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p2088, r2089

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

p2083[0...15] BI: Binector-connector converter status word 4 / Bin/con ZSW4

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2472
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form free status word 4.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p2088, r2089

p2084[0...15] BI: Binector-connector converter status word 5 / Bin/con ZSW5

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2472
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Selects bits to be sent to the PROFIdrive controller.
The individual bits are combined to form free status word 5.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p2088, r2089

p2088[0...4] Invert binector-connector converter status word / Bin/con ZSW inv

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2472
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector inputs of the binector-connector converter.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: See also: p2080, p2081, p2082, p2083, r2089

r2089[0...4] CO: Send binector-connector converter status word / Bin/con ZSW send

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2472
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-

06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: p2051, p2080, p2081, p2082, p2083

Note: r2089 together with p2080 to p2084 forms five binector-connector converters.

r2090.0...15 BO: IF1 PROFIdrive PZD1 receive bit-serial / IF1 PZD1 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2440, 2460, 2481

P group: Communications **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2090.0...15 BO: IF1 PROFIdrive PZD1 receive bit-serial / IF1 PZD1 recv bitw

TM31, TM15DI_DO, TM150

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2468

P group: Communications **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2091.0...15 BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2460, 2481
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2091.0...15 BO: IF1 PROFIdrive PZD2 receive bit-serial / IF1 PZD2 recv bitw

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2468
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD2 received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2092.0...15 BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2468
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2092.0...15 BO: IF1 PROFIdrive PZD3 receive bit-serial / IF1 PZD3 recv bitw

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2460
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD3 received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2093.0...15 BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2468
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2093.0...15 BO: IF1 PROFIdrive PZD4 receive bit-serial / IF1 PZD4 recv bitw

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2460
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received from the PROFIdrive controller.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF1: Interface 1

r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2460, 2481
P group: Communications **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller.
The PZD is selected via p2099[0].

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p2099

r2094.0...15 BO: Connector-binector converter binector output / Con/bin outp

TM31, TM15DI_DO, TM150

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2468
P group: Communications **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Binector output for bit-serial onward interconnection of a PZD word received from the PROFIdrive controller.
The PZD is selected via p2099[0].

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p2099

r2095.0...15 BO: Connector-binector converter binector output / Con/bin outp

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2440, 2460, 2481
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller.
The PZD is selected via p2099[1].

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p2099

r2095.0...15 BO: Connector-binector converter binector output / Con/bin outp

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2468
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received from the PROFIdrive controller.
The PZD is selected via p2099[1].

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p2099

p2098[0...1] Inverter connector-binector converter binector output / Con/bin outp inv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 2460, 2481
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: - | **Max:** - | **Factory setting:** 0000 0000 0000 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: r2094, r2095, p2099

p2098[0...1] Inverter connector-binector converter binector output / Con/bin outp inv

TM31, TM15DI_DO, TM150

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 2468
P group: Communications | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: - | **Max:** - | **Factory setting:** 0000 0000 0000 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p2098[0], the signals of connector input p2099[0] are influenced.
Using p2098[1], the signals of connector input p2099[1] are influenced.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: r2094, r2095, p2099

p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2460, 2481
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: See also: r2094, r2095

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.
p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters:
Connector input p2099[0] to binector output in r2094.0...15
Connector input p2099[1] to binector output in r2095.0...15

p2099[0...1] CI: Connector-binector converter signal source / Con/bin S_src

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2468
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: See also: r2094, r2095

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.
p2099[0...1] together with r2094.0...15 and r2095.0...15 forms two connector-binector converters:
Connector input p2099[0] to binector output in r2094.0...15
Connector input p2099[1] to binector output in r2095.0...15

p2100[0...19] Change fault response fault number / Chng resp F_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects the faults for which the fault response should be changed

Dependency: The fault is selected and the required response is set under the same index.
See also: p2101

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2100[0...19] Change fault response fault number / Chng resp F_no

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects the faults for which the fault response should be changed

Dependency: The fault is selected and the required response is set under the same index.
See also: p2101

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] Change fault response response / Chng resp resp

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	0	0

Description: Sets the fault response for the selected fault.

Value: 0: NONE

Dependency: The fault is selected and the required response is set under the same index.

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
- fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2101[0...19] Change fault response response / Chng resp resp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	7	0

Description: Sets the fault response for the selected fault.

Value:
0: NONE
1: OFF1
2: OFF2
3: OFF3
5: Reserved
6: Reserved
7: Reserved

Dependency: The fault is selected and the required response is set under the same index.
See also: p2100

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
- fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.
The fault response can only be changed for faults with the appropriate identification (see the List Manual, chapter "Faults and alarms").
Example:
F12345 and fault response = OFF3 (OFF1, OFF2, NONE)
--> The default fault response OFF3 can be changed to OFF1, OFF2 or NONE.
For value = 1 (OFF1):
Braking along the ramp-function generator down ramp followed by a pulse inhibit.
For value = 2 (OFF2):
Internal/external pulse inhibit.
For value = 3 (OFF3):
Braking along the OFF3 down ramp followed by a pulse inhibit.
Parameter values designated as "reserved", act just like the value = 2 (OFF2)

p2101[0...19] Change fault response response / Chng resp resp

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	0	0

Description: Sets the fault response for the selected fault.

Value:
0: NONE

Dependency: The fault is selected and the required response is set under the same index.

Notice: For the following cases, it is not possible to re-parameterize the fault response to a fault:
- fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- fault response is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2102 BI: Acknowledge all faults / Ackn all faults

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2546, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to acknowledge all faults at all drive objects of the drive system.

Note: A fault acknowledgment is triggered with a 0/1 signal.

p2103 BI: 1st acknowledge faults / 1st acknowledge

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the first signal source to acknowledge faults.
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2103[0...n] BI: 1st acknowledge faults / 1st acknowledge

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the first signal source to acknowledge faults.
Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2104 BI: 2nd acknowledge faults / 2nd acknowledge

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the second signal source to acknowledge faults.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2104[0...n] BI: 2nd acknowledge faults / 2nd acknowledge

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the second signal source to acknowledge faults.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2105 BI: 3rd acknowledge faults / 3rd acknowledge

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the third signal source to acknowledge faults.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2105[0...n] BI: 3rd acknowledge faults / 3rd acknowledge

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the third signal source to acknowledge faults.
Note: A fault acknowledgment is triggered with a 0/1 signal.

p2106 BI: External fault 1 / External fault 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 1.
Dependency: See also: F07860
Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2106[0...n] BI: External fault 1 / External fault 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 1.
Dependency: See also: F07860
Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107 BI: External fault 2 / External fault 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 2.
Dependency: See also: F07861
Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2107[0...n] BI: External fault 2 / External fault 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 2.

Dependency: See also: F07861

Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108 BI: External fault 3 / External fault 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p3110, p3111, p3112
See also: F07862

Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

p2108[0...n] BI: External fault 3 / External fault 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p3110, p3111, p3112
See also: F07862

Note: An external fault is triggered with a 0 signal.
If this fault is output at the Control Unit, then it is transferred to all existing drive objects.

r2109[0...63] Fault time removed in milliseconds / t_flt resolved ms

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: See also: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2109[0...63] Fault time removed in milliseconds / t_flt resolved ms

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the fault was removed.

Dependency: See also: r0945, r0947, r0948, r0949, r2114, r2130, r2133, r2136, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r2110[0...63] Alarm number / Alarm number

All objects

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: This parameter is identical to r2122.

p2111 Alarm counter / Alarm counter

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Number of alarms that have occurred after the last reset.

Dependency: When p2111 is set to 0, the following is initiated:
- all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
- the alarm buffer [0...7] is deleted.
See also: r2110, r2122, r2123, r2124, r2125

Note: The parameter is reset to 0 at POWER ON.

p2111 Alarm counter / Alarm counter

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Number of alarms that have occurred after the last reset.

Dependency: When p2111 is set to 0, the following is initiated:
- all of the alarms of the alarm buffer that have gone [0...7] are transferred into the alarm history [8...63].
- the alarm buffer [0...7] is deleted.
See also: r2110, r2122, r2123, r2124, r2125

Note: The parameter is reset to 0 at POWER ON.

p2112 BI: External alarm 1 / External alarm 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external alarm 1.

Dependency: See also: A07850

Note: An external alarm is triggered with a 0 signal.

p2112[0...n] BI: External alarm 1 / External alarm 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external alarm 1.

Dependency: See also: A07850

Note: An external alarm is triggered with a 0 signal.

r2114[0...1] System runtime total / Sys runtime tot

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the total system runtime for the drive unit.
The time comprises r2114[0] (milliseconds) and r2114[1] (days).
After r2114[0] has reached a value of 86.400.000 ms (24 hours) this value is reset and r2114[1] is incremented.

Index: [0] = Milliseconds
[1] = Days

Dependency: See also: r0948, r2109, r2123, r2125, r2130, r2136, r2145, r2146

Note: The time in r2114 is used to display the times for faults and alarms.
When the electronic power supply is switched out, the counter values are saved.
After the drive unit is switched on, the counter continues to run with the last value that was saved.

p2116 BI: External alarm 2 / External alarm 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** -
P group: Messages | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 1

Description: Sets the signal source for external alarm 2.
Dependency: See also: A07851
Note: An external alarm is triggered with a 0 signal.

p2116[0...n] BI: External alarm 2 / External alarm 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** CDS, p0170 | **Function diagram:** 2546
P group: Messages | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 1

Description: Sets the signal source for external alarm 2.
Dependency: See also: A07851
Note: An external alarm is triggered with a 0 signal.

p2117 BI: External alarm 3 / External alarm 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** -
P group: Messages | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 1

Description: Sets the signal source for external alarm 3.
Dependency: See also: A07852
Note: An external alarm is triggered with a 0 signal.

p2117[0...n] BI: External alarm 3 / External alarm 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** CDS, p0170 | **Function diagram:** 2546
P group: Messages | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 1

Description: Sets the signal source for external alarm 3.
Dependency: See also: A07852
Note: An external alarm is triggered with a 0 signal.

p2118[0...19] Change message type message number / Chng type msg_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects faults or alarms for which the message type should be changed.

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
See also: p2119

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

p2118[0...19] Change message type message number / Chng type msg_no

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects faults or alarms for which the message type should be changed.

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
See also: p2119

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

p2119[0...19] Change message type type / Change type type

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	3	1

Description: Sets the message type for the selected fault or alarm.

Value:
1: Fault (F)
2: Alarm (A)
3: No message (N)

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
See also: p2118

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.

The message type can only be changed for messages with the appropriate identification (exception, value = 0).

Example:

F12345(A) --> Fault F12345 can be changed to alarm A12345.

In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

p2119[0...19] Change message type type / Change type type

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	3	1

Description: Sets the message type for the selected fault or alarm.

Value:
1: Fault (F)
2: Alarm (A)
3: No message (N)

Dependency: Selects the fault or alarm selection and sets the required type of message realized under the same index.
See also: p2118

Note: Re-parameterization is also possible if a message is present. The change only becomes effective after the message has gone.
The message type can only be changed for messages with the appropriate identification (exception, value = 0).
Example:
F12345(A) --> Fault F12345 can be changed to alarm A12345.
In this case, the message number that may be possibly entered in p2100[0...19] and p2126[0...19] is automatically removed.

r2120 CO: Sum of fault and alarm buffer changes / Sum buffer changed

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the sum of all of the fault and alarm buffer changes in the drive unit.

Dependency: See also: r0944, r2121

r2121 CO: Counter alarm buffer changes / Alrm buff changed

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: This counter is incremented every time the alarm buffer changes.

Dependency: See also: r2110, r2122, r2123, r2124, r2125

r2122[0...63] Alarm code / Alarm code

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of alarms that have occurred.

Dependency: See also: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123

Notice: The properties of the alarm buffer should be taken from the corresponding product documentation.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Alarm buffer structure (general principle):
r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)
. . .
r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)
When the alarm buffer is full, the alarms that have gone are entered into the alarm history:
r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)
. . .
r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2122[0...63] Alarm code / Alarm code

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of alarms that have occurred.
Dependency: See also: r2110, r2123, r2124, r2125, r2134, r2145, r2146, r3121, r3123
Notice: The properties of the alarm buffer should be taken from the corresponding product documentation.
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
Alarm buffer structure (general principle):
r2122[0], r2124[0], r2123[0], r2125[0] --> alarm 1 (the oldest)
. . .
r2122[7], r2124[7], r2123[7], r2125[7] --> Alarm 8 (the latest)
When the alarm buffer is full, the alarms that have gone are entered into the alarm history:
r2122[8], r2124[8], r2123[8], r2125[8] --> Alarm 1 (the latest)
. . .
r2122[63], r2124[63], r2123[63], r2125[63] --> alarm 56 (the oldest)

r2123[0...63] Alarm time received in milliseconds / t_alarm recv ms

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm occurred.
Dependency: See also: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123
Notice: The time comprises r2145 (days) and r2123 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2123[0...63] Alarm time received in milliseconds / t_alarm recv ms

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050, 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm occurred.
Dependency: See also: r2110, r2114, r2122, r2124, r2125, r2134, r2145, r2146, r3121, r3123
Notice: The time comprises r2145 (days) and r2123 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63] Alarm value / Alarm value

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the active alarm (as integer number).
Dependency: See also: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2124[0...63] Alarm value / Alarm value

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8050, 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the active alarm (as integer number).
Dependency: See also: r2110, r2122, r2123, r2125, r2134, r2145, r2146, r3121, r3123
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2125[0...63] Alarm time removed in milliseconds / t_alarm res ms

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm was cleared.
Dependency: See also: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123
Notice: The time comprises r2146 (days) and r2125 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r2125[0...63] Alarm time removed in milliseconds / t_alarm res ms

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050, 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ms]	- [ms]	- [ms]

Description: Displays the system runtime in milliseconds when the alarm was cleared.
Dependency: See also: r2110, r2114, r2122, r2123, r2124, r2134, r2145, r2146, r3121, r3123
Notice: The time comprises r2146 (days) and r2125 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

p2126[0...19] Change acknowledge mode fault number / Chng ackn F_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects the faults for which the acknowledge mode is to be changed

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index

See also: p2127

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2126[0...19] Change acknowledge mode fault number / Chng ackn F_no

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Selects the faults for which the acknowledge mode is to be changed

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index

See also: p2127

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

p2127[0...19] Change acknowledge mode mode / Chng ackn mode

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	3	1

Description: Sets the acknowledge mode for selected fault.

Value:
1: Acknowledgment only using POWER ON
2: Ack IMMEDIATELY after the fault cause has been removed
3: Acknowledgment only for PULSE INHIBIT

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index

See also: p2126

Notice: It is not possible to re-parameterize the acknowledge mode for a fault in the following cases:

- fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Acknowledge mode is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.

The acknowledge mode can only be changed for faults with the appropriate identification.

Example:

F12345 and acknowledge mode = IMMEDIATELY (POWER ON)

--> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

p2127[0...19] Change acknowledge mode mode / Chng ackn mode

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8050, 8075
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	3	1

Description: Sets the acknowledge mode for selected fault.

Value:
1: Acknowledgment only using POWER ON
2: Ack IMMEDIATELY after the fault cause has been removed
3: Acknowledgment only for PULSE INHIBIT

Dependency: Selects the faults and sets the required acknowledge mode realized under the same index
See also: p2126

Notice: It is not possible to re-parameterize the acknowledge mode for a fault in the following cases:
- fault number does not exist (exception value = 0).
- Message type is not "fault" (F).
- Acknowledge mode is not permissible for the set fault number.

Note: Re-parameterization is also possible if a fault is present. The change only becomes effective after the fault has been resolved.
The acknowledge mode can only be changed for faults with the appropriate identification.
Example:
F12345 and acknowledge mode = IMMEDIATELY (POWER ON)
--> The acknowledge mode can be changed from IMMEDIATELY to POWER ON.

p2128[0...15] Faults/alarms trigger selection / F/A trigger sel

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8070
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15.

Dependency: If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.
See also: r2129

p2128[0...15] Faults/alarms trigger selection / F/A trigger sel

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8050, 8070
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the faults/alarms for which a trigger signal should be generated in r2129.0...15.

Dependency: If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.
See also: r2129

r2129.0...15 CO/BO: Faults/alarms trigger word / F/A trigger word

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8070
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the trigger signals of the faults/alarms set in p2128[0...15].

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Trigger signal p2128[0]	ON	OFF	-
01	Trigger signal p2128[1]	ON	OFF	-
02	Trigger signal p2128[2]	ON	OFF	-
03	Trigger signal p2128[3]	ON	OFF	-
04	Trigger signal p2128[4]	ON	OFF	-
05	Trigger signal p2128[5]	ON	OFF	-
06	Trigger signal p2128[6]	ON	OFF	-
07	Trigger signal p2128[7]	ON	OFF	-
08	Trigger signal p2128[8]	ON	OFF	-
09	Trigger signal p2128[9]	ON	OFF	-
10	Trigger signal p2128[10]	ON	OFF	-
11	Trigger signal p2128[11]	ON	OFF	-
12	Trigger signal p2128[12]	ON	OFF	-
13	Trigger signal p2128[13]	ON	OFF	-
14	Trigger signal p2128[14]	ON	OFF	-
15	Trigger signal p2128[15]	ON	OFF	-

Dependency: If the fault/alarm set in p2128[0...15] occurs, then the particular binector output r2129.0...15 is set.
See also: p2128

Note: CO: r2129 = 0 --> None of the selected messages has occurred.
CO: r2129 > 0 --> At least one of the selected messages has occurred.

r2130[0...63] Fault time received in days / t_fault recv days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the system runtime in days when the fault occurred.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2114, r2133, r2136, p3100, r3115, r3120, r3122

Notice: The time comprises r2130 (days) and r0948 (milliseconds).
The time display depends on the selected mode (p3100).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2131 CO: Actual fault code / Act fault code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the code of the oldest active fault.

Dependency: See also: r3131, r3132

Note: 0: No fault present.

r2132 CO: Actual alarm code / Actual alarm code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the code of the last alarm that occurred.

Note: 0: No alarm present.

r2133[0...63] Fault value for float values / Fault val float

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the fault that occurred for float values.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2136, r3115

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2134[0...63] Alarm value for float values / Alarm value float

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays additional information about the active alarm for float values.

Dependency: See also: r2110, r2122, r2123, r2124, r2125, r2145, r2146, r3121, r3123

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2135.0...2 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2548
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the second status word of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-

r2135.0...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2548
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the second status word of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
12	Fault motor overtemperature	Yes	No	8038
13	Fault power unit thermal overload	Yes	No	8042
14	Alarm motor overtemperature	Yes	No	8038
15	Alarm power unit thermal overload	Yes	No	8042

r2135.0...15 CO/BO: Status word faults/alarms 2 / ZSW fault/alarm 2

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2548
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the second status word of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fault encoder 1	Yes	No	-
01	Fault encoder 2	Yes	No	-
02	Fault encoder 3	Yes	No	-
12	Fault motor overtemperature	Yes	No	8016
13	Fault power unit thermal overload	Yes	No	8021
14	Alarm motor overtemperature	Yes	No	8016
15	Alarm power unit thermal overload	Yes	No	8021

r2136[0...63] Fault time removed in days / t_flt resolv days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the system runtime in days when the fault was removed.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2114, r2130, r2133, r3115, r3120, r3122

Notice: The time comprises r2136 (days) and r2109 (milliseconds).

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2546, 8060, 8065
P group: Displays, signals **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output for the control word of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
07	Acknowledge fault	Yes	No	8060
10	External alarm 1 (A07850) effective	Yes	No	8065
11	External alarm 2 (A07851) effective	Yes	No	8065
12	External alarm 3 (A07852) effective	Yes	No	8065
13	External fault 1 (F07860) effective	Yes	No	8060
14	External fault 2 (F07861) effective	Yes	No	8060
15	External fault 3 (F07862) effective	Yes	No	8060

Dependency: See also: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2138.7...15 CO/BO: Control word faults/alarms / STW fault/alarm

TM31, TM15DI_DO, TM150

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2546
P group: Displays, signals **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output for the control word of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
07	Acknowledge fault	Yes	No	8060
10	External alarm 1 (A07850) effective	Yes	No	8065
11	External alarm 2 (A07851) effective	Yes	No	8065
12	External alarm 3 (A07852) effective	Yes	No	8065
13	External fault 1 (F07860) effective	Yes	No	8060
14	External fault 2 (F07861) effective	Yes	No	8060
15	External fault 3 (F07862) effective	Yes	No	8060

Dependency: See also: p2103, p2104, p2105, p2106, p2107, p2108, p2112, p2116, p2117, p3110, p3111, p3112

r2139.0...15 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2548, 8060, 8065
P group: Displays, signals **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output for status word 1 of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Being acknowledged	Yes	No	-
01	Acknowledgment required	Yes	No	-

03	Fault present	Yes	No	8060
05	Safety message present	Yes	No	-
06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	8065
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note: For bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. For this reason, the fault/alarm buffer should only be read if, after "Fault active" or "Alarm active" occurs, a change is also identified in the buffer (r0944, r9744, r2121).

For bit 06, 08:

These status bits are used for internal diagnostic purposes only.

For bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r2139.0...15 CO/BO: Status word faults/alarms 1 / ZSW fault/alarm 1

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2548
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for status word 1 of faults and alarms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Being acknowledged	Yes	No	-
01	Acknowledgment required	Yes	No	-
03	Fault present	Yes	No	8060
05	Safety message present	Yes	No	-
06	Internal message 1 present	Yes	No	-
07	Alarm present	Yes	No	8065
08	Internal message 2 present	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Fault gone/can be acknowledged	Yes	No	-

Note: For bit 03, 05, 07:

These bits are set if at least one fault/alarm occurs. Data is entered into the fault/alarm buffer with delay. For this reason, the fault/alarm buffer should only be read if, after "Fault active" or "Alarm active" occurs, a change is also identified in the buffer (r0944, r9744, r2121).

For bit 06, 08:

These status bits are used for internal diagnostic purposes only.

For bit 12, 11:

These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.

r2145[0...63] Alarm time received in days / t_alarm recv days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the system runtime in days when the alarm occurred.
Dependency: See also: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2146, r3121, r3123
Notice: The time comprises r2145 (days) and r2123 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

r2146[0...63] Alarm time removed in days / t_alarm res days

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the system runtime in days when the alarm was cleared.
Dependency: See also: r2110, r2114, r2122, r2123, r2124, r2125, r2134, r2145, r3121, r3123
Notice: The time comprises r2146 (days) and r2125 (milliseconds).
Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).

p2147 Delete fault buffer of all drive objects / Del fault buffer

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8060
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to delete the fault buffer of all existing drive objects.
Value:
0: Inactive
1: Start to delete the fault buffer of all drive objects
Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136
Note: p2147 is automatically set to 0 after execution.

r2197.3...7 CO/BO: Status word monitoring 1 / ZSW monitor 1

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2534
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the first status word of the monitoring functions.
Bit array:

Bit	Signal name	1 signal	0 signal	FP
03	n_act >= 0	Yes	No	8011
07	Speed setpoint - actual value deviation in tolerance t_off	Yes	No	8011

r2199.1 CO/BO: Status word monitoring 3 / ZSW monitor 3

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Data type: Unsigned16
P group: Messages
Not for motor type: -
Min: -
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: -
Access level: 2
Function diagram: 2537
Unit selection: -
Expert list: 1
Factory setting: -

Description: Display and BICO output for the third status word of the monitoring functions.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
01	f or n comparison value reached or exceeded	Yes	No	8010

p2200[0...n] BI: Technology controller enable / Tec_ctrl enable

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T
Data type: Unsigned32 / Binary
P group: Technology
Not for motor type: -
Min: -
Calculated: -
Dyn. index: CDS, p0170
Unit group: -
Scaling: -
Max: -
Access level: 2
Function diagram: 7958
Unit selection: -
Expert list: 1
Factory setting: 0

Description: Sets the signal source to switch in/switch out the technology controller.
The technology controller is switched in with a 1 signal.

p2252 Technology controller configuration / Tec_ctrl config

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T
Data type: Unsigned16
P group: Modulation
Not for motor type: -
Min: -
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: -
Access level: 3
Function diagram: -
Unit selection: -
Expert list: 1
Factory setting: 0111 bin

Description: Sets the configuration of the technology controller.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Ramp-up/down time independent of setpoint sign	Yes	No	-
01	Integrator independent of Kp	Yes	No	-
02	Output signal without ramp active	Yes	No	-
03	Actual value limit	Yes	No	-

Dependency: See also: p2257, p2258, p2267, p2268, p2280, p2285

Note: For bit 00 = 0:

The ramp-down time (p2258) switches to the ramp-up time (p2257) when the sign for the output signal r2260 changes. When the sign changes, the output signal is kept at zero for one arithmetic cycle.

For bit 00 = 1:

When r2260 exhibits a positive gradient, the ramp-up time (p2257) is active; when it exhibits a negative gradient, the ramp-down time (p2258) is active. The sign for r2260 does not have any effect on the ramp time.

For bit 01 = 0:

The integration time of the PID controller is evaluated with the gain factor Kp (p2280) (p2285 = integral time).

For bit 01 = 1:

The integration time of the PID controller is independent of the gain factor (p2285 = integration time) if p2280 > 0.

For bit 02 = 0:

When the PID controller is deactivated via p2200, the output signal r2294 is reduced to zero via the ramp-down time p2293.

For bit 02 = 1:

When the PID controller is deactivated via p2200, the output signal r2294 is set directly to zero.

For bit 03 = 0:

The actual values are not limited by p2267 and p2268.

For bit 03 = 1:

The actual values are limited by p2267 and p2268.

p2253[0...n] CI: Technology controller setpoint 1 / Tec_ctrl setp 1

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the setpoint 1 of the technology controller.

Dependency: See also: p2254, p2255

p2254[0...n] CI: Technology controller setpoint 2 / Tec_ctrl setp 2

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the setpoint 2 of the technology controller.

Dependency: See also: p2253, p2256

p2255 Technology controller setpoint 1 scaling / Tec_ctrl set1 scal

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the setpoint 1 of the technology controller.

Dependency: See also: p2253

p2256 Technology controller setpoint 2 scaling / Tec_ctrl set2 scal

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the setpoint 2 of the technology controller.
Dependency: See also: p2254

p2257 Technology controller ramp-up time / Tec_ctrl t_ramp-up

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	650.00 [s]	1.00 [s]

Description: Sets the ramp-up time of the technology controller.
Dependency: See also: p2252, p2258
Note: The ramp-up time is referred to 100 %.

p2258 Technology controller ramp-down time / Tec_ctrl t_ramp-dn

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	650.00 [s]	1.00 [s]

Description: Sets the ramp-down time of the technology controller.
Dependency: See also: p2252, p2257
Note: The ramp-down time is referred to 100 %.

r2260 CO: Technology controller setpoint after ramp-function generator / Tec_ctr set aftRFG

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the setpoint after the ramp-function generator of the technology controller.

p2261 Technology controller setpoint filter time constant / Tec_ctrl set T

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the setpoint filter (PT1) of the technology controller.

r2262 CO: Technology controller setpoint after filter / Tec_ctr set aftFlt

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the smoothed setpoint after the setpoint filter (PT1) of the technology controller.

p2263 Technology controller type / Tec_ctrl type

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the type of technology controller.

Value:
0: D component in the actual value signal
1: D component in system deviation

p2264[0...n] CI: Technology controller actual value / Tec_ctrl act val

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the actual value of the technology controller.

p2265 Technology controller actual value filter time constant / Tec_ctrl act T

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the actual value filter (PT1) of the technology controller.

r2266 CO: Technology controller actual value after filter / Tec_ctr act aftFlt

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the smoothed actual value after the filter (PT1) of the technology controller.

p2267 Technology controller upper limit actual value / Tec_ctrl u_lim act

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	200.00 [%]

Description: Sets the upper limit for the actual value signal of the technology controller.

Dependency: See also: p2252, p2264, p2265, p2271
See also: F07426

Notice: If the actual value exceeds this upper limit, this results in fault F07426.

Note: Limiting only active for p2252.3 = 1.

p2268 Technology controller lower limit actual value / Tec_ctrl l_lim act

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	-200.00 [%]

Description: Sets the lower limit for the actual value signal of the technology controller.

Dependency: See also: p2264, p2265, p2271
See also: F07426

Notice: If the actual value falls below this lower limit, this results in fault F07426.

Note: Limiting only active for p2252.3 = 1.

p2269 Technology controller gain actual value / Tech_ctrl gain act

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	500.00 [%]	100.00 [%]

Description: Sets the scaling factor for the actual value of the technology controller.

Dependency: See also: p2264, p2265, p2267, p2268, p2271

Note: For 100%, the actual value is not changed.

p2270 Technology controller actual value function / Tec_ctr ActVal fct

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Setting to use an arithmetic function for the actual value signal of the technology controller.

Value:
0: Output (y) = input (x)
1: Root function (root from x)
2: Square function (x * x)
3: Cube function (x * x * x)

Dependency: See also: p2264, p2265, p2267, p2268, p2269, p2271

p2271 Technology controller actual value inversion (sensor type) / Tech_ctrl act inv

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to invert the actual value signal of the technology controller.
The inversion depends on the sensor type for the actual value signal.

Value:
0: No inversion
1: Inversion actual value signal

Caution: If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!

Note: The correct setting can be determined as follows:
- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal of the technology controller.
--> If the actual value increases as the motor speed increases, then p2271 should be set to 0 (no inversion).
--> If the actual value decreases as the motor speed increases, then p2271 should be set to 1 (the actual value signal is inverted).

r2272 CO: Technology controller actual value scaled / Tech_ctrl act scal

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the scaled actual value signal of the technology controller.

Dependency: See also: p2264, p2265, r2266, p2267, p2268, p2269, p2270, p2271

r2273 CO: Technology controller system deviation / Tec_ctrl sys_dev

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** 9_1	**Unit selection:** p0595
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the system deviation between the setpoint and actual value of the technology controller.

Dependency: See also: p2263

p2274 Technology controller differentiation time constant / Tec_ctrl D comp T

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the time constant for the differentiation (D component) of the technology controller.

Note: p2274 = 0: Differentiation is disabled.

p2280 Technology controller proportional gain / Tec_ctrl Kp

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000	1000.000	1.000

Description: Sets the proportional gain (P component) of the technology controller.
Dependency: See also: p2252
Note: p2280 = 0: The proportional gain is disabled.

p2285 Technology controller integral time / Tec_ctrl Tn

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	60.000 [s]	0.000 [s]

Description: Sets the integral time (I component, integrating time constant) of the technology controller.
Dependency: See also: p2252
Note: p2285 = 0: The integral time is disabled.

p2286[0...n] BI: Hold technology controller integrator / Tec_ctr integ hold

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to hold the integrator for the technology controller.

p2289[0...n] CI: Technology controller precontrol signal / Tec_ctr prectr_sig

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the precontrol signal of the technology controller.

p2291 CO: Technology controller maximum limiting / Tec_ctrl max_lim

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	100.00 [%]

Description: Sets the maximum limit of the technology controller.
Dependency: See also: p2292
Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).

p2292 CO: Technology controller minimum limiting / Tec_ctrl min_lim

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the minimum limit of the technology controller.

Dependency: See also: p2291

Caution: The maximum limit must always be greater than the minimum limit (p2291 > p2292).

p2293 Technology controller ramp-up/ramp-down time / Tec_ctr t_RU/RD

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	100.00 [s]	1.00 [s]

Description: Sets the ramping time for the output signal of the technology controller.

Dependency: See also: p2291, p2292

Note: The time refers to the set maximum and minimum limits (p2291, p2292).

r2294 CO: Technology controller output signal / Tec_ctrl outp_sig

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the output signal of the technology controller.

Dependency: See also: p2295

p2295 CO: Technology controller output scaling / Tec_ctrl outp scal

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-100.00 [%]	100.00 [%]	100.00 [%]

Description: Sets the scaling for the output signal of the technology controller.

p2296[0...n] CI: Technology controller output scaling / Tec_ctrl outp scal

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	2295[0]

Description: Sets the signal source for the scaling value of the technology controller.

Dependency: See also: p2295

p2297[0...n] CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	2291[0]

Description: Sets the signal source for the maximum limiting of the technology controller.

Dependency: See also: p2291

p2298[0...n] CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	2292[0]

Description: Sets the signal source for the minimum limiting of the technology controller.

Dependency: See also: p2292

p2299[0...n] CI: Technology controller limit offset / Tech_ctrl lim offs

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the offset of the output limiting of the technology controller.

p2306 Technology controller system deviation inversion / Tec_ctr SysDev inv

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 7958
P group: Technology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to invert the system deviation of the technology controller.
The setting depends on the type of control loop.

Value:
0: No inversion
1: Inversion

Caution:

If the actual value inversion is incorrectly selected, then the closed-loop control with the technology controller can become unstable and can oscillate!

Note: The correct setting can be determined as follows:
- inhibit the technology controller (p2200 = 0).
- increase the motor speed and in so doing, measure the actual value signal (of the technology controller).
- if the actual value increases with increasing motor speed, then the inversion should be switched out.
- if the actual value decreases with increasing motor speed, then the inversion should be set.

If value = 0:
The drive reduces the output speed when the actual value rises (e.g. for heating fans, intake pump, compressor).
If value = 1:
The drive increases the output speed when the actual value increases (e.g. for cooling fans, discharge pumps).

r2349.0...13 CO/BO: Technology controller status word / Tec_ctrl ZSW

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: -
Data type: Unsigned32
P group: Technology
Not for motor type: -
Min: -
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: -
Access level: 3
Function diagram: 7958
Unit selection: -
Expert list: 1
Factory setting: -

Description: Display and BICO output for the status word of the technology controller.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Technology controller deactivated	Yes	No	-
01	Technology controller limited	Yes	No	-
02	Technology controller motorized potentiometer limited max	Yes	No	-
03	Technology controller motorized potentiometer limited min	Yes	No	-
04	Technology controller speed setpoint total in setpoint channel	Yes	No	-
05	Technology controller RFG bypassed in the setpoint channel	Yes	No	-
06	Technology controller starting value at the current limit	No	Yes	-
07				-
08	Technology controller actual value at the minimum	Yes	No	-
09	Technology controller actual value at the maximum	Yes	No	-
10	Technology controller output at the minimum	Yes	No	-
11	Technology controller output at the maximum	Yes	No	-
12	Fault response active	Yes	No	-
13	Technology controller limiting enable	Yes	No	-

p2398 Hibernation mode operating type / Hib mode op_type

DC_CTRL_S (Tech_ctrl), DC_CTRL_R_S (Tech_ctrl), DC_CTRL (Tech_ctrl), DC_CTRL_R (Tech_ctrl)

Can be changed: T
Data type: Integer16
P group: Technology
Not for motor type: -
Min: 0
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: 1
Access level: 3
Function diagram: 7038
Unit selection: -
Expert list: 1
Factory setting: 0

Description: Sets the operating mode for the "Hibernation mode" function.

Value:
0: Hibernation mode inhibited
1: Hibernation mode activated

Dependency: See also: p2200

Caution: When the "hibernation mode" function is active, the motor can start again automatically.

Note: When the "hibernation mode" function (p2398 = 1) is activated, its behavior is defined as to whether the technology controller is additionally switched in (closed-loop) or switched out (open-loop).

The technology controller is enabled via binector input p2200 and its mode is set in p2251.

p2200 = 0, p2251 = 0, 1:

Hibernation mode operates without technology controller (open-loop)

p2200 = 1, p2251 = 0:

Hibernation mode operates with technology controller (closed-loop)

p2200 = 1, p2251 = 1:

Hibernation mode operates without technology controller (open-loop) as its output is only used as supplementary setpoint and not as main setpoint.

p2504[0...n] LR motor/load motor revolutions / Mot/load motor rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Function diagram:** 4704, 4711
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	1048576	1

Description: Sets the motor revolutions for the gearbox factor between the motor shaft and load shaft.
Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)

Dependency: See also: p0432, p0433, p2505

Note: The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.

p2505[0...n] LR motor/load load revolutions / Mot/load load rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 1
Data type: Integer32	**Dyn. index:** DDS, p0180	**Function diagram:** 4704, 4711
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1048576	1048576	1

Description: Sets the load revolutions for the gearbox factor between the motor shaft and load shaft.
Gearbox factor = motor revolutions (p2504) / load revolutions (p2505)

Dependency: See also: p0432, p0433, p2504

Note: The gearbox factor between the encoder shaft and the motor shaft is set using p0432 and p0433.

r2700 CO: Reference speed / n_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output for reference speed p2000.
All speeds specified as relative values refer to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit rpm.

Dependency: See also: p2000

Note: This BICO parameter provides the numerical value of the reference quantity p2000 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2701 CO: Reference voltage / Reference voltage

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for voltages p2001.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit [Vrms].

Dependency: See also: p2001

Note: This BICO parameter provides the numerical value of the reference quantity p2001 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2702 CO: Reference current / Reference current

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for currents p2002.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit Arms.

Dependency: See also: p2002

Note: This BICO parameter provides the numerical value of the reference quantity p2002 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2703 CO: Reference torque / Reference torque

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity p2003 for torque (r0108.12 = 0) or force (r0108.12 = 1).
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
The unit of this parameter is the same as the unit selected for p2003.

Dependency: p0505, r0108.12
See also: p2003

Note: This BICO parameter provides the numerical value of the reference quantity p2003 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2704 CO: Reference power / Reference power

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for powers p2004.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
The unit of this parameter is the same as the unit selected for p2004.

Dependency: This value is calculated as voltage x current for the infeed and as torque x speed for closed-loop controls.
See also: r2004

Note: This BICO parameter provides the numerical value of the reference quantity p2004 in the currently selected unit as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.
The reference power is calculated as follows:
- 2 * Pi * reference speed / 60 * reference torque (motor)
- reference voltage * reference current * root(3) (infeed)

r2705 CO: Reference angle / Reference angle

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for angles p2005.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit degree.

Dependency: See also: p2005

Note: This BICO parameter provides the numerical value of the reference quantity p2005 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2706 CO: Reference temperature / Reference temp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for temperatures.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit degree Celsius.

Note: This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2706 CO: Reference temperature / Reference temp

TM31, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for temperatures.
All temperatures specified as relative value are referred to this reference quantity.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
This parameter has the unit degree Celsius.

Note: This BICO parameter provides the numerical value of the reference quantity for the temperature as a connector output for interconnection with Drive Control Chart (DCC). The numerical value can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

r2707 CO: Reference acceleration / Ref accel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output of the reference quantity for accelerations p2007.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).
The unit of this parameter is the same as the unit selected for p2007.

Dependency: r0108.12, p0505
See also: p2007

Note: This BICO parameter provides the numerical value of the reference quantity p2007 as a connector output for interconnection with Drive Control Chart (DCC). The numerical value in the currently selected unit can be adopted unchanged from this connector output in DCC.
This BICO parameter is not suitable for interconnecting for cyclic communication.

p2720[0...n] Load gear configuration / Load gear config

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Sets the configuration for position tracking of a load gear.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Load gear activate position tracking	Yes	No	-
01	Axis type	Linear axis	Rotary axis	-
02	Load gear reset position	Yes	No	-

Note: For the following events, the non-volatile, saved position values are automatically reset:
- when an encoder replacement has been identified.
- when changing the configuration of the Encoder Data Set (EDS).
- when adjusting the absolute encoder again

p2721[0...n] Load gear rotary absolute encoder revolutions virtual / Abs rot rev

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4194303	0

Description: Sets the number of rotations that can be resolved for a rotary absolute encoder with activated position tracking of the load gear.

Dependency: This parameter is only of significance for an absolute encoder (p0404.1 = 1) with activated position tracking of the load gear (p2720.0 = 1).

Note: The resolution that is set must be able to be represented using r2723.
For rotary axes/modulo axes, the following applies:
This parameter is pre-set with p0421 when activating position tracking and can be changed.
For linear axes, the following applies:
This parameter is pre-assigned with p0421 when activating position tracking, expanded by 6 bits for multiturn information (maximum number of overflows) and cannot be changed.

p2722[0...n] Load gear position tracking tolerance window / Pos track tol

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1, 4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00	4294967300.00	0.00

Description: Sets a tolerance window for position tracking.

After the system is switched on, the difference between the saved position and the actual position is determined, and depending on this, the following is initiated:

Difference within the tolerance window --> The position is reproduced as a result of the encoder actual value.

Difference outside the tolerance window --> An appropriate message is output.

Dependency: See also: F07449

Caution: Rotation, for example through a complete encoder range is not detected.

Note: The value is entered in integer (complete) encoder pulses.

For p2720.0 = 1, the value is automatically pre-assigned quarter of the encoder range.

Example:

Quarter of the encoder range = (p0408 * p0421) / 4

It is possible that the tolerance window may not be able to be precisely set due to the data type (floating point number with 23 bit mantissa).

r2723[0...n] CO: Load gear absolute value / Load gear abs_val

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** DDS, p0180	**Function diagram:** 4704
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the absolute value after the load gear.

Notice: The encoder position actual value must be requested using the encoder control word Gn_STW.13.

Note: The increments are displayed in the format the same as r0483.

r2724[0...n] CO: Load gear position difference / Load gear pos diff

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Integer32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the position difference before the load gear between switching off and switching on.

Note: The increments are displayed in the same format as for r0483/r2723.

If the measuring gear of the motor encoder is not activated, the position difference should be read in encoder increments.

If the measuring gear of the motor encoder is activated, the position difference is converted using the measuring gear factor.

p2810[0...1] BI: AND logic operation inputs / AND inputs

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2634
P group: Functions	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for the inputs of the AND logic operation.

Dependency: See also: r2811

Note: [0]: AND logic operation, input 1 --> the result is displayed in r2811.0.
[1]: AND logic operation, input 2 --> the result is displayed in r2811.0.

r2811.0 CO/BO: AND logic operation result / AND result

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 2634
P group: Functions	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the result of the AND logic operation.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	AND condition fulfilled	Yes	No	-

Dependency: See also: p2810

p2816[0...1] BI: OR logic operation inputs / OR inputs

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2634
P group: Functions	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for the inputs of the OR logic operation.

Dependency: See also: r2817

Note: [0]: OR logic operation, input 1 --> the result is displayed in r2817.0.
[1]: OR logic operation, input 2 --> the result is displayed in r2817.0.

r2817.0 CO/BO: OR logic operation result / OR result

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 2634
P group: Functions	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the result of the OR logic operation.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	OR condition fulfilled	Yes	No	-

Dependency: See also: p2816

p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Setting and connector output for a fixed percentage value.
Dependency: See also: p2901, r2902, p2930
Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
Note: The value can be used to interconnect a scaling function (e.g. scaling the main setpoint).

p2901[0...n] CO: Fixed value 2 [%] / Fixed value 2 [%]

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-10000.00 [%]	10000.00 [%]	0.00 [%]

Description: Setting and connector output for a fixed percentage value.
Dependency: See also: p2900, p2930
Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.
Note: The value can be used to interconnect a scaling function (e.g. scaling of the supplementary setpoint)

r2902[0...14] CO: Fixed values [%] / Fixed values [%]

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for frequently used percentage values.
Index:
[0] = Fixed value +0 %
[1] = Fixed value +5 %
[2] = Fixed value +10 %
[3] = Fixed value +20 %
[4] = Fixed value +50 %
[5] = Fixed value +100 %
[6] = Fixed value +150 %
[7] = Fixed value +200 %
[8] = Fixed value -5 %
[9] = Fixed value -10 %
[10] = Fixed value -20 %
[11] = Fixed value -50 %
[12] = Fixed value -100 %
[13] = Fixed value -150 %
[14] = Fixed value -200 %
Dependency: See also: p2900, p2901, p2930
Note: The signal sources can, for example, be used to interconnect scalings.

p2930[0...n] CO: Fixed value M [Nm] / Fixed value M [Nm]

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: Setpoints	**Unit group:** 7_1	**Unit selection:** p0505
Not for motor type: REL	**Scaling:** p2003	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-100000.00 [Nm]	100000.00 [Nm]	0.00 [Nm]

Description: Setting and connector output for a fixed torque value.

Dependency: See also: p2900, p2901, r2902

Notice: A BICO interconnection to a parameter that belongs to a drive data set always acts on the effective data set.

Note: The value can, for example, be used to interconnect a supplementary torque.

p3100 RTC time stamp mode / RTC t_stamp mode

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	2

Description: Sets the mode for the time stamp

Value:
0: Operating hours
1: UTC format
2: Operating hours + 01.01.2000

Notice: For p3100 = 1:

The system prevents this setting from being changed. The parameter can only be influenced after "Set factory setting" or with a "Project download".

Note: RTC: Real-time clock

UTC: Universal Time Coordinates

For p3100 = 1:

Time of day synchronization is only possible with this setting.

The UTC time started, according to the definition on 01.01.1970 at 00:00:00 and is output in days and milliseconds.

p3101[0...1] Setting UTC time / Set UTC time

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Setting the UTC time.

This means that the drive system is synchronized to the time specified by the time master.

To start p3101[1] must be written to followed by p3101[0]. After writing to p3101[0], the UTC time is accepted.

Index: [0] = Milliseconds
[1] = Days

Dependency: See also: p3100

r3102[0...1] Displaying UTC time / Display UTC time

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displaying the current UTC time.

Index: [0] = Milliseconds
[1] = Days

Dependency: See also: p3100

Notice: The time display depends on the selected mode (p3100).

p3103 UTC synchronization process / UTC sync_process

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Setting the synchronization process.

Value:
0: PING/SNAP
1: Reserved
2: Parameter
3: Reserved

Dependency: See also: p3101, p3104

Note: For p3103 = 0:
The PING/SNAP technique allows the UTC time to be set with a high degree of accuracy using p3104 and p3101.
See the SINAMICS S120 Function Manual Drive Functions for more information.
For p3103 = 2:
Simply setting the UTC time via p3101.
For p3103 = 4:
Only for CU3x0-2 PN X150.
Synchronization via Network Time Protocol (NTP).

p3104 BI: UTC PING synchronization / UTC PING sync

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the PING event to set the UTC time.

Notice: The parameter may be protected as a result of p0922 or p2079 and cannot be changed.

r3107[0...3] UTC synchronization time out of tolerance / UTC t_sync out tol

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the last synchronizing event that was out of tolerance.

Index: [0] = Milliseconds after sync
[1] = Days after sync
[2] = Milliseconds before sync
[3] = Days before sync

Dependency: See also: p3109
See also: A01099

Note: For r3107[0, 1]:
Displays the UTC time after synchronization.
For 3107[2, 3]:
Displays the UTC time before synchronization.

r3108[0...1] UTC synchronization deviation / UTC sync_dev

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the absolute value of the last synchronization deviation that was determined.

Index: [0] = Milliseconds
[1] = Days

p3109 UTC synchronization tolerance / UTC sync tol

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	100 [ms]

Description: Sets the tolerance for time of day synchronization.
When this tolerance is exceeded, an appropriate alarm is output.

Dependency: See also: A01099

p3110 External fault 3 switch-on delay / Ext fault 3 t_on

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2546
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the delay time for external fault 3.

Dependency: See also: p2108, p3111, p3112
See also: F07862

p3111 BI: External fault 3 enable / Ext fault 3 enab

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: -
Access level: 3
Function diagram: 2546
Unit selection: -
Expert list: 1
Factory setting: 1

Description: Sets the signal source for the enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p2108, p3110, p3112
See also: F07862

p3111[0...n] BI: External fault 3 enable / Ext fault 3 enab

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -
Calculated: -
Dyn. index: CDS, p0170
Unit group: -
Scaling: -
Max: -
Access level: 3
Function diagram: -
Unit selection: -
Expert list: 1
Factory setting: 1

Description: Sets the signal source for the enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p2108, p3110, p3112
See also: F07862

p3112 BI: External fault 3 enable negated / Ext flt 3 enab neg

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: U, T
Data type: Unsigned32 / Binary
P group: Messages
Not for motor type: -
Min: -
Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max: -
Access level: 3
Function diagram: 2546
Unit selection: -
Expert list: 1
Factory setting: 0

Description: Sets the signal source for the negated enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p2108, p3110, p3111
See also: F07862

p3112[0...n] BI: External fault 3 enable negated / Ext flt 3 enab neg

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the negated enable signal of external fault 3.
External fault 3 is initiated by the following AND logic operation:
- BI: p2108 negated
- BI: p3111
- BI: p3112 negated

Dependency: See also: p2108, p3110, p3111
See also: F07862

r3113.0...15 CO/BO: NAMUR message bit bar / NAMUR bit bar

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output for the status of the NAMUR message bit bar.
The faults and alarms are assigned to the appropriate signaling/message classes and influence a specific message bit.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fault converter information electronics/software error	Yes	No	-
01	Network fault	Yes	No	-
02	DC link overvoltage	Yes	No	-
03	Fault drive converter power electronics	Yes	No	-
04	Drive converter overtemperature	Yes	No	-
05	Ground fault	Yes	No	-
06	Motor overload	Yes	No	-
07	Bus error	Yes	No	-
08	External safety-relevant shutdown	Yes	No	-
09	Mot encoder fault	Yes	No	-
10	Error communication internal	Yes	No	-
11	Fault infeed	Yes	No	-
15	Other faults	Yes	No	-

Note: For bit 00:

Hardware or software malfunction was identified. Carry out a POWER ON of the component involved. If it occurs again, contact Technical Support.

For bit 01:

A line supply fault has occurred (phase failure, voltage level, ...). Check the line supply / fuses. Check the supply voltage. Check the wiring.

For bit 02:

The DC link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.

For bit 03:

An inadmissible operating state of the power electronics was identified (overcurrent, overtemperature, IGBT failure, ...). Check that the permissible load cycles are maintained. Check the ambient temperatures (fan).

For bit 04:

The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet cooling.

For bit 05:

A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cables (connection). Check the motor.

For bit 06:

The motor was operated outside the permissible limits (temperature, current, torque, ...). Check the load cycles and limits that have been set. Check the ambient temperature / motor cooling.

For bit 07:

The communication to the higher-level control system (internal coupling, PROFIBUS, PROFINET, ...) is either faulted or interrupted. Check the state of the higher-level control system. Check the communication connection/wiring. Check the bus configuration / clock cycles.

For bit 08:

A safety operation monitoring function (Safety) has detected an error.

For bit 09:

When evaluating the encoder signals (track signals, zero marks, absolute values, ...) an illegal signal state was detected. Check the encoder / state of the encoder signals. Observe the maximum frequencies.

For bit 10:

The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant design. Observe the maximum permissible quantity structure / clock cycles.

For bit 11:

The infeed is faulted or has failed. Check the infeed and the surroundings (line supply, filter, reactors, fuses, ...). Check the closed-loop infeed control.

For bit 15:

Group fault. Determine the precise cause of the fault using the commissioning tool.

r3114.9...11 CO/BO: Messages status word global / Msg ZSW global

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the global status word for messages.

The appropriate bit is set if at least one message is present at the drive objects.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
09	Group alarm present	Yes	No	8065
10	Group fault present	Yes	No	8060
11	Safety group message present	Yes	No	-

Note: The status bits are displayed with delay.

r3115[0...63] Fault drive object initiating / F DO initiating

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the drive object number of the initiating drive object for this fault as integer number.
Value = 63:
The fault was initiated by the drive object itself.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Notice: The values of this parameter are only saved in a volatile fashion and are lost when switching off or for a warm restart.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r3115[0...63] Fault drive object initiating / F DO initiating

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8050, 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the drive object number of the initiating drive object for this fault as integer number.
Value = 63:
The fault was initiated by the drive object itself.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120, r3122

Notice: The values of this parameter are only saved in a volatile fashion and are lost when switching off or for a warm restart.

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

p3116 BI: Suppress automatic acknowledgment / Ackn suppress

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the automatic acknowledgment of Control Unit faults.
BI: p3116 = 0 signal
Acknowledgeable faults are automatically acknowledged on the Control Unit.
Control Unit faults with LOCAL propagation are passed on to the first active drive object.
BI: p3116 = 1 signal
Acknowledgeable faults are not automatically acknowledged on the Control Unit.
Control Unit faults with LOCAL propagation are not passed on.

Dependency: See also: p2102, p2103, p2104, p2105, p3981

Note: When selecting a standard telegram, the BICO interconnection for control signal STW1.10 (master control by PLC) is automatically established.

r3120[0...63] Component fault / Comp fault

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the component of the fault which has occurred.

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3122

Note: Value = 0: Assignment to a component not possible.
The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.

r3121[0...63] Component alarm / Comp alarm

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the component of the alarm which has occurred.

Dependency: See also: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3123

Note: Value = 0: Assignment to a component not possible.
The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.

r3122[0...63] Diagnostic attribute fault / Diag_attr fault

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the diagnostic attribute of the fault which has occurred.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFIdrive fault class bit 0	High	Low	-
17	PROFIdrive fault class bit 1	High	Low	-
18	PROFIdrive fault class bit 2	High	Low	-
19	PROFIdrive fault class bit 3	High	Low	-
20	PROFIdrive fault class bit 4	High	Low	-

Dependency: See also: r0945, r0947, r0948, r0949, r2109, r2130, r2133, r2136, r3120

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the fault buffer and the assignment of the indices is shown in r0945.
For bits 20 ... 16:
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 20: auxiliary unit faulted

r3123[0...63] Diagnostic attribute alarm / Diag_attr alarm

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8065
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the diagnostic attribute of the alarm which has occurred.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Hardware replacement recommended	Yes	No	-
11	Alarm class bit 0	High	Low	-
12	Alarm class bit 1	High	Low	-
13	Maintenance required	Yes	No	-
14	Maintenance urgently required	Yes	No	-
15	Message has gone	Yes	No	-
16	PROFIdrive fault class bit 0	High	Low	-
17	PROFIdrive fault class bit 1	High	Low	-
18	PROFIdrive fault class bit 2	High	Low	-
19	PROFIdrive fault class bit 3	High	Low	-
20	PROFIdrive fault class bit 4	High	Low	-

Dependency: See also: r2110, r2122, r2123, r2124, r2125, r2134, r2145, r2146, r3121

Note: The buffer parameters are cyclically updated in the background (refer to status signal in r2139).
The structure of the alarm buffer and the assignment of the indices is shown in r2122.
For bit 12, 11:
These status bits are used for the classification of internal alarm classes and are intended for diagnostic purposes only on certain automation systems with integrated SINAMICS functionality.
For bits 20 ... 16:
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 0 --> PROFIdrive message class 0: not assigned
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 0, 1 --> PROFIdrive message class 1: hardware fault/software error
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 0 --> PROFIdrive message class 2: line fault
Bits 20, 19, 18, 17, 16 = 0, 0, 0, 1, 1 --> PROFIdrive message class 3: supply voltage fault
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 0 --> PROFIdrive message class 4: DC link fault
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 0, 1 --> PROFIdrive message class 5: power electronics faulted
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 0 --> PROFIdrive message class 6: overtemperature electronic components
Bits 20, 19, 18, 17, 16 = 0, 0, 1, 1, 1 --> PROFIdrive message class 7: ground fault/phase fault detected
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 0 --> PROFIdrive message class 8: motor overload
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 0, 1 --> PROFIdrive message class 9: communication error to the higher-level control
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 0 --> PROFIdrive message class 10: safe monitoring channel has identified an error
Bits 20, 19, 18, 17, 16 = 0, 1, 0, 1, 1 --> PROFIdrive message class 11: incorrect position actual value/speed actual value or not available
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 12: internal (DRIVE-CLiQ) communication error
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 1 --> PROFIdrive message class 13: infeed unit faulted
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 0 --> PROFIdrive message class 14: braking controller/Braking Module faulted
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 1, 1 --> PROFIdrive message class 15: line filter faulted
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 0 --> PROFIdrive message class 16: external measured value/signal state outside the permissible range
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 0, 1 --> PROFIdrive message class 17: application/technology function faulted
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 0 --> PROFIdrive message class 18: error in the parameterization/configuration/commissioning sequence
Bits 20, 19, 18, 17, 16 = 1, 0, 0, 1, 1 --> PROFIdrive message class 19: general drive fault
Bits 20, 19, 18, 17, 16 = 0, 1, 1, 0, 0 --> PROFIdrive message class 20: auxiliary unit faulted

r3131 CO: Actual fault value / Act fault val

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8060
	P group: Messages	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the fault value of the oldest active fault.
Dependency: See also: r2131, r3132

r3132 CO: Actual component number / Comp_no act

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer32	**Dyn. index:** -	**Function diagram:** 8060
	P group: Messages	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the component number of the oldest fault that is still active.
Dependency: See also: r2131, r3131

p3135 Suppress active fault / Supp act flt

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Sets the suppression of r2139.3 "Fault present" for certain fault responses.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
08	Suppression of fault response ENCODER	ON	OFF	-
10	Suppression of fault response NONE	ON	OFF	-

Dependency: See also: r2139

Note: Depending on the suppression of a fault reaction in this parameter, r2139.1 "Acknowledgment required" is set when at least one fault occurs.

For bit 08:

The suppression is only effective if p0491 = 1.

r3770 CO: Load speed / n_load

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 1580, 4711
P group: Setpoints	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the load speed for APC (Advanced Positioning Control).

Dependency: See also: r3771

r3771[0...1] CO: Load speed smoothed / n_load smooth

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 1580, 4711
P group: Setpoints	**Unit group:** 3_1	**Unit selection:** p0505
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Display and connector output for the speed actual values for APC (Advanced Positioning Control).

For index [0]:

Displays the smoothed load speed.

For index [1]:

Displays the load/motor speed actual value weighted with p3702 for p3700.8=1.

Index: [0] = Load actual value speed smoothed
[1] = Load/motor actual speed weighted

Dependency: See also: p1441, r3770

p3900 Completion of quick commissioning / Compl quick_comm

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Exits quick commissioning (p0010 = 1) with automatic calculation of all parameters of all existing drive data sets that depend on the entries made during quick commissioning.

p3900 = 3 only includes the calculations associated with the motor, open-loop and closed-loop control parameters corresponding to p0340 = 1.

Value:
0: No quick parameterization
3: Quick parameterization for motor parameters (only)

Notice: After the value has been modified, no further parameter modifications can be made and the status is shown in r3996. Modifications can be made again when r3996 = 0.

Note: When the calculations have been completed, p3900 and p0010 are automatically reset to a value of zero.

p3950 Service parameter / Serv par

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: For service personnel only.

r3974 Drive unit status word / Drv_unit ZSW

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status word for the drive unit.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Software reset active	Yes	No	-
01	Writing of parameters disabled as parameter save in progress	Yes	No	-
02	Writing of parameters disabled as macro is running	Yes	No	-

r3977 BICO counter topology / BICO counter topo

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the BICO interconnections that have been parameterized in the complete (overall) topology.

The counter is incremented by one for each modified BICO interconnection.

Dependency: See also: r3978, r3979

r3978 BICO CounterDevice / BICO CounterDevice

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the counter reading for modified BICO interconnections on this device.
The counter is incremented by one for each modified BICO interconnection.

r3979 BICO counter drive object / BICO counter DO

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the counter reading for modified BICO interconnections on this drive object.
The counter is incremented by one for each modified BICO interconnection.

p3981 Acknowledge drive object faults / Ackn DO faults

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8060
P group: Messages	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to acknowledge all active faults of a drive object.
Notice: Safety messages cannot be acknowledged using this parameter.
Note: Parameter should be set from 0 to 1 to acknowledge.
After acknowledgment, the parameter is automatically reset to 0.

p3985 Master control mode selection / PcCtrl mode select

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Setpoints	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the mode to change over the master control / LOCAL mode.
Value:
0: Change master control for STW1.0 = 0
1: Change master control in operation
Danger:

When changing the master control in operation, the drive can manifest undesirable behavior - e.g. it can accelerate up to another setpoint.

r3986 Number of parameters / Param count

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the number of parameters for this drive unit.
The number comprises the device-specific and the drive-specific parameters.

Dependency: See also: r0980, r0981, r0989

r3988[0...1] Boot state / Boot_state

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	10800	-

Description: Index 0:
Displays the boot state.
Index 1:
Displays the partial boot state.

Value:
0: Not active
1: Fatal fault
10: Fault
20: Reset all parameters
30: Drive object modified
40: Download using the commissioning tool
50: Parameter download using commissioning tool
90: Reset Control Unit and delete drive objects
100: Start initialization
110: Instantiate Control Unit basis
150: Wait until actual topology determined
160: Evaluate topology
170: Instantiate Control Unit reset
180: Initialization YDB configuration information
200: First commissioning
210: Create drive packages
250: Wait for topology acknowledge
325: Wait for input of drive type
350: Determine drive type
360: Write into topology-dependent parameters
370: Wait until p0009 = 0 is set
380: Check topology
550: Call conversion functions for parameter
625: Wait non-cyclic starting DRIVE-CLiQ
650: Start cyclic operation
660: Evaluate drive commissioning status
670: Automatic FW update DRIVE-CLiQ components
680: Wait for CU LINK slaves
690: Wait non-cyclic starting DRIVE-CLiQ
700: Save parameters
725: Wait until DRIVE-CLiQ cyclic
740: Check the ability to operate
745: Start of the time slices
750: Interrupt enable
800: Initialization finished
10050: Wait for synchronization
10100: Wait for CU LINK slaves
10150: Wait until actual topology determined
10200: Evaluate component status
10250: Call conversion functions for parameter
10300: Preparation cyclic operation
10350: Automatic FW update DRIVE-CLiQ components
10400: Wait for slave properties
10450: Check CX/NX status
10500: Wait until DRIVE-CLiQ cyclic
10550: Carry out warm start
10600: Evaluate, encoder status
10800: Partial boot completed

Index:
[0] = System
[1] = Partial boot

r3996[0...1] Parameter write inhibit status / Par_write inhib st

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description:
Displays whether writing to parameters is inhibited.
r3996[0] = 0:
Parameter write not inhibited.
0 < r3996[0] < 100:
Parameter write inhibited. The value shows how the calculations are progressing.

Index: [0] = Progress calculations
[1] = Cause

Note: For index [1]:
Only for internal Siemens troubleshooting.

r4021 TM15DI/DO digital inputs, terminal actual value / TM15D DI act val

TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 9400, 9401, 9402
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual value at the digital inputs.
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	High	Low	-
01	DI/DO 1 (X520.3)	High	Low	-
02	DI/DO 2 (X520.4)	High	Low	-
03	DI/DO 3 (X520.5)	High	Low	-
04	DI/DO 4 (X520.6)	High	Low	-
05	DI/DO 5 (X520.7)	High	Low	-
06	DI/DO 6 (X520.8)	High	Low	-
07	DI/DO 7 (X520.9)	High	Low	-
08	DI/DO 8 (X521.2)	High	Low	-
09	DI/DO 9 (X521.3)	High	Low	-
10	DI/DO 10 (X521.4)	High	Low	-
11	DI/DO 11 (X521.5)	High	Low	-
12	DI/DO 12 (X521.6)	High	Low	-
13	DI/DO 13 (X521.7)	High	Low	-
14	DI/DO 14 (X521.8)	High	Low	-
15	DI/DO 15 (X521.9)	High	Low	-
16	DI/DO 16 (X522.2)	High	Low	-
17	DI/DO 17 (X522.3)	High	Low	-
18	DI/DO 18 (X522.4)	High	Low	-
19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Note: If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.
DI/DO: Bidirectional Digital Input/Output

r4021 TM31 digital inputs terminal actual value / TM31 DI act value

TM31

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 9549, 9550, 9552, 9560, 9562
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual value at the digital inputs.
This means that the actual input signal can be checked at terminal DI x or DI/DO x prior to switching from the simulation mode (p4095.x = 1) to terminal mode (p4095.x = 0).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	High	Low	-
	01	DI 1 (X520.2)	High	Low	-
	02	DI 2 (X520.3)	High	Low	-
	03	DI 3 (X520.4)	High	Low	-
	04	DI 4 (X530.1)	High	Low	-
	05	DI 5 (X530.2)	High	Low	-
	06	DI 6 (X530.3)	High	Low	-
	07	DI 7 (X530.4)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-

Note: If a DI/DO is parameterized as output (p4028.x = 1), then r4021.x = 0 is displayed.
DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

r4022.0...23 CO/BO: TM15DI/DO digital inputs status / TM15D DI status

TM15DI_DO

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9399, 9400, 9401, 9402
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the status of the digital inputs of Terminal Module 15 (TM15).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	High	Low	-
	01	DI/DO 1 (X520.3)	High	Low	-
	02	DI/DO 2 (X520.4)	High	Low	-
	03	DI/DO 3 (X520.5)	High	Low	-
	04	DI/DO 4 (X520.6)	High	Low	-
	05	DI/DO 5 (X520.7)	High	Low	-
	06	DI/DO 6 (X520.8)	High	Low	-
	07	DI/DO 7 (X520.9)	High	Low	-
	08	DI/DO 8 (X521.2)	High	Low	-
	09	DI/DO 9 (X521.3)	High	Low	-
	10	DI/DO 10 (X521.4)	High	Low	-
	11	DI/DO 11 (X521.5)	High	Low	-
	12	DI/DO 12 (X521.6)	High	Low	-
	13	DI/DO 13 (X521.7)	High	Low	-
	14	DI/DO 14 (X521.8)	High	Low	-
	15	DI/DO 15 (X521.9)	High	Low	-
	16	DI/DO 16 (X522.2)	High	Low	-
	17	DI/DO 17 (X522.3)	High	Low	-
	18	DI/DO 18 (X522.4)	High	Low	-
	19	DI/DO 19 (X522.5)	High	Low	-
	20	DI/DO 20 (X522.6)	High	Low	-
	21	DI/DO 21 (X522.7)	High	Low	-
	22	DI/DO 22 (X522.8)	High	Low	-
	23	DI/DO 23 (X522.9)	High	Low	-

Dependency: See also: r4023, r4024, r4025
Notice: For the BICO interconnection of the connector output (CO) only bit 00 ... 15 are transferred.
Note: DI/DO: Bidirectional Digital Input/Output

r4022.0...11 CO/BO: TM31 digital inputs status / TM31 DI status

TM31

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9549, 9550, 9552, 9560, 9562
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the status of the digital inputs of Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Dependency: See also: r4023

Note: DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

r4023.0...23 CO/BO: TM15DI/DO digital inputs status inverted / TM15D DI stat inv

TM15DI_DO

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9399, 9400, 9401, 9402
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the inverted status of the digital inputs of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	High	Low	-
01	DI/DO 1 (X520.3)	High	Low	-
02	DI/DO 2 (X520.4)	High	Low	-
03	DI/DO 3 (X520.5)	High	Low	-
04	DI/DO 4 (X520.6)	High	Low	-
05	DI/DO 5 (X520.7)	High	Low	-
06	DI/DO 6 (X520.8)	High	Low	-
07	DI/DO 7 (X520.9)	High	Low	-
08	DI/DO 8 (X521.2)	High	Low	-
09	DI/DO 9 (X521.3)	High	Low	-
10	DI/DO 10 (X521.4)	High	Low	-
11	DI/DO 11 (X521.5)	High	Low	-
12	DI/DO 12 (X521.6)	High	Low	-
13	DI/DO 13 (X521.7)	High	Low	-

14	DI/DO 14 (X521.8)	High	Low	-
15	DI/DO 15 (X521.9)	High	Low	-
16	DI/DO 16 (X522.2)	High	Low	-
17	DI/DO 17 (X522.3)	High	Low	-
18	DI/DO 18 (X522.4)	High	Low	-
19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Dependency: See also: r4022, r4024, r4025

Notice: For the BICO interconnection of the connector output (CO) only bit 00 ... 15 are transferred.

Note: DI/DO: Bidirectional Digital Input/Output

r4023.0...11 CO/BO: TM31 digital inputs status inverted / TM31 DI status inv

TM31

Can be changed: - **Calculated:** - **Access level:** 1

Data type: Unsigned32 **Dyn. index:** - **Function diagram:** 9549, 9550, 9552, 9560, 9562

P group: Commands **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the inverted status of the digital inputs of Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X520.1)	High	Low	-
01	DI 1 (X520.2)	High	Low	-
02	DI 2 (X520.3)	High	Low	-
03	DI 3 (X520.4)	High	Low	-
04	DI 4 (X530.1)	High	Low	-
05	DI 5 (X530.2)	High	Low	-
06	DI 6 (X530.3)	High	Low	-
07	DI 7 (X530.4)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Dependency: See also: r4022

Note: DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

r4024 CO: TM15DI/DO digital inputs 16 ... 23 status / TM15D DI 16-23 St

TM15DI_DO

Can be changed: - **Calculated:** - **Access level:** 1

Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9402

P group: Commands **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the status of digital inputs 16 ... 23 of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 16 (X522.2)	ON	OFF	-
01	DI/DO 17 (X522.3)	ON	OFF	-
02	DI/DO 18 (X522.4)	ON	OFF	-
03	DI/DO 19 (X522.5)	ON	OFF	-
04	DI/DO 20 (X522.6)	ON	OFF	-
05	DI/DO 21 (X522.7)	ON	OFF	-
06	DI/DO 22 (X522.8)	ON	OFF	-
07	DI/DO 23 (X522.9)	ON	OFF	-

Dependency: See also: r4022, r4023, r4025

Note: DI: Digital Input

r4025 CO: TM15DI/DO digital inputs 16 ... 23 status inverted / TM15D DI 16-23 inv

TM15DI_DO

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned16
Dyn. index: -
Function diagram: 9402
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the inverted status of digital inputs 16 ... 23 of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 16 (X522.2)	ON	OFF	-
01	DI/DO 17 (X522.3)	ON	OFF	-
02	DI/DO 18 (X522.4)	ON	OFF	-
03	DI/DO 19 (X522.5)	ON	OFF	-
04	DI/DO 20 (X522.6)	ON	OFF	-
05	DI/DO 21 (X522.7)	ON	OFF	-
06	DI/DO 22 (X522.8)	ON	OFF	-
07	DI/DO 23 (X522.9)	ON	OFF	-

Dependency: See also: r4022, r4023, r4024
Note: DI: Digital Input

p4028 TM15DI/DO set input or output / TM15D DI or DO

TM15DI_DO

Can be changed: T
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9399, 9400, 9401, 9402
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the bidirectional digital inputs/outputs on the Terminal Module 15 (TM15) as input or output.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	Output	Input	-
01	DI/DO 1 (X520.3)	Output	Input	-
02	DI/DO 2 (X520.4)	Output	Input	-
03	DI/DO 3 (X520.5)	Output	Input	-
04	DI/DO 4 (X520.6)	Output	Input	-
05	DI/DO 5 (X520.7)	Output	Input	-
06	DI/DO 6 (X520.8)	Output	Input	-
07	DI/DO 7 (X520.9)	Output	Input	-
08	DI/DO 8 (X521.2)	Output	Input	-
09	DI/DO 9 (X521.3)	Output	Input	-
10	DI/DO 10 (X521.4)	Output	Input	-
11	DI/DO 11 (X521.5)	Output	Input	-
12	DI/DO 12 (X521.6)	Output	Input	-
13	DI/DO 13 (X521.7)	Output	Input	-
14	DI/DO 14 (X521.8)	Output	Input	-
15	DI/DO 15 (X521.9)	Output	Input	-
16	DI/DO 16 (X522.2)	Output	Input	-
17	DI/DO 17 (X522.3)	Output	Input	-
18	DI/DO 18 (X522.4)	Output	Input	-
19	DI/DO 19 (X522.5)	Output	Input	-
20	DI/DO 20 (X522.6)	Output	Input	-
21	DI/DO 21 (X522.7)	Output	Input	-
22	DI/DO 22 (X522.8)	Output	Input	-
23	DI/DO 23 (X522.9)	Output	Input	-

Note: DI/DO: Bidirectional Digital Input/Output

p4028 TM31 set input or output / TM31 DI or DO

TM31	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 9549, 9560, 9562
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0000 0000 0000 0000 bin

Description: Sets the bidirectional digital inputs/outputs as input or output on the Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
08	DI/DO 8 (X541.2)	Output	Input	-
09	DI/DO 9 (X541.3)	Output	Input	-
10	DI/DO 10 (X541.4)	Output	Input	-
11	DI/DO 11 (X541.5)	Output	Input	-

Note: DI/DO: Bidirectional Digital Input/Output

p4030 BI: TM15DI/DO signal source for terminal DI/DO 0 / TM15D s_s DI/DO 0

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9399, 9400
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 0 (X520.2) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.0 = 1).
DI/DO: Bidirectional Digital Input/Output

p4030 BI: TM31 signal source for terminal DO 0 / TM31 s_src DO 0

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9549, 9556
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the digital output DO 0 (X542.1, X542.2, X542.3) of Terminal Module 31 (TM31).
Digital output 0 of TM31 is a relay output.
If the signal at the binector input p4030 is low, then terminal COM 0 (X542.2) is connected to NC 0 (X542.1). This connection also matches the mechanical quiescent setting of the relay.
If the signal at the binector input p4030 is high, then terminal COM 0 (X542.2) is connected to NO 0 (X542.3).

Note: DO: Digital Output
NC: Normally Closed contact
NO: Normally Open contact

p4031 BI: TM15DI/DO signal source for terminal DI/DO 1 / TM15D s_s DI/DO 1

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 1 (X520.3) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.1 = 1).
DI/DO: Bidirectional Digital Input/Output

p4031 BI: TM31 signal source for terminal DO 1 / TM31 s_src DO 1

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9549, 9556
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the digital output DO 1 (X542.4, X542.5, X542.6) of Terminal Module 31 (TM31).
Digital output 1 of TM31 is a relay output.
If the signal at the binector input p4031 is low, then terminal COM 1 (X542.5) is connected to NC 1 (X542.4). This connection also matches the mechanical quiescent setting of the relay.
If the signal at the binector input p4031 is high, then terminal COM 1 (X542.5) is connected to NO 1 (X542.6).

Note: DO: Digital Output
NC: Normally Closed contact
NO: Normally Open contact

p4032 BI: TM15DI/DO signal source for terminal DI/DO 2 / TM15D s_s DI/DO 2

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 2 (X520.4) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.2 = 1).
DI/DO: Bidirectional Digital Input/Output

p4033 BI: TM15DI/DO signal source for terminal DI/DO 3 / TM15D s_s DI/DO 3

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 3 (X520.5) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.3 = 1).
DI/DO: Bidirectional Digital Input/Output

p4034 BI: TM15DI/DO signal source for terminal DI/DO 4 / TM15D s_s DI/DO 4

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 4 (X520.6) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.4 = 1).
DI/DO: Bidirectional Digital Input/Output

p4035 BI: TM15DI/DO signal source for terminal DI/DO 5 / TM15D s_s DI/DO 5

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 5 (X520.7) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.5 = 1).
DI/DO: Bidirectional Digital Input/Output

p4036 BI: TM15DI/DO signal source for terminal DI/DO 6 / TM15D s_s DI/DO 6

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 6 (X520.8) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.6 = 1).
DI/DO: Bidirectional Digital Input/Output

p4037 BI: TM15DI/DO signal source for terminal DI/DO 7 / TM15D s_s DI/DO 7

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 7 (X520.9) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.7 = 1).
DI/DO: Bidirectional Digital Input/Output

p4038 BI: TM15DI/DO signal source for terminal DI/DO 8 / TM15D s_s DI/DO 8

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9401
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X521.2) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.8 = 1).
DI/DO: Bidirectional Digital Input/Output

p4038 BI: TM31 signal source for terminal DI/DO 8 / TM31 s_s DI/DO8

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9549, 9560
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 8 (X541.2) of Terminal Module 31 (TM31).
Note: Prerequisite: The DI/DO must be set as an output (p4028.8 = 1).
DI/DO: Bidirectional Digital Input/Output

p4039 BI: TM15DI/DO signal source for terminal DI/DO 9 / TM15D s_s DI/DO 9

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9401
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X521.3) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.9 = 1).
DI/DO: Bidirectional Digital Input/Output

p4039 BI: TM31 signal source for terminal DI/DO 9 / TM31 S_src DI/DO9

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9560
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 9 (X541.3) of Terminal Module 31 (TM31).
Note: Prerequisite: The DI/DO must be set as an output (p4028.9 = 1).
DI/DO: Bidirectional Digital Input/Output

p4040 BI: TM15DI/DO signal source for terminal DI/DO 10 / TM15D s_s DI/DO 10

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9401
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X521.4) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p4040 BI: TM31 signal source for terminal DI/DO 10 / TM31 S_src DI/DO10

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9562
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 10 (X541.4) of Terminal Module 31 (TM31).
Note: Prerequisite: The DI/DO must be set as an output (p4028.10 = 1).
DI/DO: Bidirectional Digital Input/Output

p4041 BI: TM15DI/DO signal source for terminal DI/DO 11 / TM15D s_s DI/DO 11

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9401
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 11 (X521.5) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.11 = 1).
DI/DO: Bidirectional Digital Input/Output

p4041 BI: TM31 signal source for terminal DI/DO 11 / TM31 s_s DI/DO 11

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9549, 9562
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 11 (X541.5) of Terminal Module 31 (TM31).
Note: Prerequisite: The DI/DO must be set as an output (p4028.11 = 1).
DI/DO: Bidirectional Digital Input/Output

p4042 BI: TM15DI/DO signal source for terminal DI/DO 12 / TM15D s_s DI/DO 12

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9401
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 12 (X521.6) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.12 = 1).
DI/DO: Bidirectional Digital Input/Output

p4043 BI: TM15DI/DO signal source for terminal DI/DO 13 / TM15D s_s DI/DO 13

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9401
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 13 (X521.7) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.13 = 1).
DI/DO: Bidirectional Digital Input/Output

p4044 BI: TM15DI/DO signal source for terminal DI/DO 14 / TM15D s_s DI/DO 14

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9401
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 14 (X521.8) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.14 = 1).
DI/DO: Bidirectional Digital Input/Output

p4045 BI: TM15DI/DO signal source for terminal DI/DO 15 / TM15D s_s DI/DO 15

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9401
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 15 (X521.9) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.15 = 1).
DI/DO: Bidirectional Digital Input/Output

p4046 TM31 digital outputs limit current / TM31 DO limit curr

TM31	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9560
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the limit for the total output voltage of terminals X541.1, X541.2, X541.3 and X541.4 (DI/DO 8 ... 11) of Terminal Module 31 (TM31).

Value:
0: 0.1 A total current limit DI/DO 8 ... 11
1: 1.0 A total current limit DI/DO 8 ... 11

Dependency: See also: p4028

Alarm: Since the sum of the output currents at terminals X541.1, X541.2, X541.3 and X541.4 is limited, an overcurrent or short circuit at one output terminal can cause a dip in the signal at the other terminals.

r4047 TM15DI/DO digital outputs status / TM15D DO status

TM15DI_DO

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9400, 9401, 9402
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the status of the digital outputs of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	High	Low	-
01	DI/DO 1 (X520.3)	High	Low	-
02	DI/DO 2 (X520.4)	High	Low	-
03	DI/DO 3 (X520.5)	High	Low	-
04	DI/DO 4 (X520.6)	High	Low	-
05	DI/DO 5 (X520.7)	High	Low	-
06	DI/DO 6 (X520.8)	High	Low	-
07	DI/DO 7 (X520.9)	High	Low	-
08	DI/DO 8 (X521.2)	High	Low	-
09	DI/DO 9 (X521.3)	High	Low	-
10	DI/DO 10 (X521.4)	High	Low	-
11	DI/DO 11 (X521.5)	High	Low	-
12	DI/DO 12 (X521.6)	High	Low	-
13	DI/DO 13 (X521.7)	High	Low	-
14	DI/DO 14 (X521.8)	High	Low	-
15	DI/DO 15 (X521.9)	High	Low	-
16	DI/DO 16 (X522.2)	High	Low	-
17	DI/DO 17 (X522.3)	High	Low	-
18	DI/DO 18 (X522.4)	High	Low	-
19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Note: Inversion using p4048 has been taken into account.
The setting of the DI/DO as either input or output is of no significance (p4028).
DI/DO: Bidirectional Digital Input/Output

r4047 TM31 digital outputs status / TM31 DO status

TM31

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned32
Dyn. index: -
Function diagram: 9556, 9560, 9562
P group: Commands
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the status of the digital outputs of Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X542.1 - 3)	High	Low	-
01	DO 1 (X542.4 - 6)	High	Low	-
08	DI/DO 8 (X541.2)	High	Low	-
09	DI/DO 9 (X541.3)	High	Low	-
10	DI/DO 10 (X541.4)	High	Low	-
11	DI/DO 11 (X541.5)	High	Low	-

Note: Inversion using p4048 has been taken into account.
The setting of the DI/DO as either input or output is of no significance (p4028).
DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

p4048 TM15DI/DO invert digital outputs / TM15D DO inv

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1

Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 9400, 9401, 9402

P group: Commands | **Unit group:** - | **Unit selection:** -

Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min: | **Max:** | **Factory setting:**

- | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Setting to invert the signals at the digital outputs of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	Inverted	Not inverted	-
01	DI/DO 1 (X520.3)	Inverted	Not inverted	-
02	DI/DO 2 (X520.4)	Inverted	Not inverted	-
03	DI/DO 3 (X520.5)	Inverted	Not inverted	-
04	DI/DO 4 (X520.6)	Inverted	Not inverted	-
05	DI/DO 5 (X520.7)	Inverted	Not inverted	-
06	DI/DO 6 (X520.8)	Inverted	Not inverted	-
07	DI/DO 7 (X520.9)	Inverted	Not inverted	-
08	DI/DO 8 (X521.2)	Inverted	Not inverted	-
09	DI/DO 9 (X521.3)	Inverted	Not inverted	-
10	DI/DO 10 (X521.4)	Inverted	Not inverted	-
11	DI/DO 11 (X521.5)	Inverted	Not inverted	-
12	DI/DO 12 (X521.6)	Inverted	Not inverted	-
13	DI/DO 13 (X521.7)	Inverted	Not inverted	-
14	DI/DO 14 (X521.8)	Inverted	Not inverted	-
15	DI/DO 15 (X521.9)	Inverted	Not inverted	-
16	DI/DO 16 (X522.2)	Inverted	Not inverted	-
17	DI/DO 17 (X522.3)	Inverted	Not inverted	-
18	DI/DO 18 (X522.4)	Inverted	Not inverted	-
19	DI/DO 19 (X522.5)	Inverted	Not inverted	-
20	DI/DO 20 (X522.6)	Inverted	Not inverted	-
21	DI/DO 21 (X522.7)	Inverted	Not inverted	-
22	DI/DO 22 (X522.8)	Inverted	Not inverted	-
23	DI/DO 23 (X522.9)	Inverted	Not inverted	-

Note: DI/DO: Bidirectional Digital Input/Output

p4048 TM31 invert digital outputs / TM31 DO inv

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1

Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 9556, 9560, 9562

P group: Commands | **Unit group:** - | **Unit selection:** -

Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min: | **Max:** | **Factory setting:**

- | - | 0000 0000 0000 0000 bin

Description: Setting to invert the signals at the digital outputs of Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X542.1 - 3)	Inverted	Not inverted	-
01	DO 1 (X542.4 - 6)	Inverted	Not inverted	-
08	DI/DO 8 (X541.2)	Inverted	Not inverted	-
09	DI/DO 9 (X541.3)	Inverted	Not inverted	-
10	DI/DO 10 (X541.4)	Inverted	Not inverted	-
11	DI/DO 11 (X541.5)	Inverted	Not inverted	-

Note: DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

r4052[0...1] CO: TM31 analog inputs current input voltage/current / TM31 AI U/I_inp

TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the actual input voltage in V when set as voltage input.
Displays the actual input current in mA when set as current input and with the load resistor switched in.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The type of analog input AI x (voltage or current input) is set using p4056.
See also: p4056

Note: AI: Analog Input

p4053[0...1] TM31 analog inputs smoothing time constant / TM31 AI T_smooth

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st order lowpass filter for the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

r4055[0...1] CO: TM31 analog inputs actual value in percent / TM31 AI value in %

TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9549, 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Displays the currently referred input value of the analog inputs of Terminal Module 31 (TM31).
When interconnected, the signals are referred to the reference quantities p200x and p205x.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

p4056[0...1] TM31 analog inputs type / TM31 AI type

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	5	4

Description: Sets the type of analog inputs of Terminal Module 31 (TM31).

p4056[x] = 0, 4 correspond to a voltage input (r4052, p4057, p4059 are displayed in V).

p4056[x] = 2, 3, 5 correspond to a current input (r4052, p4057, p4059 are displayed in mA).

In addition, the associated switch S5 must be appropriately set.

AI 0: S5.0 = V --> voltage input, S5.0 = I --> current input (burden resistor = 250 Ohm)

AI 1: S5.1 = V --> voltage input, S5.1 = I --> current input (burden resistor = 250 Ohm)

Value:
0: Unipolar voltage input (0 V ... +10 V)
2: Unipolar current input (0 mA ... +20 mA)
3: Unipolar current input monitored (+4 mA to +20 mA)
4: Bipolar voltage input (-10 V ... +10 V)
5: Bipolar current input (-20 mA to +20 mA)

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Alarm:


The maximum voltage difference between the analog input terminals AI+, AI- and the ground of the TM31 (X520.6, X530.3) may not exceed 35 V.

For operation with the load resistor switched in, the voltage between the differential inputs AI+ and AI- may not exceed 15 V or the impressed current of 60 mA; if this is not carefully observed, the input will be damaged.

Notice: For operation as a voltage input/current input, switch S5.0 or S5.1 must be appropriately set.

Note: When changing p4056, the parameters of the scaling characteristic (p4057, p4058, p4059, p4060) are overwritten with the following default values:

For p4056 = 0, 4, p4057 is set to 0.0 V, p4058 to 0.0 %, p4059 to 10.0 V and p4060 to 100.0 %.

For p4056 = 2, 5, p4057 is set to 0.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

For p4056 = 3, p4057 is set to 4.0 mA, p4058 to 0.0 %, p4059 to 20.0 mA and p4060 to 100.0 %.

p4057[0...1] TM31 analog inputs characteristic value x1 / TM31 AI char x1

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-20.000	20.000	0.000

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).

The scaling characteristic for the analog inputs is defined using 2 points.

This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 1st value pair of the characteristic.

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.

See also: p4056

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4058[0...1] TM31 analog inputs characteristic value y1 / TM31 AI char y1

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the y coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4059[0...1] TM31 analog inputs characteristic value x2 / TM31 AI char x2

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-20.000	20.000	10.000

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the x coordinate (input voltage in V or input current in mA) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.
See also: p4056

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4060[0...1] TM31 analog inputs characteristic value y2 / TM31 AI char y2

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog inputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog inputs is defined using 2 points.
This parameter specifies the y coordinate (percentage) of the 2nd value pair of the characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Notice: This parameter is automatically overwritten when the analog input type (p4056) is modified.

Note: The parameters for the characteristic do not have a limiting effect.

p4061[0...1] TM31 analog inputs wire breakage monitoring response threshold / TM31 WireBrkThresh

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [mA]	20.00 [mA]	2.00 [mA]

Description: Sets the response threshold for wire-breakage monitoring of the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: For the following analog input type, the wire breakage monitoring is active:
p4056[x] = 3 (unipolar current input monitored (+4 mA ... +20 mA))
See also: p4056

p4062[0...1] TM31 analog inputs wire breakage monitoring delay time / TM31 wirebrk t_del

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	1000 [ms]	100 [ms]

Description: Sets the delay time for wire-breakage monitoring of the analog inputs on Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4063[0...1] TM31 analog inputs offset / TM31 AI offset

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-20.000	20.000	0.000

Description: Sets the offset for the analog inputs of Terminal Module 31 (TM31).
The offset is added to the input signal before the scaling characteristic.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4066[0...1] TM31 analog inputs activate absolute value generation / TM31 AI absVal act

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9566, 9568
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Activates the absolute value generation for the analog input signals of Terminal Module 31 (TM31).

Value: 0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4067[0...1] BI: TM31 analog inputs invert signal source / TM31 AI inv s_src

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9566, 9568
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source to invert the analog inputs signals of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4068[0...1] TM31 analog inputs window to suppress noise / TM31 AI window

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9566, 9568
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	20.00 [%]	0.00 [%]

Description: Sets the noise suppression window of the analog inputs for Terminal Module 31 (TM31).
Changes less than the window are suppressed.

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Note: AI: Analog Input

p4069[0...1] BI: TM31 analog inputs signal source for enable / TM31 AI enable

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9566, 9568
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	1

Description: Sets the signal source for the enable signal of the analog inputs of Terminal Module 31 (TM31).

Index: [0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

p4071[0...1] CI: TM31 analog outputs signal source / TM31 AO s_src

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9549, 9572
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for the analog outputs of Terminal Module 31 (TM31).

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Note: AO: Analog Output

r4072[0...1] TM31 analog outputs output value currently referred / TM31 AO outp_val

TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Displays the actual referred output value of the analog outputs of Terminal Module 31 (TM31).

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

p4073[0...1] TM31 analog outputs smoothing time constant / TM31 AO T_smooth

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [ms]	1000.0 [ms]	0.0 [ms]

Description: Sets the smoothing time constant of the 1st order lowpass filter for the analog outputs of Terminal Module 31 (TM31).

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

r4074[0...1] TM31 analog outputs current output voltage/current / TM31 AO U/I_outp

TM31	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the actual output voltage in V when set as voltage output.
Displays the actual output voltage in mA when set as current output.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The type of the analog output AO x (voltage or current output) is set using p4076.
See also: p4076

Note: AO: Analog Output

p4075[0...1] TM31 analog outputs activate absolute value generation / TM31 AO absVal act

TM31	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Activates the absolute value generation for the analog outputs of Terminal Module 31 (TM31).

Value: 0: No absolute value generation
1: Absolute value generation switched in

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

p4076[0...1] TM31 analog outputs type / TM31 AO type

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	4	4

Description: Sets the type of analog outputs of Terminal Module 31 (TM31).
p4076[x] = 1, 4 correspond to a voltage output (p4074, p4078, p4080, p4083 are displayed in V).
p4076[x] = 0, 2, 3 correspond to a current output (p4074, p4078, p4080, p4083 are displayed in mA).

Value:
0: Current output (0 mA ... +20 mA)
1: Voltage output (0 V ... +10 V)
2: Current output (+4 mA ... +20 mA)
3: Current output (-20 mA ... +20 mA)
4: Voltage output (-10 V ... +10 V)

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: See also: p4077, p4078, p4079, p4080

Note: When changing p4076, the parameters of the scaling characteristic (p4077, p4078, p4079, p4080) are overwritten with the following default values:
For p4076 = 0, 3, p4077 is set to 0.0 %, p4078 to 0.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA.
For p4076 = 1, 4, p4077 is set to 0.0 %, p4078 to 0.0 V, p4079 to 100.0 % and p4080 to 10.0 V.
For p4076 = 2, p4077 is set to 0.0 %, p4078 to 4.0 mA, p4079 to 100.0 % and p4080 to 20.0 mA.

p4077[0...1] TM31 analog outputs characteristic value x1 / TM31 AO char x1

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-1000.00 [%]	1000.00 [%]	0.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the x coordinate (percentage) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: See also: p4076

Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).

Note: The parameters for the characteristic do not have a limiting effect.

p4078[0...1] TM31 analog outputs characteristic value y1 / TM31 AO char y1

TM31			
	Can be changed: U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-20.000	20.000	0.000

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 1st value pair of the characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog output type.
See also: p4076
Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).
Note: The parameters for the characteristic do not have a limiting effect.

p4079[0...1] TM31 analog outputs characteristic value x2 / TM31 AO char x2

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1000.00 [%]	1000.00 [%]	100.00 [%]

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the x coordinate (percentage) of the 2nd value pair of the characteristic.
Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)
Dependency: See also: p4076
Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).
Note: The parameters for the characteristic do not have a limiting effect.

p4080[0...1] TM31 analog outputs characteristic value y2 / TM31 AO char y2

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-20.000	20.000	10.000

Description: Sets the scaling characteristic for the analog outputs of Terminal Module 31 (TM31).
The scaling characteristic for the analog outputs is defined using 2 points.
This parameter specifies the y coordinate (output voltage in V or output current in mA) of the 2nd value pair of the characteristic.
Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)
Dependency: The unit of this parameter (V or mA) depends on the analog output type.
See also: p4076
Notice: This parameter is automatically overwritten when changing p4076 (type of analog outputs).
Note: The parameters for the characteristic do not have a limiting effect.

p4082[0...1] BI: TM31 analog outputs invert signal source / TM31 AO inv s_src

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9572
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to invert the analog output signals of Terminal Module 31 (TM31).
Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

p4083[0...1] TM31 analog outputs offset / TM31 AO offset

TM31	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9572
	P group: Terminals	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-20.000	20.000	0.000

Description: Sets the offset for the analog outputs of Terminal Module 31 (TM31).
The offset is added to the output signal after the scaling characteristic.

Index: [0] = AO 0 (X522.1, X522.2, X522.3)
[1] = AO 1 (X522.4, X522.5, X522.6)

Dependency: The unit of this parameter (V or mA) depends on the analog input type.
See also: p4076

Note: This means, for example, the offset of a downstream isolating amplifier can be compensated.

p4086 BI: TM15DI/DO signal source for terminal DI/DO 16 / TM15D s_s DI/DO 16

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9402
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 16 (X522.2) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.16 = 1).
DI/DO: Bidirectional Digital Input/Output

p4087 BI: TM15DI/DO signal source for terminal DI/DO 17 / TM15D s_s DI/DO 17

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9402
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 17 (X522.3) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.17 = 1).
DI/DO: Bidirectional Digital Input/Output

p4088 BI: TM15DI/DO signal source for terminal DI/DO 18 / TM15D s_s DI/DO 18

TM15DI_DO	**Can be changed:** U, T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9402
	P group: Commands	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for terminal DI/DO 18 (X522.4) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.18 = 1).
DI/DO: Bidirectional Digital Input/Output

p4089 BI: TM15DI/DO signal source for terminal DI/DO 19 / TM15D s_s DI/DO 19

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9402
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 19 (X522.5) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.19 = 1).
DI/DO: Bidirectional Digital Input/Output

p4090 BI: TM15DI/DO signal source for terminal DI/DO 20 / TM15D s_s DI/DO 20

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9402
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 20 (X522.6) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.20 = 1).
DI/DO: Bidirectional Digital Input/Output

p4091 BI: TM15DI/DO signal source for terminal DI/DO 21 / TM15D s_s DI/DO 21

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9402
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 21 (X522.7) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.21 = 1).
DI/DO: Bidirectional Digital Input/Output

p4092 BI: TM15DI/DO signal source for terminal DI/DO 22 / TM15D s_s DI/DO 22

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 1
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 9402
P group: Commands | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for terminal DI/DO 22 (X522.8) of Terminal Module 15 (TM15).
Note: Prerequisite: The DI/DO must be set as an output (p4028.22 = 1).
DI/DO: Bidirectional Digital Input/Output

p4093 BI: TM15DI/DO signal source for terminal DI/DO 23 / TM15D s_s DI/DO 23

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9402
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for terminal DI/DO 23 (X522.9) of Terminal Module 15 (TM15).

Note: Prerequisite: The DI/DO must be set as an output (p4028.23 = 1).
DI/DO: Bidirectional Digital Input/Output

r4094.0...23 BO: TM15 digital inputs status inverted raw data internal / TM15 DI st raw dat

TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the inverted status of the raw data of the digital inputs of the Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	High	Low	-
01	DI/DO 1 (X520.3)	High	Low	-
02	DI/DO 2 (X520.4)	High	Low	-
03	DI/DO 3 (X520.5)	High	Low	-
04	DI/DO 4 (X520.6)	High	Low	-
05	DI/DO 5 (X520.7)	High	Low	-
06	DI/DO 6 (X520.8)	High	Low	-
07	DI/DO 7 (X520.9)	High	Low	-
08	DI/DO 8 (X521.2)	High	Low	-
09	DI/DO 9 (X521.3)	High	Low	-
10	DI/DO 10 (X521.4)	High	Low	-
11	DI/DO 11 (X521.5)	High	Low	-
12	DI/DO 12 (X521.6)	High	Low	-
13	DI/DO 13 (X521.7)	High	Low	-
14	DI/DO 14 (X521.8)	High	Low	-
15	DI/DO 15 (X521.9)	High	Low	-
16	DI/DO 16 (X522.2)	High	Low	-
17	DI/DO 17 (X522.3)	High	Low	-
18	DI/DO 18 (X522.4)	High	Low	-
19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Notice: The raw data of the digital inputs is directly displayed (e.g. without any debounce).

Note: Should only used for internal Siemens purposes (alternative r4022, r4023).

p4095 TM15DI/DO digital inputs simulation mode / TM15D DI sim_mode

TM15DI_DO

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 9400, 9401, 9402
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the simulation mode for the digital inputs of Terminal Module 15 (TM15).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	DI/DO 0 (X520.2)	Simulation	Terminal eval	-
	01	DI/DO 1 (X520.3)	Simulation	Terminal eval	-
	02	DI/DO 2 (X520.4)	Simulation	Terminal eval	-
	03	DI/DO 3 (X520.5)	Simulation	Terminal eval	-
	04	DI/DO 4 (X520.6)	Simulation	Terminal eval	-
	05	DI/DO 5 (X520.7)	Simulation	Terminal eval	-
	06	DI/DO 6 (X520.8)	Simulation	Terminal eval	-
	07	DI/DO 7 (X520.9)	Simulation	Terminal eval	-
	08	DI/DO 8 (X521.2)	Simulation	Terminal eval	-
	09	DI/DO 9 (X521.3)	Simulation	Terminal eval	-
	10	DI/DO 10 (X521.4)	Simulation	Terminal eval	-
	11	DI/DO 11 (X521.5)	Simulation	Terminal eval	-
	12	DI/DO 12 (X521.6)	Simulation	Terminal eval	-
	13	DI/DO 13 (X521.7)	Simulation	Terminal eval	-
	14	DI/DO 14 (X521.8)	Simulation	Terminal eval	-
	15	DI/DO 15 (X521.9)	Simulation	Terminal eval	-
	16	DI/DO 16 (X522.2)	Simulation	Terminal eval	-
	17	DI/DO 17 (X522.3)	Simulation	Terminal eval	-
	18	DI/DO 18 (X522.4)	Simulation	Terminal eval	-
	19	DI/DO 19 (X522.5)	Simulation	Terminal eval	-
	20	DI/DO 20 (X522.6)	Simulation	Terminal eval	-
	21	DI/DO 21 (X522.7)	Simulation	Terminal eval	-
	22	DI/DO 22 (X522.8)	Simulation	Terminal eval	-
	23	DI/DO 23 (X522.9)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p4096.
See also: p4096

Alarm: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while the Terminal Module is being activated or deactivated.

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI/DO: Bidirectional Digital Input/Output

p4095 TM31 digital inputs simulation mode / TM31 DI sim_mode

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 9549, 9550, 9552, 9560, 9562
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: - | **Max:** - | **Factory setting:** 0000 0000 0000 0000 bin

Description: Sets the simulation mode for the digital inputs of Terminal Module 31 (TM31).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	Simulation	Terminal eval	-
	01	DI 1 (X520.2)	Simulation	Terminal eval	-
	02	DI 2 (X520.3)	Simulation	Terminal eval	-
	03	DI 3 (X520.4)	Simulation	Terminal eval	-
	04	DI 4 (X530.1)	Simulation	Terminal eval	-
	05	DI 5 (X530.2)	Simulation	Terminal eval	-
	06	DI 6 (X530.3)	Simulation	Terminal eval	-
	07	DI 7 (X530.4)	Simulation	Terminal eval	-
	08	DI/DO 8 (X541.2)	Simulation	Terminal eval	-
	09	DI/DO 9 (X541.3)	Simulation	Terminal eval	-
	10	DI/DO 10 (X541.4)	Simulation	Terminal eval	-
	11	DI/DO 11 (X541.5)	Simulation	Terminal eval	-

Dependency: The setpoint for the input signals is specified using p4096.
See also: p4096

Alarm: A drive that is moved by simulating the inputs of a Terminal Module is brought to a standstill while the Terminal Module is being activated or deactivated.

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

p4096 TM15DI/DO digital inputs simulation mode, setpoint / TM15D DI sim setp

TM15DI_DO

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 9400, 9401, 9402
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 0000 0000 0000 0000 0000 0000 0000 0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of Terminal Module 15 (TM15).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI/DO 0 (X520.2)	High	Low	-
01	DI/DO 1 (X520.3)	High	Low	-
02	DI/DO 2 (X520.4)	High	Low	-
03	DI/DO 3 (X520.5)	High	Low	-
04	DI/DO 4 (X520.6)	High	Low	-
05	DI/DO 5 (X520.7)	High	Low	-
06	DI/DO 6 (X520.8)	High	Low	-
07	DI/DO 7 (X520.9)	High	Low	-
08	DI/DO 8 (X521.2)	High	Low	-
09	DI/DO 9 (X521.3)	High	Low	-
10	DI/DO 10 (X521.4)	High	Low	-
11	DI/DO 11 (X521.5)	High	Low	-
12	DI/DO 12 (X521.6)	High	Low	-
13	DI/DO 13 (X521.7)	High	Low	-
14	DI/DO 14 (X521.8)	High	Low	-
15	DI/DO 15 (X521.9)	High	Low	-
16	DI/DO 16 (X522.2)	High	Low	-
17	DI/DO 17 (X522.3)	High	Low	-
18	DI/DO 18 (X522.4)	High	Low	-
19	DI/DO 19 (X522.5)	High	Low	-
20	DI/DO 20 (X522.6)	High	Low	-
21	DI/DO 21 (X522.7)	High	Low	-
22	DI/DO 22 (X522.8)	High	Low	-
23	DI/DO 23 (X522.9)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.
See also: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI/DO: Bidirectional Digital Input/Output

p4096 TM31 digital inputs simulation mode setpoint / TM31 DI sim setp

TM31

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 9549, 9550, 9552, 9560, 9562
P group: Terminals | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 0000 0000 0000 0000 bin

Description: Sets the setpoint for the input signals in the simulation mode of the digital inputs of Terminal Module 31 (TM31).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	DI 0 (X520.1)	High	Low	-
	01	DI 1 (X520.2)	High	Low	-
	02	DI 2 (X520.3)	High	Low	-
	03	DI 3 (X520.4)	High	Low	-
	04	DI 4 (X530.1)	High	Low	-
	05	DI 5 (X530.2)	High	Low	-
	06	DI 6 (X530.3)	High	Low	-
	07	DI 7 (X530.4)	High	Low	-
	08	DI/DO 8 (X541.2)	High	Low	-
	09	DI/DO 9 (X541.3)	High	Low	-
	10	DI/DO 10 (X541.4)	High	Low	-
	11	DI/DO 11 (X541.5)	High	Low	-

Dependency: The simulation of a digital input is selected using p4095.
See also: p4095

Note: This parameter is not saved when data is backed-up (p0971, p0977).
DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

p4097[0...1] TM31 analog inputs simulation mode / TM31 AI sim_mode

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9566, 9568
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the simulation mode for the analog inputs of Terminal Module 31 (TM31).

Value:
0: Terminal evaluation for analog input x
1: Simulation for analog input x

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The setpoint for the input voltage is specified via p4098.
See also: p4098

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4098[0...1] TM31 analog inputs simulation mode setpoint / TM31 AI sim setp

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9566, 9568
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-20.000	20.000	0.000

Description: Sets the setpoint for the input value in simulation mode of the analog inputs of Terminal Module 31 (TM31).

Index:
[0] = AI 0 (X521.1/X521.2, S5.0)
[1] = AI 1 (X521.3/X521.4, S5.1)

Dependency: The simulation of an analog input is selected using p4097.
If AI x is parameterized as voltage input (p4056), then the setpoint is a voltage in V.
If AI x is parameterized as current input (p4056), then the setpoint is a current in mA.
See also: p4056, p4097

Note: This parameter is not saved when data is backed-up (p0971, p0977).
AI: Analog Input

p4099 TM15DI/DO inputs/outputs sampling time / TM15D I/O t_sampl

TM15DI_DO

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9399, 9400
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [µs]	5000.00 [µs]	4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of Terminal Module 15 (TM15).

Dependency: The parameter can only be modified for p0009 = 3, 29.
The following applies for the sampling time:
The sampling times at a DRIVE-CLiQ line must be integral multiples of one another.
The sampling times of this TM must be an integral multiple of a servo or vector drive that exists in the system.
The minimum permissible sampling time is 125 µs.
See also: p0009, r0110, r0111

Note: The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).
Parameter p4099[0] must never be equal to zero.

p4099[0...2] TM31 inputs/outputs sampling time / TM31 I/O t_sample

TM31

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9549, 9550
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [µs]	5000.00 [µs]	4000.00 [µs]

Description: Sets the sampling time for the inputs and outputs of Terminal Module 31 (TM31).

Index: [0] = Digital inputs/outputs (DI/DO)
[1] = Analog inputs (AI)
[2] = Analog outputs (AO)

Dependency: The parameter can only be modified for p0009 = 3, 29.
The following applies for the sampling time:
The sampling times at a DRIVE-CLiQ line must be integral multiples of one another.
The sampling times of this TM must be an integral multiple of a servo or vector drive that exists in the system.
The minimum permissible sampling time is 125 µs.
The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs).
See also: p0009, r0110, r0111

Notice: The sampling times entered in index 0 (digital inputs/outputs) and index 2 (analog outputs) must always be greater than or equal to the sampling time in index 1 (analog inputs).

Note: The changed sampling time is immediately effective after a completed sub-boot (p0009 -> 0).
Parameter p4099[0] must never be equal to zero.

p4100[0...11] TM150 sensor type / TM150 sensor type

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	6	5

Description: Sets the sensor type for Terminal Module 150 (TM150)
This means that the temperature sensor type is selected and the evaluation is switched in.

Value:
0: Evaluation disabled
1: PTC thermistor
2: KTY84
4: Bimetallic NC contact
5: PT100
6: PT1000

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Notice:
For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note:
The temperature sensors are connected to the following terminals:
X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
Details on the wiring are included in the parameter description for p4108.

p4100 TM31 sensor type / TM31 sensor type

TM31

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9576
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	6	0

Description:
Sets the sensor type for Terminal Module 31 (TM31)
This means that the temperature sensor type is selected and the evaluation is switched in.

Value:
0: Evaluation disabled
1: PTC thermistor
2: KTY84
6: PT1000

Notice:
For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.
For sensor type "PTC thermistor" (p4100 = 1), the following applies:
To activate the corresponding alarm or fault, p4102[0...1] must be set <= 250 °C.

Note:
The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

r4101[0...11] TM150 sensor resistance / TM150 R_sensor

TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ohm]	- [ohm]	- [ohm]

Description:
Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Note: The maximum measurable resistance value is approx. 2500 Ohm.
For 1x2 and 2x2 wire evaluation:
The actual sensor resistance is displayed in this parameter(i.e. the wire resistance (p4110) is taken into account).
The temperature sensors are connected to the following terminals:
X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)
Details on the wiring are included in the parameter description for p4108.

r4101 TM31 sensor resistance / TM31 R_sensor

TM31

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9576
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [ohm]	- [ohm]	- [ohm]

Description: Displays the actual resistance value of the temperature sensor connected at the Terminal Module.

Note: The maximum measurable resistance value is approx. 1720 Ohm.
The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

p4102[0...23] TM150 fault threshold/alarm threshold / TM150 F/A_thresh

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-99 [°C]	251 [°C]	251 [°C]

Description: Sets the fault threshold/alarm threshold for Terminal Module 150 (TM150).
For alarms (even indices [0, 2, 4 ... 22]), the following applies:
- the corresponding alarm is initiated, if the temperature actual value associated with a temperature channel exceeds the associated alarm threshold (r4105[x] > p4102[2x]. In addition, the timer is started (p4103[x]).
- the alarm remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x]) - hysteresis (p4118[x]).
For faults (uneven indices [1, 3, 5 ... 23]), the following applies:
- the corresponding fault is initiated, if the temperature actual value associated with a temperature channel exceeds the associated fault threshold (r4105[x] > p4102[2x+1] or the associated timer (p4103[x] has expired.
- the fault remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

Index: [0] = Channel 0 alarm threshold (A35211)
[1] = Channel 0 fault threshold (F35207)
[2] = Channel 1 alarm threshold (A35212)
[3] = Channel 1 fault threshold (F35208)
[4] = Channel 2 alarm threshold (A35213)
[5] = Channel 2 fault threshold (F35209)
[6] = Channel 3 alarm threshold (A35214)
[7] = Channel 3 fault threshold (F35210)
[8] = Channel 4 alarm threshold (A35410)
[9] = Channel 4 fault threshold (F35400)
[10] = Channel 5 alarm threshold (A35411)
[11] = Channel 5 fault threshold (F35401)
[12] = Channel 6 alarm threshold (A35412)
[13] = Channel 6 fault threshold (F35402)
[14] = Channel 7 alarm threshold (A35413)
[15] = Channel 7 fault threshold (F35403)
[16] = Channel 8 alarm threshold (A35414)
[17] = Channel 8 fault threshold (F35404)
[18] = Channel 9 alarm threshold (A35415)
[19] = Channel 9 fault threshold (F35405)
[20] = Channel 10 alarm threshold (A35416)
[21] = Channel 10 fault threshold (F35406)
[22] = Channel 11 alarm threshold (A35417)
[23] = Channel 11 fault threshold (F35407)

Dependency: See also: p4103, r4104, r4105, p4118

Notice: Faults F35207 ... F35210 and F35400 ... F35407 only cause the drive to be shut down if there is at least one BICO interconnection between the drive and the TM150.
For p4102[0...23] = 251 °C, evaluation of the corresponding threshold is deactivated.
For sensor type "PTC thermistor" (p4100[0...11] = 1), the following applies:
To activate the corresponding alarm or fault, p4102[0...23] must be set <= 250 °C.

Note: The hysteresis can be set in p4118[0...11].

p4102[0...1] TM31 fault threshold/alarm threshold / TM31 F/A_thresh

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9576
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-48 [°C]	251 [°C]	[0] 100 [°C] [1] 120 [°C]

Description: Sets the fault threshold/alarm threshold for Terminal Module 31 (TM31).
A35211 is initiated, if the temperature actual value r4105[0] > p4102[0]
F35207 is initiated if the temperature actual value r4105[0] > p4102[1] or timer p4103[0] has expired
For alarm A35211 the following applies:
- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[0] - hysteresis).
For fault F35207 the following applies:
- Remains until the temperature actual value (r4105) reaches or falls below the value (p4102[1] - hysteresis) and the fault has been acknowledged.
- the hysteresis value is 5 K and cannot be changed by the user.

Index: [0] = Alarm threshold
[1] = Fault threshold

Dependency: See also: r4104

Notice: Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.
For p4102[0...1] = 251 °C, evaluation of the corresponding threshold is deactivated.
For sensor type "PTC thermistor" (p4100 = 1), the following applies:
To activate the alarm or fault, p4102[0...1] must be set <= 250 °C.

p4103[0...11] TM150 delay time / TM150 t_delay

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: Motor	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	600.0 [s]	0.0 [s]

Description: Sets the delay time for the output of the fault for the Terminal Module 150 (TM150).

The timer is started when the alarm threshold (e.g. p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then the corresponding fault is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- if the fault threshold (e.g. p4102[1]) is exceeded before the delay time has expired, then the corresponding fault is immediately output.

For sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: p4102, r4104, r4105, p4118

Alarm: The fault F35207 ... F35210 and F35400 ... 35407 only results in the drive being shut down if at least one BICO interconnection exists between the drive and the TM150.

Note:

For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:

- the corresponding fault can only be initiated via the fault threshold (output of the timer is always a logical 0).

For p4103 = 0 s and sensor type "PTC thermistor", "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:

- the corresponding alarm and fault are simultaneously output (delay time = 0 s).

p4103 TM31 temperature evaluation delay time / TM31 temp t_delay

TM31

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9576
P group: Motor	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [ms]	600000.000 [ms]	0.000 [ms]

Description: Sets the delay time for the output of the fault for the Terminal Module 31 (TM31).

The timer is started when the alarm threshold (p4102[0]) is exceeded.

If the delay time has expired and the alarm threshold has, in the meantime, not been fallen below, then fault F35207 is output.

The fault can be acknowledged, if, after the delay time has expired, the alarm threshold is again fallen below.

For sensor type "KTY84" "PT1000" (p4100 = 2, 6), the following applies:

If the fault threshold (p4102[1]) is exceeded before the delay time has expired, then fault F35207 is immediately output.

For sensor type "PTC thermistor" (p4100 = 1), the following applies:

- Alarm and fault threshold simultaneously respond. The fault is only issued after the delay time has expired.

Dependency: See also: r4104

Alarm: Fault F35207 only causes the drive to be shut down if there is at least one BICO interconnection between the drive and TM31.

Note: With p4103 = 0, the timer is deactivated and only the fault threshold is effective.

r4104.0...23 BO: TM150 temperature evaluation status / TM150 temp status

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector output for the status for the Terminal Module 150 (TM150).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Channel 0 alarm present	Yes	No	9626
01	Channel 0 fault present	Yes	No	9626
02	Channel 1 alarm present	Yes	No	9626
03	Channel 1 fault present	Yes	No	9626
04	Channel 2 alarm present	Yes	No	9626
05	Channel 2 fault present	Yes	No	9626
06	Channel 3 alarm present	Yes	No	9626
07	Channel 3 fault present	Yes	No	9626
08	Channel 4 alarm present	Yes	No	9626
09	Channel 4 fault present	Yes	No	9626
10	Channel 5 alarm present	Yes	No	9626
11	Channel 5 fault present	Yes	No	9626
12	Channel 6 alarm present	Yes	No	9627
13	Channel 6 fault present	Yes	No	9627
14	Channel 7 alarm present	Yes	No	9627
15	Channel 7 fault present	Yes	No	9627
16	Channel 8 alarm present	Yes	No	9627
17	Channel 8 fault present	Yes	No	9627
18	Channel 9 alarm present	Yes	No	9627
19	Channel 9 fault present	Yes	No	9627
20	Channel 10 alarm present	Yes	No	9627
21	Channel 10 fault present	Yes	No	9627
22	Channel 11 alarm present	Yes	No	9627
23	Channel 11 fault present	Yes	No	9627

Dependency: See also: p4102, p4103, r4105, p4118

r4104.0...1 BO: TM31 temperature evaluation status / TM31 temp status

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9549, 9576
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector output for the status for the Terminal Module 31 (TM31).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Alarm is present	Yes	No	-
01	Fault is present	Yes	No	-

Dependency: See also: p4102

r4105[0...11] CO: TM150 temperature actual value / TM150 temp_act val

TM150

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value for the Terminal Module 150 (TM150)

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0...11] = 1, 4), the following applies:
- below the nominal response temperature, r4105[0...11] = -50 °C.
- above the nominal response temperature, r4105[0...11] = 250 °C.

For sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- the displayed value corresponds to the temperature actual value.

See also: p4100, p4111, r4112, r4113, r4114

Note: r4105[0...11] = -300 °C is displayed in the following cases:
- temperature actual value invalid (F35920 ... F35931 output).
- no sensor selected (p4100[0...11] = 0).

The temperature actual values can be grouped using p4111[0...2] and the maximum value, minimum value as well as the average value for each group evaluated (r4112[0...2], r4113[0...2], r4114[0...2]).

r4105 CO: TM31 temperature actual value / TM31 temp_act val

TM31

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9549, 9576
P group: Terminals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2006	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [°C]	- [°C]	- [°C]

Description: Displays the temperature actual value for the Terminal Module 31 (TM31)

Dependency: For sensor type "PTC thermistor" (p4100 = 1), the following applies:
- below the nominal response temperature, r4105 = -50°C.
- above the nominal response temperature, r4105 = 250 °C.

For sensor type "KTY84" "PT1000" (p4100 = 2, 6), the following applies:
- the displayed value corresponds to the temperature actual value.

See also: p4100

Note: r4105 = -300 °C is displayed in the following cases:
- temperature actual value invalid (F35920 output).
- no sensor selected (p4100 = 0).

The temperature sensor is connected at terminals X522.7(+) and X522.8(-).

p4108[0...5] TM150 terminal block measuring method / TM150 meas method

TM150	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9625, 9626, 9627
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	3	1

Description: Sets the measuring method for the terminal block X531 ... X536 for the Terminal Module 150 (TM150).

For p4108[0...5] = 0 (1x2 wire evaluation):

- the temperature sensor is connected at terminals 1(+) and 2(-).

For p4108[0...5] = 1 (2x2 wire evaluation):

- the first temperature sensor is connected at terminals 1(+) and 2(-).
- the second temperature sensor is connected at terminals 3(+) and 4(-).

For p4108[0...5] = 2 (3 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).
- the measuring conductor is connected at terminal 1(+).
- terminals 2(-) and 4(-) must be jumpered.

For p4108[0...5] = 3 (4 wire evaluation):

- the temperature sensor is connected at terminals 3(+) and 4(-).
- the measuring conductor is connected at terminals 1(+) and 2(-).

Value:

0: 1x2 wire evaluation
1: 2x2 wire evaluation
2: 3 wire evaluation
3: 4 wire evaluation

Index:

[0] = X531
[1] = X532
[2] = X533
[3] = X534
[4] = X535
[5] = X536

Note: The temperature sensors are connected to the following terminals:

X531 = channel 0 (for 2x2 wire evaluation, additionally channel 6)
X532 = channel 1 (for 2x2 wire evaluation, additionally channel 7)
X533 = channel 2 (for 2x2 wire evaluation, additionally channel 8)
X534 = channel 3 (for 2x2 wire evaluation, additionally channel 9)
X535 = channel 4 (for 2x2 wire evaluation, additionally channel 10)
X536 = channel 5 (for 2x2 wire evaluation, additionally channel 11)

For p4108[0...5] = 0, 2, 3 (1x2, 3, 4 wire evaluation):

The temperature channel belonging to the terminal block with the higher number is automatically deactivated (e.g. for X531 with 3-wire evaluation, channel 6 is deactivated).

p4109[0...11] TM150 wire resistance measurement / TM150 R_wire meas

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to start the measurement of the wire resistance for a channel for the Terminal Module 150 (TM150).

For a 2 wire evaluation, the total wire resistance is measured and saved. During the temperature evaluation, the temperature actual value is automatically calibrated using the measured wire resistance.

Procedure:

1. Select the measuring method (1x2/2x2) for the corresponding terminal block (p4108[0...5] = 0, 1).
2. Set the required sensor type for the corresponding channel (p4100[x] = 1 ... 6, x = 0...5 or 0...11).
3. Jumper the sensor to be connected (short-circuit the sensor cable close to the sensor).
4. Connect the sensor conductors to the appropriate terminals 1(+), 2(-) or 3(+), 4(-).
5. For the corresponding channel, start the measurement of the wire resistance (p4109[x] = 1).
6. After p4109[x] = 0, check the measured resistance value in p4110[x].
7. Remove the jumper across the temperature sensor.

Value:
0: Inactive
1: Start

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: p4100, p4108, p4110

Notice: Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note: The wire resistance value can be also directly entered into p4110[0...11].

The automatic conductor calibration for 1x2 and 2x2 wire evaluation is always performed with the value in p4110[0...11].

p4110[0...11] TM150 wire resistance value / TM150 R_wire value

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [ohm]	3000.00 [ohm]	0.00 [ohm]

Description: Sets and displays the wire resistance for Terminal Module 150 (TM150).

The value is used for the automatic conductor calibration.

The value is automatically set by starting the wire resistance measurement (p4109[0...11]) of the corresponding channel.

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: p4109

Notice: Wire resistance measurement is only possible for 1x2 or 2x2 wire evaluation (p4108[0...5] = 0, 1).

Note: Automatic conductor calibration is deactivated using p4110[0...11] = 0.

p4111[0...2] TM150 group channel assignment / TM150 grp channel

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9625
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Assigns the temperature channels to groups for the Terminal Module 150 (TM150)
For each group, the following calculated values are provided from the temperature actual values (r4105[0...11]):
- Maximum value (r4112[0...2])
- Minimum value (r4113[0...2])
- average value (r4114[0...2])

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Temperature channel 0	Yes	No	-
01	Temperature channel 1	Yes	No	-
02	Temperature channel 2	Yes	No	-
03	Temperature channel 3	Yes	No	-
04	Temperature channel 4	Yes	No	-
05	Temperature channel 5	Yes	No	-
06	Temperature channel 6	Yes	No	-
07	Temperature channel 7	Yes	No	-
08	Temperature channel 8	Yes	No	-
09	Temperature channel 9	Yes	No	-
10	Temperature channel 10	Yes	No	-
11	Temperature channel 11	Yes	No	-

Dependency: See also: r4105, r4112, r4113, r4114

Notice: When forming groups, it must be ensured that in one particular group, only temperature channels with the following sensor types are included:
- "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6), real temperature actual value

or alternatively

- "PTC thermistor", "bimetallic NC contact" (p4100[0...11] = 1, 4), fictitious temperature actual value (-50 °C, 250 °C)

If these sensor types are combined within one group, then the calculated values for maximum, minimum and average value will be falsified.

Note: Active and inactive temperature channels can be included in one group. However, when calculating the values (r4112, r4113, r4114) only the active temperature channels with valid actual value are taken into account (r4105[0...11] not equal to -300 °C).

r4112[0...2] CO: TM150 group temperature actual value maximum value / TM150 grp temp max

TM150

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 9625
P group: Terminals
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: p2006
Expert list: 1
Min:
Max:
Factory setting:
- [°C]
- [°C]
- [°C]

Description: Display and connector output for the maximum value of each group for the Terminal Module 150 (TM150).
This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:
- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4113, r4114

r4113[0...2] CO: TM150 group temperature actual value minimum value / TM150 grp temp min

TM150

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 9625
P group: Terminals
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: p2006
Expert list: 1
Min:
Max:
Factory setting:
- [°C]
- [°C]
- [°C]

Description: Display and connector output for the minimum value of each group for the Terminal Module 150 (TM150).
This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:
- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4112, r4114

r4114[0...2] CO: TM150 group temperature average actual value / TM150 grp temp av

TM150

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 9625
P group: Terminals
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: p2006
Expert list: 1
Min:
Max:
Factory setting:
- [°C]
- [°C]
- [°C]

Description: Display and connector output for the average value of each group for the Terminal Module 150 (TM150).
This value is calculated from the actual temperature values (r4105[0...11]) of each group.

Recommendation: The following connector inputs can use these connector outputs for interconnection:
- CI: p0603
- CI: p0608[0...3]
- CI: p0609[0...3]
- CI: p2051

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4112, r4113

Note: If one group is assigned sensor type "PTC" or "bimetal NC contact", then the average value -300 °C is output.

p4117[0...2] TM150 group sensor error effect / TM150 error effect

TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9625
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the effect for an error of a sensor of a group for Terminal Module TM150 (TM150).
For p4117 = 0, the following applies:
The defective temperature sensor assigned to a group is not take into account when forming the group.
For p4117 = 1, the following applies:
For a sensor error, for the maximum value, minimum value and average value of the corresponding group, a value of -300 °C is output.

Value: 0: Skip sensor
1: Output value = -300 °C

Index: [0] = Group 0
[1] = Group 1
[2] = Group 2

Dependency: See also: r4105, p4111, r4112, r4113, r4114

p4118[0...11] TM150 fault threshold/alarm threshold hysteresis / TM150 thresh hyst

TM150

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9626, 9627
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [K]	50 [K]	5 [K]

Description: Sets the hysteresis for the fault threshold/alarm threshold (p4102[0...23]) for the Terminal Module 150 (TM150).

Index: [0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: p4102, p4103, r4104, r4105

Note: The following applies for a corresponding alarm:
- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x]) - hysteresis (p4118[x]).

The following applies for a corresponding fault:
- Remains until the temperature actual value (r4105[x]) reaches or falls below the threshold value (p4102[2x+1]) - hysteresis (p4118[x]) and the fault has been acknowledged.

p4119[0...11] TM150 activate/deactivate smoothing / TM150 smooth act

TM150			
	Can be changed: T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9626, 9627
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to activate/deactivate the filter to smooth the temperature signal for the Terminal Module 150 (TM150).
The smoothing is realized with a 1st order lowpass filter
The effective smoothing time constant depends on the number of channels that are simultaneously active and is displayed in r4120.

Value:
0: Filter deactivated
1: Filter activated

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: r4120

r4120[0...11] TM150 actual smoothing time in ms / TM150 actval T ms

TM150			
	Can be changed: -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9626, 9627
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [ms]	- [ms]	- [ms]

Description: Displays the implemented smoothing time constant for the temperature filter for the Terminal Module 150 (TM150).

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: r4105, p4111, r4112, r4113, p4122

p4121 TM150 filter rated line frequency / TM150 filt f_line

TM150	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9626, 9627
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the rated line frequency for the filter to skip the line frequency for Terminal Module 150 (TM150).

Value:
0: 50 Hz
1: 60 Hz

p4122[0...11] TM150 smoothing time constant / TM150 T

TM150	**Can be changed:** T	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9626, 9627
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	100 [ms]	10000 [ms]	100 [ms]

Description: Sets the smoothing time constant for the 1st order lowpass filter of the temperature channels.
The effective smoothing time constant depends on the number of channels that are simultaneously active and is displayed in r4120.
In order that the value becomes effective, p4122 must be set >= 2 *channel sampling time.
The following applies:
Channel sampling time = active number of channels * 50ms
For lower values, a smoothing of 2 * channel sampling time.

Index:
[0] = Temperature channel 0
[1] = Temperature channel 1
[2] = Temperature channel 2
[3] = Temperature channel 3
[4] = Temperature channel 4
[5] = Temperature channel 5
[6] = Temperature channel 6
[7] = Temperature channel 7
[8] = Temperature channel 8
[9] = Temperature channel 9
[10] = Temperature channel 10
[11] = Temperature channel 11

Dependency: See also: r4120

p4630[0...n] Absolute encoder linear measuring step factor / Abs_enc meas fact

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R	**Can be changed:** C2(4)	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
	P group: Encoder	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1	4294967295	1

Description: Sets the resolution of the absolute position for a linear absolute encoder as factor from p0407.

Note: The serial protocol of an absolute encoder provides the position with a certain resolution (e.g. 100 nm).
The resolution is calculated from p0407/p4630.

r4640[0...95] Encoder diagnostics state machine / Enc diag stat_ma

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder diagnostics for the PROFIdrive interface.

p4641[0...2] OEM encoder diagnostic signal selection / OEM enc diag sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the trace functionality for OEM encoder manufacturers.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Encoder 3

p4642 Encoder fault test function / Encoder fault test

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Test function to initiate an encoder fault
p4642 = 0/1 signal:
The currently used motor encoder issues an encoder fault.
p4642 = 1/0 signal:
The encoder fault that was issued is cleared after acknowledgment.

Notice: It is not permissible that a data set is switched over between an encoder fault being issued and its deletion.

p4649[0...n] Encoder function reserve amplitude limit incremental signals / Enc fct amp inc

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	500	0

Description: Amplitude threshold of the incremental signals for the function reserve.
If the set amplitude threshold on the incremental signals is fallen below, then alarm A3x407 "Encoder x; function limit reached " is output.

Note: An amplitude threshold of 230 mV can be used as default value.

p4650 Encoder functional reserve component number / Enc fct_res num

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	399	0

Description: Sets the component number (p0141) of the encoder whose functional reserve is to be displayed (r4651).

Dependency: See also: r4651

r4651[0...3] Encoder functional reserve / Enc fct_reserve

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Displays, signals	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the functional reserve of the encoder selected via p4650.
0 ... 25 %:
The function limit has been reached. A service is recommended.
26 ... 100 %:
The encoder is working in the specified range.

Index: [0] = Function reserve 1
[1] = Function reserve 2
[2] = Function reserve 3
[3] = Function reserve 4

Dependency: See also: p4650

Note: Value = 999 means:
- the component specified in p4650 is not connected
- the encoder does not support the display of the functional reserve

p4652[0...2] XIST1_ERW reset mode / XIST1_ERW res mode

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 4750
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the mode to reset the actual value in XIST_ERW (CO: r4653).

Value: 0: Inactive
1: Reset with zero mark
2: Reset with BICO
3: Reset with selected zero mark

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: r4653, r4654, p4655

Note: The absolute value is only valid after passing the zero mark.
If value = 1:
The value in XIST1_ERW is reset when passing every zero mark.
If value = 2:
The value in XIST1_ERW is reset with a 0/1 edge via binector input p4655.
If value = 3:
The value in XIST1_ERW is reset after a 0/1 edge via binector input p4655 when passing the next zero mark.

r4653[0...2] CO: XIST1_ERW actual value / XIST1_ERW actval

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 4750
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the actual value XIST1_ERW.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p4652, r4654, p4655

r4654.0...8 CO/BO: XIST1_ERW status / XIST1_ERW stat

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 4750
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and BICO output to reset XIST1_ERW.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Encoder 1 XIST1_ERW reset	High	Low	-
08	Encoder 2 XIST1_ERW reset	High	Low	-

Dependency: See also: p4652, r4653, p4655

Note: The reset of XIST1_ERW is initiated via binector input p4655.
Binector output r4654 is reset with a 0 signal from binector input p4655.

p4655[0...2] BI: XIST1_ERW reset signal source / XIST1_ERW resS_src

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 4750
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to reset XIST1_ERW (CO: r4653).

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p4652, r4653, r4654

Note: The reset of XIST1_ERW depends on the selected mode (p4652).

p4660[0...2] Sensor Module filter bandwidth / SM Filt_bandw

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [kHz]	20000.00 [kHz]	0.00 [kHz]

Description: Sets the filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).
The value set on the Sensor Module is displayed in r4661.
Currently, the Sensor Module hardware only supports the following values:
- 0: The Sensor Module's default setting is used.
- 50 kHz
- 170 kHz
- 500 kHz
- Unlimited: Only the bandwidth of the operational amplifier is effective.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Dependency: See also: r4661

Note: A value of zero is displayed if an encoder is not present.

r4661[0...2] Sensor Module filter bandwidth display / SM Filt_bandw disp

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [kHz]	- [kHz]	- [kHz]

Description: Displays the effective filter bandwidth for Sensor Module SMx10 (resolver) and SMx20 (sin/cos).
The bandwidth of the filter is set using p4660.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = Reserved

Dependency: See also: p4660

Note: A value of zero is displayed if an encoder is not present.

p4678[0...n] Analog sensor LVDT ratio / An_sens LVDT ratio

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	50.00 [%]

Description: Sets the ratio for the LVDT sensor.

p4679[0...n] Analog sensor LVDT phase / An_sens LVDT ph

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-360.00 [°]	360.00 [°]	0.00 [°]

Description: Sets the phase for the LVDT sensor.

p4680[0...n] Zero mark monitoring tolerance permissible / ZM_monit tol perm

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1000	4

Description: Sets the permissible tolerance in encoder pulses for the zero mark distance in the context of zero mark monitoring.
Causes fault F3x100 to appear less frequently.

Dependency: See also: F31100

p4681[0...n] Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1000	2

Description: Sets the positive tolerance window in encoder pulses for limit 1 for the zero mark monitoring.
The pulse number is corrected if the deviation is less than this limit. If it is higher than this limit, fault F3x131 is triggered.
If fault F3x131 is re-parameterized to an alarm (A) or no message (N), then the encoder pulses that are not corrected are transferred to the accumulator (p4688). The accumulator can be deactivated using p0437.7.

Dependency: See also: p0437, p4688
See also: F31131

Note: This monitoring is activated by setting p0437.2 = 1 (position actual value correction).
The positive limit describes additional pulses due to EMC.

p4682[0...n] Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1001	0	-1001

Description: Sets the negative tolerance window in encoder pulses for limit 1 for the zero mark monitoring.
The pulse number is corrected if the deviation is less than this limit. If it is higher than this limit, fault F3x131 is triggered.
If fault F3x131 is re-parameterized to an alarm (A) or no message (N), then the encoder pulses that are not corrected are transferred to the accumulator (p4688). The accumulator can be deactivated using p0437.7.

Dependency: See also: p0437, p4681, p4688
See also: F31131

Note: This monitoring is activated by setting p0437.2 = 1 (position actual value correction).
For a set value = -1001, the negated value of p4681 becomes active.
The negative limit describes the pulses lost due to a covered glass panel in the incremental encoder.

p4683[0...n] Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100000	0

Description: Sets the positive tolerance window in encoder pulses for limit 2 for the zero mark monitoring.
Accumulator (p4688) is compared with this parameter, and where relevant, alarm A3x422 is output for 5 seconds.

Dependency: See also: p0437, p4681, p4682, p4688
See also: F31131, A31422

Note: Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).

p4684[0...n] Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-100001	0	-100001

Description: Sets the negative tolerance window in encoder pulses for limit 2 for the zero mark monitoring.
Accumulator (p4688) is compared with this parameter, and where relevant, alarm A3x422 is output for 5 seconds.

Dependency: See also: p0437, p4683, p4688
See also: F31131, A31422

Note: Zero mark monitoring is activated by setting p0437.2 = 1 (position actual value correction).
For a set value = -100001, the negated value of p4683 is effective.

p4685[0...n] Speed actual value mean value generation / n_act mean val

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	20	0

Description: Sets the number of current controller sampling times for mean value generation of the speed actual value.

Note: Value = 0, 1: No mean value generation.
Higher values also mean higher dead times for the speed actual value.

p4686[0...n] Zero mark minimum length / ZM min length

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: C2(4)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** EDS, p0140	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	10	1

Description: Sets the minimum length for the zero mark in 1/4 encoder pulses.

Dependency: See also: p0425, p0437

Note: The minimum length of the zero mark must be less than the zero mark distance (p4686 < p0425).
The parameter is activated using p0437.1 = 1 (zero mark edge detection).

p4688[0...2] CO: Zero mark monitoring differential pulse count / ZM diff_pulse qty

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-2147483648	2147483647	0

Description: Display and connector output for the identified incorrect pulses in lines.
Also see p0437.7 (do not accumulate number of incorrect pulses).

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: p0437, p4681, p4682, p4683, p4684

Note: The display can only be reset to zero.

r4689[0...2] CO: Squarewave encoder diagnostics / Sq-wave enc diag

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Encoder	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the encoder status according to PROFIdrive for a squarewave encoder.

Index: [0] = Encoder 1
[1] = Encoder 2
[2] = -

Dependency: See also: A31422

Note: After alarm A3x422 is output, this parameter is set for 100 ms.

p4700[0...1] Trace control / Trace control

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Setting to control the trace function.

Value: 0: Stop trace
1: Start trace
2: Start trace and save values

Index: [0] = Trace 0
[1] = Trace 1

p4701 Measuring function control / Meas fct ctrl

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Setting to control the measurement function.

Value:
0: Stop measuring function
1: Start measuring function
2: Measuring function check parameterization
3: Start measuring function without enable signals

p4703[0...1] Trace options / Trace options

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Sets the options for the trace.

Index:
[0] = Trace 0
[1] = Trace 1

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Automatically start trace with time slices	Yes	No	-

Dependency: See also: p4700

Note:
For bit 00:
0: The trace starts with p4700 as before.
1: When powering up, the trace starts immediately with the saved parameter settings with the start of the time slices.

r4705[0...1] Trace status / Trace status

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	6	-

Description: Displays the actual status of the trace.

Value:
0: Trace inactive
1: Trace is recording presamples
2: Trace is waiting for trigger event
3: Trace is recording
4: Recording (trace) ended
5: Trace inactive with permissible configuration data
6: Trace inactive with inadmissible configuration data

Index:
[0] = Trace 0
[1] = Trace 1

r4706 Measuring function status / Meas fct status

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	5	-

Description: Displays the actual status of the measuring function.

Value:
0: Measurement function inactive
1: Measuring function parameterization checked
2: Measuring function waits for stabilizing time
3: Measuring function recording (tracing)
4: Measuring function trace ended with error
5: Measuring function trace successfully completed

p4707 Measurement function configuration / Meas fct config

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to configure the measurement function.

Value:
0: Standard
1: Free measurement function

Dependency: The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).

Note: This parameter involves free measurement functions, and is only active for p4810 = 6.
For value = 0:
The free measuring function is parameterized with master control.
For value = 1:
The free measuring function is parameterized without master control.

r4708[0...1] Trace memory space required / Trace mem required

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the required memory in bytes for the actual parameterization.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: See also: r4799

r4709[0...1] Trace memory space required for measuring functions / Trace mem required

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the required memory in bytes for the actual parameterization.
This applies, if the trace for the measurement functions is used.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: See also: r4799

p4710[0...1] Trace trigger condition / Trace Trig_cond

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
1	8	2

Description: Sets the trigger condition for the trace.

Value:
1: Immediate trace start
2: Positive edge
3: Negative edge
4: Entry to hysteresis band
5: Leaving hysteresis band
6: Trigger at bit mask
7: Start with function generator
8: Trigger at bit mask with edge

Index: [0] = Trace 0
[1] = Trace 1

p4711[0...5] Trace trigger signal / Trace trig_signal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the trigger signal for the trace.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

Dependency: Only effective when p4710 does not equal 1.

Note: It only makes sense to trace the PINs using the commissioning tool.
For index 2(4) and 3(5) equal to zero, index 0(1) can only be written and vice versa.
For index [0...1]:
Here, the trigger signal for trace 0 or 1 is entered as parameter in the BICO format.
For trace with a physical address (p4789), the data type of the trigger signal is set here.
For index [2...3]:
The triggering PIN for trace 0 is entered here.
Index 2 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
Index 3 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN
For index [4...5]:
The triggering PIN for trace 1 is entered here.
Index 4 bit 31 ... 16: Number of the Drive Object (DO), bit 15 ... 0: Number of the chart
Index 5 bit 31 ... 16: Number of the block, bit 15 ... 0: Number of the PIN

p4712[0...1] Trace trigger threshold / Trace trig_thresh

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36	340.28235E36	0.00

Description: Sets the trigger threshold for the trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 2, 3.

p4713[0...1] Trace tolerance band trigger threshold 1 / Trace trig thr 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36	340.28235E36	0.00

Description: Sets the first trigger threshold for trigger via tolerance band.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4714[0...1] Trace tolerance band trigger threshold 2 / Trace trig thr 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36	340.28235E36	0.00

Description: Sets the second trigger threshold for trigger via tolerance band

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 4, 5.

p4715[0...1] Trace bit mask trigger, bit mask / Trace trig mask

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Sets the bit mask for the bit mask trigger.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 6 or p4710 = 8.

p4716[0...1] Trace bit mask trigger trigger condition / Trace Trig_cond

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Sets the trigger condition for bit mask trigger.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only effective when p4710 = 6.

r4719[0...1] Trace trigger index / Trace Trig_index

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trigger index in the trace buffer.
The trigger event occurred at this point.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: Only valid when p4705 = 4.

p4720[0...1] Trace recording cycle / Trace record_cyc

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.000 [ms]	60000.000 [ms]	1.000 [ms]

Description: Sets the recording cycle for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4721[0...1] Trace recording time / Trace record_time

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.000 [ms]	340.28235E36 [ms]	1000.000 [ms]

Description: Sets the recording time for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4722[0...1] Trace trigger delay / Trace trig_delay

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36 [ms]	340.28235E36 [ms]	0.000 [ms]

Description: Sets the trigger delay for the trace.
Trigger delay < 0:
Pretrigger: Tracing (recording) starts the selected time before the trigger event actually occurs.
Trigger delay > 0:
Post trigger: Tracing does not start until the set time after the trigger event.

Index: [0] = Trace 0
[1] = Trace 1

p4723[0...1] Trace time slice cycle / Trace cycle

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.03125 [ms]	4.00000 [ms]	0.12500 [ms]

Description: Sets the time slice cycle in which the trace is called.

Index: [0] = Trace 0
[1] = Trace 1

p4724[0...1] Trace average in the time range / Trace average

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	0001 bin	0000 bin

Description: Sets the averaging in the time range for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4725[0...1] Trace data type 1 traced / Trace rec type 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 1 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4726[0...1] Trace data type 2 traced / Trace rec type 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 2 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4727[0...1] Trace data type 3 traced / Trace rec type 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 3 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4728[0...1] Trace data type 4 traced / Trace rec type 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 4 for the trace.
Index: [0] = Trace 0
[1] = Trace 1

r4729[0...1] Trace number of recorded values / Trace rec values

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of traced values for each signal.
Index: [0] = Trace 0
[1] = Trace 1
Dependency: Only valid when p4705 = 4.

p4730[0...5] Trace record signal 0 / Trace record sig 0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the first signal to be traced.
Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4731[0...5] Trace record signal 1 / Trace record sig 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the second signal to be traced.
Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4732[0...5] Trace record signal 2 / Trace record sig 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Selects the third signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4733[0...5] Trace record signal 3 / Trace record sig 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Selects the fourth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4734[0...5] Trace record signal 4 / Trace record sig 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Selects the fifth signal to be traced.

Index:
[0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4735[0...5] Trace record signal 5 / Trace record sig 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Selects the sixth signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4736[0...5] Trace record signal 6 / Trace record sig 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the seventh signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

p4737[0...5] Trace record signal 7 / Trace record sig 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the eighth signal to be traced.

Index: [0] = Trace 0 parameter in BICO format
[1] = Trace 1 parameter in BICO format
[2] = Trace 0 PINx with DO Id and chart Id
[3] = Trace 0 PINx with block Id and PIN Id
[4] = Trace 1 PINy with DO Id and chart Id
[5] = Trace 1 PINy with block Id and PIN Id

r4740[0...16383] Trace 0 trace buffer signal 0 floating point / Trace 0 rec sig 0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0.

The trace (record) buffer is sub-divided into memory banks, each containing 16384 values. Parameter p4795 can be used to toggle between the individual banks.

Example A:

The first 16384 values of signal 0, trace 0 are to be read out.

In this case, memory bank 0 is set with p4795 = 0. The first 16384 values can now be read out using r4740[0] to r4740[16383].

Example B:

The values 16385 to 32768 from signal 0, trace 0 are to be read out.

In this case, memory bank 1 is set with p4795 = 1. The values can now be read out in r4740[0] to r4740[16383].

Dependency: See also: p4795

r4741[0...16383] Trace 0 trace buffer signal 1 floating point / Trace 0 rec sig 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.
Dependency: See also: r4740, p4795

r4742[0...16383] Trace 0 trace buffer signal 2 floating point / Trace 0 rec sig 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.
Dependency: See also: r4740, p4795

r4743[0...16383] Trace 0 trace buffer signal 3 floating point / Trace 0 rec sig 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.
Dependency: See also: r4740, p4795

r4744[0...16383] Trace 0 trace buffer signal 4 floating point / Trace 0 rec sig 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.
Dependency: See also: r4740, p4795

r4745[0...16383] Trace 0 trace buffer signal 5 floating point / Trace 0 rec sig 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.
Dependency: See also: r4740, p4795

r4746[0...16383] Trace 0 trace buffer signal 6 floating point / Trace 0 rec sig 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.
Dependency: See also: r4740, p4795

r4747[0...16383] Trace 0 trace buffer signal 7 floating point / Trace 0 rec sig 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.
Dependency: See also: r4740, p4795

r4750[0...16383] Trace 1 trace buffer signal 0 floating point / Trace 1 rec sig 0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.
Dependency: See also: r4740, p4795

r4751[0...16383] Trace 1 trace buffer signal 1 floating point / Trace 1 rec sig 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.
Dependency: See also: r4740, p4795

r4752[0...16383] Trace 1 trace buffer signal 2 floating point / Trace 1 rec sig 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.
Dependency: See also: r4740, p4795

r4753[0...16383] Trace 1 trace buffer signal 3 floating point / Trace 1 rec sig 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.
Dependency: See also: r4740, p4795

r4754[0...16383] Trace 1 trace buffer signal 4 floating point / Trace 1 rec sig 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.
Dependency: See also: r4740, p4795

r4755[0...16383] Trace 1 trace buffer signal 5 floating point / Trace 1 rec sig 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.
Dependency: See also: r4740, p4795

r4756[0...16383] Trace 1 trace buffer signal 6 floating point / Trace 1 rec sig 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.
Dependency: See also: r4740, p4795

r4757[0...16383] Trace 1 trace buffer signal 7 floating point / Trace 1 rec sig 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.
Dependency: See also: r4740, p4795

r4760[0...16383] Trace 0 trace buffer signal 0 / Trace 0 rec sig 0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 0 as integer number.

Note: For signals, data type I32 or U32, the trace buffer is assigned as follows:
r4760[0] = value 0
r4760[1] = value 1
...
r4760[8191] = value 8191
For signals, data type I16 or U16, the trace buffer is assigned as follows:
r4760[0] = value 1 (bit 31 ... 16) and value 0 (bit 15 ... 0)
r4760[1] = value 3 (bit 31 ... 16) and value 2 (bit 15 ... 0)
...
r4760[8191] = value 16383 (bit 31 ... 16) and value 16382 (bit 15 ... 0)
For signals, data type I8 or U8, the trace buffer is assigned as follows:
r4760[0] = value 3 (bit 31 ... 24) value 2 (bit 23 ... 16) value 1 (bit 15 ... 8) value 0 (bit 7 ... 0)
r4760[1] = value 7 (bit 31 ... 24) value 6 (bit 23 ... 16) value 5 (bit 15 ... 8) value 4 (bit 7 ... 0)
...
r4760[8191] = value 32767 (bit 31 ... 24) value 32766 (bit 23 ... 16) value 32765 (bit 15 ... 8) value 32764 (bit 7 ... 0)

r4761[0...16383] Trace 0 trace buffer signal 1 / Trace 0 rec sig 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 1.

Dependency: See also: r4760

r4762[0...16383] Trace 0 trace buffer signal 2 / Trace 0 rec sig 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 2.

Dependency: See also: r4760

r4763[0...16383] Trace 0 trace buffer signal 3 / Trace 0 rec sig 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 3.

Dependency: See also: r4760

r4764[0...16383] Trace 0 trace buffer signal 4 / Trace 0 rec sig 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Data type: Unsigned32
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: -
Unit selection: -
Expert list: 0
Factory setting:
-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 4.
Dependency: See also: r4760

r4765[0...16383] Trace 0 trace buffer signal 5 / Trace 0 rec sig 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Data type: Unsigned32
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: -
Unit selection: -
Expert list: 0
Factory setting:
-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 5.
Dependency: See also: r4760

r4766[0...16383] Trace 0 trace buffer signal 6 / Trace 0 rec sig 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Data type: Unsigned32
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: -
Unit selection: -
Expert list: 0
Factory setting:
-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 6.
Dependency: See also: r4760

r4767[0...16383] Trace 0 trace buffer signal 7 / Trace 0 rec sig 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Data type: Unsigned32
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: -
Unit selection: -
Expert list: 0
Factory setting:
-

Description: Displays the trace buffer (record buffer) for trace 0 and signal 7.
Dependency: See also: r4760

r4770[0...16383] Trace 1 trace buffer signal 0 / Trace 1 rec sig 0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -
Data type: Unsigned32
P group: Trace and function generator
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: -
Unit selection: -
Expert list: 0
Factory setting:
-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 0.
Dependency: See also: r4760

r4771[0...16383] Trace 1 trace buffer signal 1 / Trace 1 rec sig 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 1.
Dependency: See also: r4760

r4772[0...16383] Trace 1 trace buffer signal 2 / Trace 1 rec sig 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 2.
Dependency: See also: r4760

r4773[0...16383] Trace 1 trace buffer signal 3 / Trace 1 rec sig 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 3.
Dependency: See also: r4760

r4774[0...16383] Trace 1 trace buffer signal 4 / Trace 1 rec sig 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 4.
Dependency: See also: r4760

r4775[0...16383] Trace 1 trace buffer signal 5 / Trace 1 rec sig 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 5.
Dependency: See also: r4760

r4776[0...16383] Trace 1 trace buffer signal 6 / Trace 1 rec sig 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 6.

Dependency: See also: r4760

r4777[0...16383] Trace 1 trace buffer signal 7 / Trace 1 rec sig 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the trace buffer (record buffer) for trace 1 and signal 7.

Dependency: See also: r4760

p4780[0...1] Trace physical address signal 0 / Trace PhyAddr Sig0

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the first signal to be traced.
The data type is defined using p4730.

Index: [0] = Trace 0
[1] = Trace 1

p4781[0...1] Trace physical address signal 1 / Trace PhyAddr Sig1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the second signal to be traced.
The data type is defined using p4731.

Index: [0] = Trace 0
[1] = Trace 1

p4782[0...1] Trace physical address signal 2 / Trace PhyAddr Sig2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the third signal to be traced.
The data type is defined using p4732.

Index: [0] = Trace 0
[1] = Trace 1

p4783[0...1] Trace physical address signal 3 / Trace PhyAddr Sig3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the fourth signal to be traced.
The data type is defined using p4733.

Index: [0] = Trace 0
[1] = Trace 1

p4784[0...1] Trace physical address signal 4 / Trace PhyAddr Sig4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the fifth signal to be traced.
The data type is defined using p4734.

Index: [0] = Trace 0
[1] = Trace 1

p4785[0...1] Trace physical address signal 5 / Trace PhyAddr Sig5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the sixth signal to be traced.
The data type is defined using p4735.

Index: [0] = Trace 0
[1] = Trace 1

p4786[0...1] Trace physical address signal 6 / Trace PhyAddr Sig6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the seventh signal to be traced.
The data type is defined using p4736.

Index: [0] = Trace 0
[1] = Trace 1

p4787[0...1] Trace physical address signal 7 / Trace PhyAddr Sig7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 bin	1111 1111 1111 1111 1111 1111 1111 1111 bin	0000 bin

Description: Sets the physical address for the eighth signal to be traced.
The data type is defined using p4737.

Index: [0] = Trace 0
[1] = Trace 1

p4789[0...1] Trace physical address trigger signal / Trace PhyAddr Trig

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Sets the physical address for the trigger signal.
The data type is defined by making the appropriate selection in p4711.

Index: [0] = Trace 0
[1] = Trace 1

r4790[0...1] Trace data type 5 traced / Trace rec type 5

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 5 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4791[0...1] Trace data type 6 traced / Trace rec type 6

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 6 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4792[0...1] Trace data type 7 traced / Trace rec type 7

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 7 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

r4793[0...1] Trace data type 8 traced / Trace rec type 8

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the recorded data type 8 for the trace.

Index: [0] = Trace 0
[1] = Trace 1

p4795 Trace memory bank changeover / Trace mem changeov

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	500	0

Description: Changes over the memory bank to read out the contents of the trace buffer.

Dependency: See also: r4740, r4741, r4742, r4743, r4750, r4751, r4752, r4753

r4797[0...1] Trace 0 trigger instant / Trace 0 t_trigger

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the instant in time for fulfilling the trigger condition for trace recorder 0.
The time comprises milliseconds (index 0) and days (index 1).

Index: [0] = Milliseconds
[1] = Days

Dependency: See also: r2114, r3102, r4719

Notice: The accuracy of the trigger instant depends on the accuracy of the underlying basis time.
For clarification:
The trigger instant is calculated with a µs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur.
When referred to r4719, the trigger instant can therefore deviate somewhat.

Note: If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4798[0...1] Trace 1 trigger instant / Trace 1 t_trigger

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the instant in time for fulfilling the trigger condition for trace recorder 1.
The time comprises milliseconds (index 0) and days (index 1).

Index: [0] = Milliseconds
[1] = Days

Dependency: See also: r2114, r3102, r4719

Notice: The accuracy of the trigger instant depends on the accuracy of the underlying basis time.
For clarification:
The trigger instant is calculated with a µs accuracy. If the underlying basis time is only available with ms accuracy, then as a result of rounding effects, an inaccuracy of 1 ms can occur.
When referred to r4719, the trigger instant can therefore deviate somewhat.

Note: If the time calculation of the drive can be synchronized with a higher-level control, then this time can be taken from the actual UTC time (r3102). Otherwise, the time is based on the system runtime (r2114).

r4799 Trace memory location free / Trace mem free

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the free memory for the trace in bytes.

Dependency: See also: r4708

p4800 Function generator control / FG control

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	3	0

Description: The function generator is started with p4800 = 1.
The signal is only generated for a 1 signal of binector input p4819.

Value:
0: Stop function generator
1: Start function generator
2: Check function generator parameterization
3: Start function generator without enable signals

Dependency: See also: p4819

r4805 Function generator status / FG status

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	6	-

Description: Displays the actual status of the function generator.

Value:
0: Inactive
1: Generate accelerating ramp to offset
2: Generate parameterized signal shape
3: Generate brake ramp
4: Function generator stopped due to missing enable signals
5: Function generator waits for BI: p4819
6: Function generator parameterization has been checked

Dependency: See also: p4800, p4819

r4806.0 BO: Function generator status signal / FG status signal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status of the function generator.
0 signal: Function generator inactive
1 signal: Function generator running

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-

p4810 Function generator mode / FG operating mode

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	99	0

Description: Sets the operating mode of the function generator.

Value:
0: Connection at connector output r4818
1: Connection at current setpoint after filter and r4818
2: Connection as disturbing torque and r4818
3: Connection at speed setpoint after filter and r4818
4: Connection at current setpoint before filter and r4818
5: Connection at speed setpoint before filter and r4818
6: Connection for free measurement function r4818 and r4834
99: Connection at physical address and r4818

p4812 Function generator physical address / FG phys address

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Sets the physical address where the function generator is to be connected.
Dependency: Only effective when p4810 = 99.

p4813 Function generator physical address reference value / FG phys addr ref

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
1.00	1000000.00	1.00

Description: Sets the reference value for 100 % for referred inputs.
Dependency: Only effective when p4810 = 99.

p4816 Function generator output signal integer number scaling / FG outp integ scal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-2147483648	2147483647	0

Description: Sets the scaling for the integer number of the output signal for the function generator.
Dependency: See also: r4805, r4817
Note: The parameter can only be changed in the following operating states:
r4805 = 0, 4, 6

r4817 CO: Function generator output signal integer number / FG outp integ no.

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the integer number of the output signal for the function generator.
Dependency: See also: p4816
Note: The value is output independent of the function generator operating mode.

r4818 CO: Function generator output signal / FG outp_sig

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the output signal for the function generator.

Dependency: See also: p4810
Note: The value is displayed independently of the function generator mode.

p4819 BI: Function generator control / FG control

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to control the function generator.
When the function generator is running, signal generation is stopped with binector p4819 = 0 signal and p4800 is set = 0.
Dependency: See also: p4800

p4820 Function generator signal shape / FG signal shape

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
1	5	1

Description: Sets the signal to be generated for the function generator.
Value:
1: Square-wave
2: Staircase
3: Delta
4: Binary noise - PRBS (Pseudo Random Binary Signal)
5: Sine-wave

p4821 Function generator period / FG period duration

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.00 [ms]	60000.00 [ms]	1000.00 [ms]

Description: Sets the period of the signal to be generated for the function generator.
Dependency: Ineffective when p4820 = 4 (PRBS).

p4822 Function generator pulse width / FG pulse width

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.00 [ms]	60000.00 [ms]	500.00 [ms]

Description: Sets the pulse width for the signal to be generated for the function generator.
Dependency: Only effective when p4820 = 1 (square-wave).

p4823 Function generator bandwidth / FG bandwidth

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min:	Max:	Factory setting:
0.0025 [Hz]	16000.0000 [Hz]	4000.0000 [Hz]

Description: Sets the bandwidth for the signal to be generated for the function generator.

Dependency: Only effective when p4820 = 4 (PRBS).
See also: p4830
See also: A02041

p4824 Function generator amplitude / FG amplitude

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min:	Max:	Factory setting:
-1600.00 [%]	1600.00 [%]	5.00 [%]

Description: Sets the amplitude for the signal to be generated for the function generator.

Dependency: Units are dependent on p4810.
If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).
If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4825 Function generator 2nd amplitude / FG 2nd amplitude

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min:	Max:	Factory setting:
-1600.00 [%]	1600.00 [%]	7.00 [%]

Description: Sets the second amplitude for the signal to be generated for the function generator.

Dependency: Only effective for p4820 = 2 (staircase).
Units are dependent on p4810.
If p4810 = 1, 2, 4: The amplitude is referred to p2002 (reference current).
If p4810 = 3, 5: The amplitude is referred to p2000 (reference speed).

p4826 Function generator offset / FG offset

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** -
P group: Trace and function generator | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 0

Min:	Max:	Factory setting:
-1600.00 [%]	1600.00 [%]	0.00 [%]

Description: Sets the offset (DC component) of the signal to be generated for the function generator.

Dependency: Units are dependent on p4810.
If p4810 = 1, 2, 4: The offset is referred to p2002 (reference current).
If p4810 = 3, 5: The offset is referred to p2000 (reference speed).
If p4810 = 2: In order to avoid the undesirable effects of play (backlash), the offset does not act on the current setpoint, but instead on the speed setpoint.

p4827 Function generator ramp-up time to offset / FG ramp-up offset

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.00 [ms]	100000.00 [ms]	32.00 [ms]

Description: Sets the ramp-up time to the offset for the function generator.

p4828 Function generator lower limit / FG lower limit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-10000.00 [%]	0.00 [%]	-100.00 [%]

Description: Sets the lower limit for the function generator.

Dependency: For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

p4829 Function generator upper limit / FG upper limit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.00 [%]	10000.00 [%]	100.00 [%]

Description: Sets the upper limit for the function generator.

Dependency: For p4810 = 2 the limit only applies to the current setpoint, but not the speed setpoint (offset).

p4830 Function generator time slice cycle / FG time slice

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.03125 [ms]	2.00000 [ms]	0.12500 [ms]

Description: Sets the time slice cycle in which the function generator is called.

p4831 Function generator amplitude scaling / FG amplitude scal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0.00000 [%]	200.00000 [%]	100.00000 [%]

Description: Sets the scaling for the amplitude of the signal waveforms for all output channels.
The value can be changed while the function generator is running.

p4832[0...2] Function generator amplitude scaling / FG amplitude scal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36 [%]	340.28235E36 [%]	100.00000 [%]

Description: Sets the scaling for the amplitude of the signal waveforms separately for each output channel.
The value cannot be changed while the function generator is running.

Index: [0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

p4833[0...2] Function generator offset scaling / FG offset scal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-340.28235E36 [%]	340.28235E36 [%]	100.00000 [%]

Description: Sets the scaling for the offset of the signal waveforms separately for each output channel.
The value cannot be changed while the function generator is running.

Index: [0] = First drive for connection
[1] = Second drive for connection
[2] = Third drive for connection

r4834[0...4] CO: Function generator free measurement output signal / FG fr MeasFct outp

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the output signal for the free measurement function.

Index: [0] = Signal 1
[1] = Signal 2
[2] = Signal 3
[3] = Signal 4
[4] = Signal 5

Dependency: See also: p4810

Note: The signals are only output in the "free measurement function" operating mode (p4810 = 6)

p4835[0...4] Function generator free measurement function scaling / FG fr MeasFct scal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-200.00000 [%]	200.00000 [%]	100.00000 [%]

Description: Sets the scaling of the output signals for the free measurement function.

Index: [0] = Signal 1
[1] = Signal 2
[2] = Signal 3
[3] = Signal 4
[4] = Signal 5

Note: The parameter cannot be changed when the measurement function has been started (r4706 = 2, 3).

p4840[0...1] MTrace cycle number setting / Cycle number

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Sets the number of cycles of a multiple trace.
The multiple trace is deactivated with a value = 0.
The multiple trace is permanently activated for a value >= 100000.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: See also: r4841, p4844
See also: A02097, A02098

Notice: A multiple trace can have a negative impact on the total system performance.
From their inherent principle of operation, flash memory cards are subject to wear as a result of write operations. As a consequence, the lifetime of flash memory cards is reduced when using the multiple trace functionality.

r4841[0...1] MTrace cycle actual display / Cycle act display

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the currently running cycle (including deadtime) of the multiple trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: See also: p4840, p4844

p4844[0...1] MTrace ring buffer files number / Ring buff file qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Trace and function generator	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
5	5	5

Description: Sets the number of ring buffer files for the measurement results of the multiple trace.

Index: [0] = Trace 0
[1] = Trace 1

Dependency: See also: p4840, r4841

r4950 TEC DO-specific number / TEC DO qty

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	32	-

Description: Number of Technology Extensions installed on this drive object.
Dependency: See also: r4951, r4952, r4955, p4956, r4957, r4958, r4959, r4960
Note: DO: Drive Object
TEC: Technology Extension

r4951 TEC DO-specific identifier total length / TEC DO ident tot_l

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	288	-

Description: Displays the total length of the identifier of the Technology Extensions installed on this drive object.
Dependency: See also: r4950, r4952, r4955, p4956, r4957, r4958, r4959, r4960
Note: The identifier of a Technology Extension comprises a maximum of 8 characters plus separator.
TEC: Technology Extension

r4952 TEC DO-specific GUID total length / TEC DO GUID length

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	576	-

Description: Displays the total length of the GUIDs of the Technology Extensions installed on this drive object.
Dependency: See also: r4950, r4951, r4955, p4956, r4957, r4958, r4959, r4960
Note: The GUID of a Technology Extension comprises 16 characters plus 1 character major information plus 1 character, minor information.
GUID: Globally Unique IDentifier
TEC: Technology Extension

r4955[0...n] TEC DO-specific identifier / TEC DO ident

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** r4951	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the identifier of the Technology Extensions installed on this drive object.
r4955[0...8]: Identifier of Technology Extension 1
r4955[9...17]: Identifier of Technology Extension 2, ...
Dependency: See also: r4950, r4951, r4952, p4956, r4957, r4958, r4959, r4960
Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).
Note: TEC: Technology Extension

p4956[0...n] TEC DO-specific activation / TEC DO act

All objects	**Can be changed:** C1, T	**Calculated:** -	**Access level:** 4
	Data type: Integer16	**Dyn. index:** r4950	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to activate the Technology Extensions installed on this drive object.
r4956[0]: Activation of Technology Extension 1
r4956[1]: Activation of Technology Extension 2, ...

Value:
0: Technology Extension inactive
1: Technology Extension active

Dependency: See also: r4950, r4951, r4952, r4955, r4957, r4958, r4959, r4960

Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).

Note: TEC: Technology Extension

r4957[0...n] TEC DO-specific version / TEC DO Version

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** r4950	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	4294967295	-

Description: Displays the version of the Technology Extensions installed on this drive object.
r4957[0]: Version of Technology Extension 1
r4957[1]: Version of Technology Extension 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4958, r4959, r4960

Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).

Note: TEC: Technology Extension
Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4958[0...n] TEC DO-specific interface version / TEC DO interf_vers

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** r4950	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the interface version of Technology Extensions installed on this drive object.
r4958[0]: Interface version of Technology Extension 1
r4958[1]: Interface version of Technology Extension 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4959, r4960

Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).

Note: TEC: Technology Extension
Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4959[0...n] TEC DO-specific GUID / TEC DO GUID

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** r4952	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the GUIDs of the Technology Extensions installed on this drive object.
r4959[0...15]: GUID of Technology Extension 1
r4959[16]: Major information of Technology Extension 1
r4959[17]: Minor information of Technology Extension 1
r4959[18...33]: GUID of Technology Extension 2
r4959[34]: Major information of Technology Extension 2
r4959[35]: Minor information of Technology Extension 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4960

Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).

Note: TEC: Technology Extension

r4960[0...n] TEC DO-specific GUID drive object / TEC DO GUID DO

All objects	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned8	**Dyn. index:** r4952	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the GUIDs of this drive object of the Technology Extensions installed on the memory card/device memory.
r4960[0...15]: GUID of this drive object of Technology Extension 1
r4960[16]: Major information of this drive object of Technology Extension 1
r4960[17]: Minor information of this drive object of Technology Extension 1
r4960[18...33]: GUID of this drive object of Technology Extension 2
r4960[34]: Major information of this drive object of Technology Extension 2
r4960[35]: Minor information of this drive object of Technology Extension 2, ...

Dependency: See also: r4950, r4951, r4952, r4955, p4956, r4957, r4958, r4959

Notice: This parameter is only indexed if at least one drive object-specific Technology Extension exists (p4950 > 0).

Note: TEC: Technology Extension

p4961[0...n] TEC DO-specific logbook module selection / TEC DO log module

All objects	**Can be changed:** T	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** r4950	**Function diagram:** -
	P group: OEM range	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0000 hex	FFFF FFFF hex	0000 hex

Description: Only for service purposes.

Note: TEC: Technology Extension

r4975 TEC invalid number / TEC inval qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of invalid Technology Extensions installed on the memory card/device memory.
Dependency: See also: r4976, r4978, r4979
Note: TEC: Technology Extension

r4976 TEC invalid identifier total length / TEC inval ID tot_l

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the total length of the IDs of all the invalid Technology Extensions installed on the memory card/device memory.
Dependency: See also: r4975, r4978, r4979
Note: TEC: Technology Extension
The identifier of an invalid Technology Extension comprises a maximum of 8 characters plus separator.

r4978[0...n] TEC invalid identifier / TEC inval ID

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4976	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the IDs of all the invalid Technology Extensions installed on the memory card/device memory.
r4978[0...8]: Identifier of invalid Technology Extension 1
r4978[9...17]: Identifier of invalid Technology Extension 2, ...
Dependency: See also: r4975, r4976, r4979
Notice: This parameter is only indexed if at least one invalid Technology Extension exists (p4975 > 0).
Note: TEC: Technology Extension

r4979[0...n] TEC invalid error code / TEC inv error code

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4975	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the error code of the invalid Technology Extensions installed on the memory card/device memory.
r4979[0]: error code from Technology Extension 1
r4979[1]: error code from Technology Extension 2, ...
Dependency: See also: r4975, r4976, r4978
Notice: This parameter is only indexed if at least one invalid Technology Extension exists (p4975 > 0).

Note: TEC: Technology Extension
The value in the error code must be interpreted in binary form. The bits have the following meaning:
Bit 00: Incompatible version of the TEC interface.
Bit 01: Technology Extension could not be loaded.
Bit 02: Incorrect description files.
Bit 03: Technology Extension does not define a CPU type.
Bit 04: Technology Extension for this device not available (incorrect CPU type).
Bit 05: Technology Extension for this device not available (incorrect type ID).
Bit 06: Incorrect description files (Const/Startup incompatible).
Bit 07: Number range of the Technology Extension overlaps with the number range of another Technology Extension
Bit 08: No compatible custom interface was found.
Bit 09: The custom interface defined by the Technology Extension already exists.
Bit 10: The version of the System Technology Extension differs from the SINAMICS firmware version.

r4985 TEC number / TEC qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32	-

Description: Displays the number of Technology Extensions installed on the memory card/device memory.
Dependency: See also: r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994
Note: TEC: Technology Extension

r4986 TEC identifier total length / TEC ident tot_l

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	288	-

Description: Displays the total length of the IDs of all the Technology Extensions installed on the memory card/device memory.
Dependency: See also: r4985, r4987, r4988, r4989, r4990, r4991, r4992, r4993, r4994
Note: TEC: Technology Extension
The identifier of a Technology Extension comprises a maximum of 8 characters plus separator.

r4987 TEC GUID total length / TEC GUID tot_lgth

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	576	-

Description: Displays the total length of the GUIDs of all the Technology Extensions installed on the memory card/device memory.
Dependency: See also: r4985, r4986, r4988, r4989, r4990, r4991, r4992, r4993, r4994
Note: The GUID of a Technology Extension comprises 16 characters plus 1 character major information plus 1 character, minor information.
GUID: Globally Unique IDentifier
TEC: Technology Extension

r4988[0...n] TEC identifier / TEC ident

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4986	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the IDs of all the Technology Extensions installed on the memory card/device memory.
r4988[0...8]: Identifier of Technology Extension 1
r4988[9...17]: Identifier of Technology Extension 2, ...

Dependency: See also: r4985, r4986, r4987, r4989, r4990, r4991, r4992, r4993, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension

r4989[0...n] TEC version / TEC version

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the version of all the Technology Extensions installed on the memory card/device memory.
r4989[0]: Version of Technology Extension 1
r4989[1]: Version of Technology Extension 2, ...

Dependency: See also: r4985, r4986, r4987, r4988, r4990, r4991, r4992, r4993, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension
Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4990[0...n] TEC interface version / TEC interf_vers

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the interface version of all the Technology Extensions installed on the memory card/device memory.
r4990[0]: Interface version of Technology Extension 1
r4990[1]: Interface version of Technology Extension 2, ...

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4991, r4992, r4993, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension
Example:
The value 1010100 should be interpreted as V01.01.01.00.

r4991[0...n] TEC GUID / TEC GUID

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4987	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the GUIDs of all the Technology Extensions installed on the memory card/device memory.
r4991[0...15]: GUID of Technology Extension 1
r4991[16]: Major information of Technology Extension 1
r4991[17]: Minor information of Technology Extension 1
r4991[18...33]: GUID of Technology Extension 2
r4991[34]: Major information of Technology Extension 2
r4991[35]: Minor information of Technology Extension 2, ...

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4992, r4993, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension

r4992[0...n] TEC GUID ES / TEC GUID ES

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** r4987	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the GUIDs of all the Technology Extensions installed on the memory card/device memory.
r4992[0...15]: GUID of Technology Extension 1
r4992[16]: Major information of Technology Extension 1
r4992[17]: Minor information of Technology Extension 1
r4992[18...33]: GUID of Technology Extension 2
r4992[34]: Major information of Technology Extension 2
r4992[35]: Minor information of Technology Extension 2, ...

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4993, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension

r4993[0...n] TEC activation status / TEC act stat

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** r4985	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	-

Description: Displays the activation status of the Technology Extensions installed on the memory card/device memory.
r4993[0]: Activation of Technology Extension 1
r4993[1]: Activation of Technology Extension 2, ...

Value:
0: Technology Extension inactive
1: Technology Extension active

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4994

Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).

Note: TEC: Technology Extension

r4994[0...n] TEC properties / TEC property

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the properties of all the Technology Extensions installed on the memory card/device memory.
r4994[0]: Property of Technology Extension 1
r4994[1]: Property of Technology Extension 2, ...

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Properties diagnostics bit 0	Yes	No	-
01	Properties diagnostics bit 1	Yes	No	-
02	Properties diagnostics bit 2	Yes	No	-
03	OEM	No	Yes	-
04	Properties diagnostics bit 4	Yes	No	-
05	Properties diagnostics bit 5	Yes	No	-
06	Properties diagnostics bit 6	Yes	No	-

Dependency: See also: r4985, r4986, r4987, r4988, r4989, r4990, r4991, r4992, r4993
Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).
Note: TEC: Technology Extension
The parameter is only for internal Siemens diagnostics.

r4995[0...n] TEC external version / TEC ext version

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r4985	**Function diagram:** -
P group: OEM range	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the external version of all the Technology Extensions installed on the memory card/device memory.
r4995[0]: External version of Technology Extension 1
r4995[1]: External version of Technology Extension 2, ...
Dependency: See also: r4985, r4986, r4987, r4988, r4990, r4991, r4992, r4993, r4994
Notice: This parameter is only indexed if at least one Technology Extension exists (p4985 > 0).
Note: Example:
The value 1010100 should be interpreted as V01.01.01.00.

r7758[0...19] KHP Control Unit serial number / KHP CU ser_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number of the Control Unit.
The individual characters of the serial number are displayed in the ASCII code in the indices.
For the commissioning tool, the ASCII characters are displayed uncoded.
Dependency: See also: p7765, p7766, p7767, p7768
Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
Note: KHP: Know-How Protection

p7759[0...19] KHP Control Unit reference serial number / KHP CU ref ser_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the reference serial number for the Control Unit.

Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.

Dependency: See also: p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

- the OEM may only change this parameter for the use case "Sending encrypted SINAMICS data".

- SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.

r7760.0...12 CO/BO: Write protection/know-how protection status / Wr_prot/KHP stat

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status for the write protection and know-how protection.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Write protection active	Yes	No	-
01	Know-how protection active	Yes	No	-
02	Know-how protection temporarily withdrawn	Yes	No	-
03	Know-how protection cannot be deactivated	Yes	No	-
04	Extended copy protection is active	Yes	No	-
05	Basic copy protection is active	Yes	No	-
06	Trace and measuring functions for diagnostic purposes active	Yes	No	-
12	Reserved, Siemens-internal	Yes	No	-

Dependency: See also: p7761, p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

For bit 00:

Write protection can be activated/deactivated via p7761 on the Control Unit.

For bit 01:

The know-how protection can be activated by entering a password (p7766 ... p7768).

For bit 02:

If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.

For bit 03:

Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.

For bit 04:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards/Control Units. This bit is only set if know-how protection is active and in p7765.0 is set = 1.

For bit 05:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and p7765.1 is set = 1 and p7765.0 is set = 0.

For bit 06:

When know-how protection is activated, the drive data can be traced using the device trace function. This bit is only set if know-how protection is active and p7765.2 is set = 1.

For bit 12:

Together with p7755, the bit is used to monitor write protection.

Bit = 1, if p7755 is not equal to 0 and write protection is active (r7760.0 = 1).

Bit = 0, if write protection was deactivated. p7755 is set to 0, and when write protection is activated again, bit 12 remains at 0.

r7760 Write protection/know-how protection status / Wr_prot/KHP stat

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status for the write protection and know-how protection.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Write protection active	Yes	No	-
01	Know-how protection active	Yes	No	-
02	Know-how protection temporarily withdrawn	Yes	No	-
03	Know-how protection cannot be deactivated	Yes	No	-
04	Extended copy protection is active	Yes	No	-
05	Basic copy protection is active	Yes	No	-
06	Trace and measuring functions for diagnostic purposes active	Yes	No	-
12	Reserved, Siemens-internal	Yes	No	-

Dependency: See also: p7761, p7765, p7766, p7767, p7768

Note: KHP: Know-How Protection

For bit 00:

Write protection can be activated/deactivated via p7761 on the Control Unit.

For bit 01:

The know-how protection can be activated by entering a password (p7766 ... p7768).

For bit 02:

If it has already been activated, know-how protection can be temporarily deactivated by entering the valid password in p7766. In this case, bit 1 = 0 and bit 2 = 1 offset.

For bit 03:

Know-how protection cannot be deactivated, as p7766 is not entered in the OEM exception list (only the factory setting is possible). This bit is only set if know-how protection is active (bit 1 = 1) and p7766 has not been entered in the OEM exception list.

For bit 04:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards/Control Units. This bit is only set if know-how protection is active and in p7765.0 is set = 1.

For bit 05:

When know-how protection has been activated, the contents of the memory card (parameter and DCC data) can be additionally protected against being used with other memory cards. This bit is only set if know-how protection is active and p7765.1 is set = 1 and p7765.0 is set = 0.

For bit 06:

When know-how protection is activated, the drive data can be traced using the device trace function. This bit is only set if know-how protection is active and p7765.2 is set = 1.

For bit 12:

Together with p7755, the bit is used to monitor write protection.

Bit = 1, if p7755 is not equal to 0 and write protection is active (r7760.0 = 1).

Bit = 0, if write protection was deactivated. p7755 is set to 0, and when write protection is activated again, bit 12 remains at 0.

p7761 Write protection / Write protection

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting for activating/deactivating the write protection for adjustable parameters.

Value:
0: Deactivate write protection
1: Activate write protection

Dependency: See also: r7760

Notice: While write protection is active, a download is prevented; however, it is still possible to restore the factory settings.

Note: Parameters with the "WRITE_NO_LOCK" attributes are excluded from the write protection.

A product-specific list of these parameters is also available in the corresponding List Manual.

p7762 Write protection multi-master fieldbus system access behavior / Fieldbus acc_behav

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the behavior for write protection when accessing via multi-master fieldbus systems (e.g. CAN, BACnet).

Value:
0: Write access independent of p7761
1: Write access dependent on p7761

Dependency: See also: r7760, p7761

p7763 KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	500	1

Description: Sets the number of parameters for the OEM exception list (p7764[0...n]).
p7764[0...n], with n = p7763 - 1

Dependency: See also: p7764

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7764[0...n] KHP OEM exception list / KHP OEM excep list

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** p7763	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	[0] 7766 [1...499] 0

Description: OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection.
p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.
See also: p7763

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7764[0...n] KHP OEM exception list / KHP OEM excep list

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** p7763	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: OEM exception list (p7764[0...n] for setting parameters that should be excluded from know-how protection.
p7764[0...n], with n = p7763 - 1

Dependency: The number of indices depends on p7763.
See also: p7763

Note: KHP: Know-How Protection
Even if know-how protection is set, parameters in this list can be read and written to.

p7765 KHP configuration / KHP config

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 bin

Description: Configuration settings for know-how protection.

For bit 00, 01:

When KHP is activated, this means that the OEM can define whether the parameters and DCC data encrypted on the memory card should be protected before using on other memory cards/Control Units.

For bit 02:

This means that the OEM can define whether it is possible or not to trace the drive data using the device trace function although KHP is activated.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Extended copy protection - linked to the memory card and CU	Yes	No	-
01	Basic copy protection - linked to the memory card	Yes	No	-
02	Permit trace and measuring functions for diagnostic purposes	Yes	No	-

Dependency: See also: p7766, p7767, p7768

Note: KHP: Know-How Protection

For copy protection, the serial numbers of the memory card and/or Control Unit are checked.

The memory card copy protection and preventing data to be traced are only effective when the know-how protection has been activated.

For bit 00, 01:

If both bits are inadvertently set to 1 (e.g. at the BOP), then the setting of bit 0 applies.

There is no copy protection if both bits are set to 0.

p7766[0...29] KHP password input / KHP passw input

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the password for know-how protection.

Example of a password:

123aBc = 49 50 51 97 66 99 dec (ASCII characters)

[0] = character 1 (e.g. 49 dec)

[1] = character 2 (e.g. 50 dec)

...

[5] = character 6 (e.g. 99 dec)

[29] = 0 dec (completes the entry)

Dependency: See also: p7767, p7768

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

When using the STARTER commissioning tool, the password should be entered using the associated dialogs.

The following rules apply when entering the password:

- password entry must start with p7766[0].
- no gaps are permissible in the password.
- entering a password is completed when writing to p7766[29] (p7766[29] = 0 for passwords less than 30 characters).

Note: KHP: Know-How Protection
When reading, p7766[0...29] = 42 dec (ASCII character = "*") is displayed.
Parameters with the "KHP_WRITE_NO_LOCK" attribute are not involved in the know-how protection.
Parameters with the "KHP_ACTIVE_READ" attribute can be read even when know-how protection is activated.
A product-specific list of these parameters is also available in the corresponding List Manual.

p7767[0...29] KHP password new / KHP passw new

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the new password for know-how protection.
Dependency: See also: p7766, p7768
Note: KHP: Know-How Protection
When reading, p7767[0...29] = 42 dec (ASCII character = "*") is displayed.

p7768[0...29] KHP password confirmation / KHP passw confirm

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Confirms the new password for know-how protection.
Dependency: See also: p7766, p7767
Note: KHP: Know-How Protection
When reading, p7768[0...29] = 42 dec (ASCII character = "*") is displayed.

p7769[0...20] KHP memory card reference serial number / KHP mem ref ser_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the reference serial number for the memory card.
Using this parameter, if a Control Unit and/or a memory card is replaced at the end customer, the OEM can again adapt the project to the modified hardware.
Dependency: See also: p7765, p7766, p7767, p7768
Note: KHP: Know-How Protection
- the OEM may only change this parameter for the use case "Sending encrypted SINAMICS data".
- SINAMICS only evaluates this parameter when powering up from the encrypted "Load into file system..." output or when powering up from the encrypted PS files. The evaluation is only made when know-how protection and memory card copy protection have been activated.

p7770 NVRAM action / NVRAM action

TM31, TM15DI_DO, TM150

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the action to be executed for NVRAM data.

At the end of the action the value is automatically set to 0.

Value:
0: Inactive
1: Load NVRAM data to parameters
2: Load parameters to NVRAM
3: Reset

Notice: After action p7770 = 1 no more pulses may be enabled.

After action p7770 = 2, it is essential that parameters are backed up (p0977 = 1) and that a warm restart is then performed (p0009 = 30, p0976 = 2, 3). This will apply the values written.

Note: If value = 1:

This action loads the NVRAM data to the parameters.

If value = 2:

This action loads the parameters to the NVRAM.

If value = 3:

This action sets parameters p7771 ... p7774 to the factory setting.

It is recommended to avoid placing unnecessary load on the subsequent upload/download operation.

p7775 NVRAM data backup/import/delete / NVRAM backup

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1, U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: All groups	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	17	0

Description: Setting to backup/import/delete NVRAM data.

NVRAM data are non-volatile data in the device (e.g. fault buffer).

For NVRAM data actions, the following data are excluded:

- crash diagnostics
- CU operating hours counter
- CU temperature
- safety logbook

Value:
0: Inactive
1: NVRAM data backup to memory card
2: Import NVRAM data from the memory card
3: Delete NVRAM data in the device
10: Error when clearing
11: Error when backing up, memory card not available
12: Error when backing up, insufficient memory space
13: Error when backing up
14: Error when importing, memory card not available
15: Error when importing, checksum error
16: Error when importing, no NVRAM data available
17: Error when importing

Notice: For value = 2, 3:

These actions are only possible when pulses are inhibited.

Note: After the action has been successfully completed, the parameter is automatically set to zero.

The actions importing and deleting NVRAM data immediately initiate a warm restart.

If the procedure was not successfully completed, then an appropriate fault value is displayed (p7775 >= 10).

p7820 DRIVE-CLiQ component component number / DQ compo_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the component number of the DRIVE-CLiQ component whose parameters are to be accessed.

Dependency: See also: p7821, p7822, r7823

p7821 DRIVE-CLiQ component parameter number / DQ para_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the parameter number to access a parameter of a DRIVE-CLiQ component.

Dependency: See also: p7820, p7822, r7823

p7822[0...1] DRIVE-CLiQ component parameter index/number / DQ para_index/qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	[0] 0 [1] 1

Description: Sets the parameter index and the number of indices.
For index [0]:
Sets the parameter index to access a parameter of a DRIVE-CLiQ component.
For index [1]:
Number of indices that should be written to.
Write:
If several indices are to be written using a DRIVE-CLiQ task, then the values must be transferred to the CU via p7837.
The DRIVE-CLiQ task is executed if the number n, set using 7822[1], is written to p7837 [n].

Dependency: See also: p7820, p7821, r7823

r7823[0...254] DRIVE-CLiQ component read parameter value / Read DQ value

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameter value read from the DRIVE-CLiQ component.

Dependency: See also: p7820, p7821, p7822

r7825[0...6] DRIVE-CLiQ component versions / DQ comp version

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the firmware and EEPROM versions of the DRIVE-CLiQ component selected using p7828[1].

Index:
[0] = Reference firmware version
[1] = Actual firmware version
[2] = EEPROM0 version
[3] = EEPROM1 version
[4] = EEPROM2 version
[5] = EEPROM3 version
[6] = EEPROM4 version

Dependency: See also: p7828

Note:
For index [0]:
Firmware version on the memory card/device memory.
For index [1]:
Actual firmware version of the DRIVE-CLiQ component.
For index [2...6]:
Actual EEPROM version of the DRIVE-CLiQ component.

p7826 Firmware update automatic / FW update auto

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Sets the behavior for the automatic firmware update of the DRIVE-CLiQ components.

Value:
0: Deactivated
1: Upgrade and downgrade
2: Upgrade

Notice: If this parameter is changed, it only becomes effective the next time that the drive system boots.

Note:
The firmware is automatically updated when the system boots. The boot can take several minutes.
After the update has been completed, it is necessary to carry out a new POWER ON (switch-off/switch-on) for the components involved.
The firmware update procedure is displayed as follows:
Control Unit (LED RDY):
Flashes yellow with 0.5 Hz --> firmware is being updated.
Flashing yellow with 2 Hz --> POWER ON is required for the components involved.
Components involved:
Flashing red/green with 0.5 Hz --> firmware is being updated.
Flashing red/green with 2 Hz --> POWER ON of the components is required.
Only components from firmware version 2.5 support the red/green flashing at 2 Hz.

r7827 Firmware update progress display / FW update progress

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the progress when updating the firmware of the DRIVE-CLiQ components.

p7828[0...1] Firmware download component number / FW downl comp_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	399	0

Description: Sets the component number for the required DRIVE-CLiQ component.
Index 0:
Component number of the DRIVE-CLiQ component for which a firmware download is to be made.
Index 1:
Component number of the DRIVE-CLiQ component for which the reference firmware version, saved in r7825 on the memory card/device memory, is to be displayed.

Index: [0] = Firmware download
[1] = Reference firmware version

Dependency: See also: p0121, p0141, p0151, p7829

Note: For p7828[0] = 399, the firmware for all of the existing components is downloaded.
The firmware download is started with p7829 = 1.

p7829 Activate firmware download / FW download act

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1	999	0

Description: Activating the firmware download for the DRIVE-CLiQ components specified in p7828.
1: Activate download.
-1: activate the download and carry out a reset.
0: Download successfully completed.
> 1: Fault code
011: DRIVE-CLiQ component has detected a checksum error.
015: The selected DRIVE-CLiQ components did not accept the contents of the firmware file.
018: Firmware version is too old and is not accepted by the component.
019: Firmware version is not suitable for the hardware release of the component.
101: After several communication attempts, no response from the DRIVE-CLiQ component.
140: Firmware file for the DRIVE-CLiQ component not available on the memory card/device memory.
143: Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
144: When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card/device memory is defective.
145: Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
156: Component with the specified component number is not available.
Additional values:
Only for internal Siemens troubleshooting.

Dependency: See also: p7828

Note: p7829 is automatically set to 0 after the firmware has been successfully downloaded.
The new firmware only becomes active at the next system run-up.

p7830 Telegram diagnostics selection / Telegr diag sel

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Selects a telegram whose contents should be shown in r7831 ... r7836.

Value:
0: Reserved
1: First cyclic receive telegram sensor 1
2: First cyclic receive telegram sensor 2
3: First cyclic receive telegram sensor 3

Dependency: See also: r7831, r7832, r7833, r7834, r7835, r7836

r7831[0...23] Telegram diagnostics signals / Telegr diag sig

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	15157	-

Description: Displays the signals contained in the selected telegram (p7830).

Value:

0: UNUSED
1: UNKNOWN
102: SAPAR_ID_DSA_ALARM
110: SAPAR_ALARMBITS_FLOAT_0
111: SAPAR_ALARMBITS_FLOAT_1
112: SAPAR_ALARMBITS_FLOAT_2
113: SAPAR_ALARMBITS_FLOAT_3
114: SAPAR_ALARMBITS_FLOAT_4
115: SAPAR_ALARMBITS_FLOAT_5
10500: ENC_ID_TIME_PRETRIGGER
10501: ENC_ID_TIME_SEND_TELEG_1
10502: ENC_ID_TIME_CYCLE_FINISHED
10503: ENC_ID_TIME_DELTA_FUNMAN
10504: ENC_ID_SUBTRACE_CALCTIMES
10505: ENC_ID_SYNO_PERIOD
10515: ENC_ID_AB_SQUARE_SUM
10516: ENC_ID_ADC_TRACK_A
10517: ENC_ID_ADC_TRACK_B
10518: ENC_ID_ADC_TRACK_C
10519: ENC_ID_ADC_TRACK_D
10520: ENC_ID_ADC_TRACK_A_SAFETY
10521: ENC_ID_ADC_TRACK_B_SAFETY
10523: ENC_ID_ADC_TEMP_1
10524: ENC_ID_SUBTRACE_TRACK_A
10525: ENC_ID_SUBTRACE_TRACK_B
10526: ENC_ID_ADC_TRACK_R
10532: ENC_ID_TRACK_AB_X
10533: ENC_ID_TRACK_AB_Y
10534: ENC_ID_OFFSET_CORR_AB_X
10535: ENC_ID_OFFSET_CORR_AB_Y
10536: ENC_ID_AB_ABS_VALUE
10537: ENC_ID_TRACK_CD_X
10538: ENC_ID_TRACK_CD_Y
10539: ENC_ID_TRACK_CD_ABS
10542: ENC_ID_AB_RAND_X
10543: ENC_ID_AB_RAND_Y
10544: ENC_ID_AB_RAND_ABS_VALUE
10545: ENC_ID_SUBTRACE_ABS_ARRAY
10546: ENC_ID_PROC_OFFSET_0
10547: ENC_ID_PROC_OFFSET_4
10550: ENC_ID_SUBTRACE_AMPL
10563: ENC_ID_ENCODER_TEMP
10564: ENC_SELFTEMP_ACT
10565: ENC_ID_MOTOR_TEMP_TOP
10566: ENC_ID_MOTOR_TEMP_1
10567: ENC_ID_MOTOR_TEMP_1_COD
10569: ENC_ID_MOTOR_TEMP_2_COD
10571: ENC_ID_MOTOR_TEMP_3_COD
10580: ENC_ID_RESISTANCE_1
10590: ENC_ID_ANA_CHAN_A
10591: ENC_ID_ANA_CHAN_B
10592: ENC_ID_ANA_CHAN_X
10593: ENC_ID_ANA_CHAN_Y
10596: ENC_ID_AB_ANGLE
10597: ENC_ID_CD_ANGLE
10598: ENC_ID_MECH_ANGLE_HI
10599: ENC_ID_RM_POS_PHI_COMMU
10600: ENC_ID_PHI_COMMU
10601: ENC_ID_SUBTRACE_ANGLE
10612: ENC_ID_DIFF_CD_INC
10613: ENC_ID_RM_POS_PHI_COMMU_RFG
10628: ENC_ID_MECH_ANGLE
10629: ENC_ID_MECH_RM_POS
10644: ENC_ID_INIT_VECTOR
10645: FEAT_INIT_VECTOR
10660: ENC_ID_SENSOR_STATE

10661: ENC_ID_BASIC_SYSTEM
10662: ENC_ID_REFMARK_STATUS
10663: ENC_ID_DSA_STATUS1_SENSOR
10664: ENC_ID_DSA_RMSTAT_HANDSHAKE
10665: ENC_ID_DSA_CONTROL1_SENSOR
10667: ENC_ID_SAFETY
10669: ENC_ID_SUB_STATE
10676: ENC_ID_COUNTCORR_SAW_VALUE
10677: ENC_ID_COUNTCORR_ABS_VALUE
10678: ENC_ID_SAWTOOTH_CORR
10680: ENC_ID_SM_XIST1_CORRECTED_QUADRANTS
10692: ENC_ID_RESISTANCE_CALIB_INSTANT
10693: ENC_ID_SERPROT_POS
10700: ENC_ID_AB_VIOL_COUNT
10701: ENC_ID_SUBTRACE_TRACK_A_TRIG
10702: ENC_ID_SUBTRACE_TRACK_B_TRIG
10723: ENC_ID_ACT_STATEMACHINE_FUNCTION
10724: ENC_ID_ACT_FUNMAN_FUNCTION
10725: ENC_ID_SAFETY_COUNTER_CRC
10728: ENC_ID_SUBTRACE_AREA
10740: ENC_ID_POS_ABSOLUTE
10741: ENC_ID_POS_REFMARK
10742: ENC_ID_SAWTOOTH
10743: ENC_ID_SAFETY_PULSE_COUNTER
10745: ENC_ID_EIU_ZEROCTRL
10756: ENC_ID_DSA_ACTUAL_SPEED
10757: ENC_ID_SPEED_DEV_ABS
10772: ENC_ID_DSA_POS_XIST1
10788: ENC_ID_AB_CROSS_CORR
10789: ENC_ID_AB_GAIN_Y_CORR
10790: ENC_ID_AB_PEAK_CORR
11825: ENC_ID_RES_TRANSITION_RATIO
11826: ENC_ID_RES_PHASE_SHIFT
12088: ENC_ID_SM_DIFF_PULSE_ACCU
15150: ENC_ID_SPINDLE_S1_RAW
15151: ENC_ID_SPINDLE_S4_RAW
15152: ENC_ID_SPINDLE_S5_RAW
15155: ENC_ID_SPINDLE_S1_CAL
15156: ENC_ID_SPINDLE_S4_CAL
15157: ENC_ID_SPINDLE_S5_CAL

r7832[0...23] Telegram diagnostics numerical format / Telegr diag format

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1	14	-

Description: Displays the original numerical format of the signals contained in the telegram.
The associated signal number is represented in the appropriate index of r7831.

Value:
-1: Unknown
0: Boolean
1: Signed 1 byte
2: Signed 2 byte
3: Signed 4 byte
4: Signed 8 byte
5: Unsigned 1 byte
6: Unsigned 2 byte
7: Unsigned 4 byte
8: Unsigned 8 byte
9: Float 4 byte
10: Double 8 byte
11: mm dd yy HH MM SS MS DOW
12: ASCII string
13: SINUMERIK frame type
14: SINUMERIK axis type

Dependency: See also: r7831

r7833[0...23] Telegram diagnostics unsigned / Telegr diag unsign

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Parameter to display a DSA signal in the unsigned-integer format.
The associated signal number is represented at the appropriate index in r7831.

r7834[0...23] Telegram diagnostics signed / Telegr diag sign

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Parameter to display a DSA signal in the signed-integer format.
The associated signal number is represented at the appropriate index in r7831.

r7835[0...23] Telegram diagnostics real / Telegr diag real

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Parameter to display a DSA signal in the float format.
The associated signal number is represented at the appropriate index in r7831.

r7836[0...23] Telegram diagnostics unit / Telegr diag unit

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1	147	-

Description: Displays the units of a DSA signal.
The associated signal number is represented at the appropriate index in r7831.

Value:

-1:	Unknown
0:	None
1:	Millimeter or degrees
2:	Millimeter
3:	Degrees
4:	mm/min or RPM
5:	Millimeter / min
6:	Revolutions / min
7:	m/sec^2 or U/sec^2
8:	m/sec^2
9:	U/sec^2
10:	m/sec^3 or U/sec^3
11:	m/sec^3
12:	U/sec^3
13:	sec
14:	16.667 / sec
15:	mm/revolution
16:	ACX_UNIT_COMPENSATION_CORR
18:	Newton
19:	Kilogram
20:	Kilogram meter^2
21:	Percent
22:	Hertz
23:	Volt peak-to-peak
24:	Amps peak-to-peak
25:	Degrees Celsius
26:	Degrees
28:	Millimeter or degrees
29:	Meters / minute
30:	Meters / second
31:	ohm
32:	Millihenry
33:	Newton meter
34:	Newton meter/Ampere
35:	Volt/Ampere
36:	Newton meter second / rad
38:	31.25 microseconds
39:	Microseconds
40:	Milliseconds
42:	Kilowatt
43:	Micro amps peak-to-peak
44:	Volt seconds
45:	Microvolt seconds
46:	Micro newton meters
47:	Amps / volt seconds
48:	Per mille
49:	Hertz / second
53:	Micrometer or millidegrees
54:	Micrometer
55:	Millidegrees
59:	Nanometer
61:	Newton/Amps
62:	Volt seconds/meter
63:	Newton seconds/meter
64:	Micronewton
65:	Liters / minute
66:	Bar
67:	Cubic centimeters
68:	Millimeter / volt minute
69:	Newton/Volt
80:	Millivolts peak-to-peak
81:	Volt rms
82:	Millivolts rms
83:	Amps rms
84:	Micro amps rms
85:	Micrometers / revolution

90: Tenths of a second
91: Hundredths of a second
92: 10 microseconds
93: Pulses
94: 256 pulses
95: Tenths of a pulse
96: Revolutions
97: 100 revolutions / minute
98: 10 revolutions / minute
99: 0.1 revolutions / minute
100: Thousandth revolution / minute
101: Pulses / second
102: 100 pulses / second
103: 10 revolutions / (minute x seconds)
104: 10000 pulses/second^2
105: 0.1 Hertz
106: 0.01 Hertz
107: 0.1 / seconds
108: Factor 0.1
109: Factor 0.01
110: Factor 0.001
111: Factor 0.0001
112: 0.1 Volt peak-to-peak
113: 0.1 Volt peak-to-peak
114: 0.1 amps peak-to-peak
115: Watt
116: 100 Watt
117: 10 Watt
118: 0.01 percent
119: 1/second^3
120: 0.01 percent/millisecond
121: Pulses / revolution
122: Microfarads
123: Milliohm
124: 0.01 Newton meter
125: Kilogram millimeter^2
126: Rad / (seconds newton meter)
127: Henry
128: Kelvin
129: Hours
130: Kilohertz
131: Milliamperes peak-to-peak
132: Millifarads
133: Meter
135: Kilowatt hours
136: Percent
137: Amps / Volt
138: Volt
139: Millivolts
140: Microvolts
141: Amps
142: Milliamperes
143: Micro amps
144: Milliamperes rms
145: Millimeter
146: Nanometer
147: Joules

r7843[0...20] Memory card serial number / Mem_card ser.no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual serial number of the memory card.
The individual characters of the serial number are displayed in the ASCII code in the indices.

Dependency: See also: p9920, p9921

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

Note: Example: displaying the serial number for a memory card:
r7843[0] = 49 dec --> ASCII characters = "1" --> serial number, character 1
r7843[1] = 49 dec --> ASCII characters = "1" --> serial number, character 2
r7843[2] = 49 dec --> ASCII characters = "1" --> serial number, character 3
r7843[3] = 57 dec --> ASCII characters = "9" --> serial number, character 4
r7843[4] = 50 dec --> ASCII characters = "2" --> serial number, character 5
r7843[5] = 51 dec --> ASCII characters = "3" --> serial number, character 6
r7843[6] = 69 dec --> ASCII characters = "E" --> serial number, character 7
r7843[7] = 0 dec --> ASCII characters = " " --> serial number, character 8
...
r7843[19] = 0 dec --> ASCII characters = " " --> serial number, character 20
r7843[20] = 0 dec
Serial number = 111923E

r7844[0...2] Device memory firmware version / Dev_mem FW

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the version of the firmware stored on the device memory.

Index: [0] = Internal
[1] = External
[2] = Parameter backup

Note: For index [0]:
Displays the internal firmware version (e.g. 01402315).
This firmware version is the version of the device memory and not the CU firmware (r0018), however, normally they have the same versions.
For index [1]:
Displays the external firmware version (e.g. 01040000 -> 1.4).
For index [2]:
Displays the internal CU firmware version (r0018) of the parameter backup.
With this CU firmware version, the parameter backup was saved, which was used when powering up.

r7850[0...n] Drive object operational/not operational / DO ready for oper

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-32786	32767	-

Description: Displays whether, for an activated drive object, all activated topology components are available or not (or whether these can be addressed).
0: Drive object not ready for operation
1: Drive object ready for operation

p7852 Number of indices for r7853 / Qty indices r7853

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	200	1

Description: Displays the number of indices for r7853[0...n].
This corresponds to the number of DRIVE-CLiQ components that are in the target topology.
Dependency: See also: r7853
Note: The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power up.

r7853[0...n] Component available/not available / Comp present

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** p7852	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF hex	-

Description: Displays the component and whether this component is currently present.
High byte: Component number
Low byte: 0/1 (not available/available)
Dependency: See also: p7852
Note: The values are valid if all available Control Units adopt the "Initialization finished" state (r3988 = 800) following power up.

p7857 Sub-boot mode / Sub-boot mode

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets the mode for the sub-boot.
Value:
0: Sub-boot manual
1: Sub-boot automatic
Note: For p7857 = 0 (manual sub-boot) the following applies:
The parameter should be set to 1 to start the sub-boot.

p7859[0...199] Component number global / Comp_no global

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-32786	32767	0

Description: Sets the global and unique component number in a drive system with several Control Units.
Each index of the parameter corresponds to a possible local component number on the corresponding Control Unit.
The indices are allocated to the global component numbers as follows:
p7859[0]: Not used
p7859[1]: Sets the global component number for the local component number 1
p7859[2]: Sets the global component number for the local component number 2
...
p7859[199]: Sets the global component number for the local component number 199

Notice: This parameter is preferably set via suitable commissioning tool (e.g. UpdateAgent, STARTER, SCOUT).
Changing the parameter via the AOP (Advanced Operator Panel) or BOP (Basic Operator Panel) can destroy a valid unique setting.

Note: The parameter is not influenced by setting the factory setting.

r7867 Status/configuration changes global / Changes global

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays status and configuration changes of all of the drive objects in the complete unit.
When changing the status or the configuration of the Control Unit or a drive object, the value of this parameter is incremented.

Dependency: See also: r7868, r7869, r7870

r7868[0...24] Configuration changes drive object reference / Config_chng DO ref

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Reference to the drive objects whose configuration has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its configuration.
Example:
r7868[3] was incremented since the last time it was read.
--> the configuration of the drive object with object number in p0101[2] was changed.

Index: [0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]
[17] = Object number in p0101[16]
[18] = Object number in p0101[17]
[19] = Object number in p0101[18]
[20] = Object number in p0101[19]
[21] = Object number in p0101[20]
[22] = Object number in p0101[21]
[23] = Object number in p0101[22]
[24] = Object number in p0101[23]

Dependency: See also: p0101, r7867, r7871

r7869[0...24] Status changes drive object reference / Status_chng DO ref

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Reference to the drive objects whose status has changed.
Index 0:
When changing one of the following indices, then the value in this index is increased.
Index 1...n:
The drive object with object number in p0101[n-1] has changed its status.
Example:
r7868[3] was incremented since the last time it was read.
--> the status of the drive object with object number in p0101[2] was changed.

Index: [0] = Sum of the following indices
[1] = Object number in p0101[0]
[2] = Object number in p0101[1]
[3] = Object number in p0101[2]
[4] = Object number in p0101[3]
[5] = Object number in p0101[4]
[6] = Object number in p0101[5]
[7] = Object number in p0101[6]
[8] = Object number in p0101[7]
[9] = Object number in p0101[8]
[10] = Object number in p0101[9]
[11] = Object number in p0101[10]
[12] = Object number in p0101[11]
[13] = Object number in p0101[12]
[14] = Object number in p0101[13]
[15] = Object number in p0101[14]
[16] = Object number in p0101[15]
[17] = Object number in p0101[16]
[18] = Object number in p0101[17]
[19] = Object number in p0101[18]
[20] = Object number in p0101[19]
[21] = Object number in p0101[20]
[22] = Object number in p0101[21]
[23] = Object number in p0101[22]
[24] = Object number in p0101[23]

Dependency: See also: p0101, r7867, r7872

r7870[0...8] Configuration changes global / Config_chng global

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the configuration changes of all of the drive objects in the complete unit.

Index: [0] = Sum of the following indices
[1] = r7871[0] of a drive object
[2] = p0101 or r0102
[3] = PROFIBUS configuration (p0978)
[4] = DRIVE-CLiQ actual topology (r9900 or r9901)
[5] = DRIVE-CLiQ target topology (r9902 or r9903)
[6] = DRIVE-CLiQ sockets (p0109)
[7] = Technology Extensions
[8] = Topology comparison result

Dependency: See also: r7867, r7871

Note: For index [0]:
When changing one of the following indices, then the value in this index is incremented.
For index [1]:
Drive object configuration. When changing r7871[0] on a drive object, the value in this index is incremented.
For index [2]:
Drive object, configuration unit. When changing either p0101 or r0102, the value in this index is incremented.
For index [3]:
PROFIBUS configuration unit. When changing p0978, the value in this index is incremented.
For index [4]:
DRIVE-CLiQ actual topology. When changing either r9900 or r9901, the value in this index is incremented.
For index [5]:
DRIVE-CLiQ target topology. When changing either p9902 or p9903, the value in this index is incremented.
For index [6]:
DRIVE-CLiQ sockets. When changing p0109, the value in this index is incremented.
For index [7]:
Technology Extensions When changing Technology Extensions, the value in this index is incremented.
For index [8]:
Topology comparison result. When changing the topology comparison result, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/deactivate drive object
[6] = Data backup required
[7] = Reserved
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Reserved

Dependency: See also: r7868, r7870

Note: For index [0]:
When changing one of the following indices, then the value in this index is incremented.
For index [1]:
Drive object commissioning: When changing p0010, p0107 or p0108, the value in this index is incremented.
For index [2]:
Drive object name. When changing p0199, the value in this index is incremented.
For index [3]:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.
For index [4]:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.
For index [5]:
Drive object activity: When changing p0105, the value in this index is incremented.
For index [6]:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.
For index [8]:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.
For index [9]:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.
For index [10]:
Drive object configuration. When changing either p0107 or p0108, the value in this index is incremented.
For index [12]:
Drive object configuration. When activating/deactivating write protection or know-how protection, the value in this index is incremented.

r7871[0...15] Configuration changes drive object / Config_chng DO

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the configuration changes on the drive object.

Index:
[0] = Sum of the following indices
[1] = p0010, p0107, p0108, p0171, p0172 or p0173
[2] = Drive object name (p0199)
[3] = Structure-relevant parameters (e.g. p0180)
[4] = BICO interconnections
[5] = Activate/deactivate drive object
[6] = Data backup required
[7] = Activate/deactivate component
[8] = Reference or changeover parameters (e.g. p2000)
[9] = Parameter count through Drive Control Chart (DCC)
[10] = p0107, p0108, p0171, p0172 or p0173
[11] = Reserved
[12] = Write protection and know-how protection status
[13] = Reserved
[14] = Reserved
[15] = Enc type (p0400)

Dependency: See also: r7868, r7870

Note: For index [0]:
When changing one of the following indices, then the value in this index is incremented.
For index [1]:
Drive object commissioning: When changing p0010, p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.
For index [2]:
Drive object name. When changing p0199, the value in this index is incremented.
For index [3]:
Drive object structure. When changing a parameter that is relevant for the structure (e.g. number of data sets), the value in this index is incremented.
For index [4]:
Drive object BICO interconnections. When changing r3977, the value in this index is incremented.
For index [5]:
Drive object activity: When changing p0105, the value in this index is incremented.
For index [6]:
Drive object, data save.
0: There are no parameter changes to save.
1: There are parameter changes to save.
For index [7]:
Drive object component activity: When changing either p0125 or p0145, the value in this index is incremented.
For index [8]:
Drive object changeover of units. When changing reference or changeover parameters (e.g. p2000, p0304), the value in this index is incremented.
For index [9]:
Drive object parameter count. When changing the number of parameters by loading Drive Control Chart (DCC), the value in this index is incremented.
For index [10]:
Drive object configuration. When changing p0107, p0108, p0171, p0172 or p0173, the value in this index is incremented.
For index [15]:
Encoder configuration. When changing p0400, the value in this index is incremented.

r7872[0...3] Drive object status changes / DO stat_chng

All objects			
	Can be changed: -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the status changes on the drive object.
Index: [0] = Sum of the following indices
[1] = Faults (r0944)
[2] = Alarms (r2121)
[3] = Safety messages (r9744)
Dependency: See also: r7869
Note: For index [0]:
When changing one of the following indices, then the value in this index is incremented.
For index [1]:
Drive object faults. When changing r0944, the value in this index is incremented.
For index [2]:
Drive object alarms. When changing r2121, the value in this index is incremented.
For index [3]:
Drive object safety messages. When changing r9744, the value in this index is incremented.

p7900[0...23] Drive objects priority / DO priority

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the priority for processing the existing drive objects in the system.

The parameter enables a free sequence to be set for processing the drive objects. For this purpose all the drive object numbers existing in the system have to be written in the desired sequence into the corresponding indices of the parameter. After re-booting this sequence will be effective without a plausibility check.

With the factory setting the following priorities regarding processing are applicable:

- the drive objects are pre-sorted according to type as follows: CU_DC, DC_CTRL, TM

- if they are of the same type, they are sorted in ascending order according to their drive object number, i.e. the lower the number, the higher the priority for processing.

Index:
[0] = Drive object number Control Unit
[1] = Drive object number object 1
[2] = Drive object number object 2
[3] = Drive object number object 3
[4] = Drive object number object 4
[5] = Drive object number object 5
[6] = Drive object number object 6
[7] = Drive object number object 7
[8] = Drive object number object 8
[9] = Drive object number object 9
[10] = Drive object number object 10
[11] = Drive object number object 11
[12] = Drive object number object 12
[13] = Drive object number object 13
[14] = Drive object number object 14
[15] = Drive object number object 15
[16] = Drive object number object 16
[17] = Drive object number object 17
[18] = Drive object number object 18
[19] = Drive object number object 19
[20] = Drive object number object 20
[21] = Drive object number object 21
[22] = Drive object number object 22
[23] = Drive object number object 23

Notice: This parameter may only be used by qualified service personnel.

Note: If the same drive object numbers are used and if the existing drive object numbers in the system are entered incompletely, the content of this parameter is ignored entirely. The behavior as with factory setting will then become effective.

r7901[0...81] Sampling times / t_sample

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the sampling times currently present on the drive unit.

r7901[0...63]: sampling times of hardware time slices.

r7901[64...82]: sampling times of software time slices.

r7901[x] = 0, means the following:

No methods have been registered in the time slice involved.

Note: The basis for the software time slices is T_NRK = p7901[15].

r7903 Hardware sampling times still assignable / HW t_samp free

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of hardware sampling times that can still be assigned.
These free sampling times can be used by technology functions such as TEC, DCC or FBLOCKS.

Note: DCC: Drive Control Chart
FBLOCKS: free blocks
TEC: Technology Extension

p8550 AOP LOCAL/REMOTE / AOP LOCAL/REMOTE

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 1001 bin

Description: Setting for saving the actual configuration of the Advanced Operator Panel (AOP).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	LOCAL save	Yes	No	-
01	Start in LOCAL	Yes	No	-
02	Change in oper	Yes	No	-
03	OFF acts like OFF1	Yes	No	-
04	OFF acts like OFF2	Yes	No	-
05	OFF acts like OFF3	Yes	No	-
06	Reserved	Yes	No	-
07	CW/CCW active	Yes	No	-
08	Jog active	Yes	No	-
09	Save speed setpoint	Yes	No	-
14	Inhibit operation	Yes	No	-
15	Inhibit parameterization	Yes	No	-

p8552 IOP speed unit / IOP speed unit

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	2	2

Description: Sets the unit for displaying and entering speeds.

Value:
1: Hz
2: rpm

r8570[0...39] Macro drive object / Macro DO

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the macro file saved in the appropriate directory on the memory card/device memory.

Dependency: See also: p0015
Note: For a value = 9999999, the following applies: The read operation is still running.

r8571[0...39] Macro Binector Input (BI) / Macro BI

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R, TM31, TM15DI_DO

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.
Dependency: See also: p0700
Note: For a value = 9999999, the following applies: The read operation is still running.

r8572[0...39] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.
Dependency: See also: p1000
Note: For a value = 9999999, the following applies: The read operation is still running.

r8573[0...39] Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the ACX file saved in the appropriate directory in the non-volatile memory.
Dependency: See also: p1500
Note: For a value = 9999999, the following applies: The read operation is still running.

r8585 Macro execution actual / Macro executed

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the macro currently being executed on the drive object.
Dependency: See also: p0015, p0700, p1000, p1500, r8570, r8571, r8572, r8573

p8806[0...53] Identification and Maintenance 1 / I&M 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 1" (I&M 1).
This information is known as "System identifier" and "Location identifier".

Dependency: See also: p8807, p8808

Notice: Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec).

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
For p8806[0...31]:
System identifier.
For p8806[32...53]:
Location identifier.

p8807[0...15] Identification and Maintenance 2 / I&M 2

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 2" (I&M 2).
This information is known as "Installation date".

Dependency: See also: p8806, p8808

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
For p8807[0...15]:
Dates of installation or first commissioning of the device with the following format options (ASCII):
YYYY-MM-DD
or
YYYY-MM-DD hh:mm
- YYYY: year
- MM: month 01 ... 12
- DD: day 01 ... 31
- hh: hours 00 ... 23
- mm: minutes 00 ... 59
The separators between the individual data - i.e. hyphen '-', space ' ' and colon ':' - must be entered.

p8808[0...53] Identification and Maintenance 3 / I&M 3

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	

Description: Parameters for the PROFINET data set "Identification and Maintenance 3" (I&M 3).
This information is known as "Supplementary information".

Dependency: See also: p8806, p8807

Notice: Only characters belonging to the standard ASCII character set may be used (32 dec to 126 dec).

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
For p8808[0...53]:
Any supplementary information and comments (ASCII).

r8809[0...53] Identification and Maintenance 4 / I&M 4

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Parameters for the PROFINET data set "Identification and Maintenance 4" (I&M 4).
This information is known as "Signature".

Note: Parameter r8809 contains the information described below.
For r8809[0...3]:
Contains the value from r9781[0] "SI change tracking checksum functional".
For r8809[4...7]:
Contains the value from r9782[0] "SI change tracking time stamp checksum functional".
For r8809[8...53]:
Reserved.

p8811 SINAMICS Link project selection / Project sel

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2197, 2198
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
8	64	64

Description: Project selection for SINAMICS Link.

Value:
8: Project 8 participants, 32 words
12: Project 12 participants, 24 words
16: Project 16 participants, 16 words
64: Project 64 participants, 16 words

Note: SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).
The parameter must be set the same for all participants.
A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.

p8812[0...1] SINAMICS Link clock cycle settings / Clock cyc set

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2197, 2198
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2000	[0] 0 [1] 2000

Description: Sets the clock cycle for SINAMICS Link.
For index [0]:
The isochronous mode cannot be activated for this Control Unit.
0 = clock synchronous mode not activated, 1 = clock synchronous mode activated
For index [1]:
Possible values: 500, 1000, 2000 µs

Index: [0] = Activate isochronous mode
[1] = Bus CC [µs]

Dependency: See also: p8811
Note: SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).
A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.
For index [0]:
Is applicable for the synchronization of the application. The SINAMICS Link itself is always synchronous.
For index [1]:
The value must be set the same for all participants.
When newly selecting the project p8811, p8812[1] is set to the factory setting.
For p8811 = 8, 12, 16 the following applies:
Min/max/factory setting: 500/500/500 µs
For p8811 = 64, the following applies:
Min/max/factory setting: 1000/2000/2000 µs

p8835 CBE20 firmware selection / CBE20 FW sel

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2197, 2198
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	99	1

Description: Selects the firmware version for the CBE20.
Value:
1: PROFINET Device
3: SINAMICS Link
4: EtherNet/IP
5: Modbus TCP
99: Customer-specific from the OEM directory
Note: A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.
CBE20: Communication Board Ethernet 20

p8836 SINAMICS link node address / Node address

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	64	0

Description: Selects the node address for the SINAMICS Link on the Communication Board Ethernet 20 (CBE20).
p8836 = 0: SINAMICS Link deactivated
p8836 = 1 ... 64: SINAMICS Link node address
Dependency: See also: p8811, p8835
Note: The maximum number of permitted participant addresses is limited by the project selection p8811.
SINAMICS Link requires that the appropriate CBE20 firmware version is selected (p8835 = 3).
A change only becomes effective after a POWER ON.
The parameter is not influenced by setting the factory setting.

p8837 IF2 STW1.10 = 0 mode / IF2 STW1.10=0

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	2

Description: Sets the processing mode for PROFIdrive STW1.10 "master control by PLC".

Generally, control world 1 is received with the first receive word (PZD1) (this is in conformance to the PROFIdrive profile). The behavior of STW1.10 = 0 corresponds to that of the PROFIdrive profile. For other applications that deviate from this, the behavior can be adapted using this particular parameter.

Value:
0: Freeze setpoints and continue to process sign-of-life
1: Freeze setpoints and sign-of-life
2: Do not freeze setpoints

Recommendation: Do not change the setting p2037 = 0.

Note: If the STW1 is not transferred according to the PROFIdrive with PZD1 (with bit 10 "master control by PLC"), then p2037 should be set to 2.

p8839[0...1] PZD interface hardware assignment / PZD IF HW assign

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2197, 2198
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	99

Description: Assignment of the hardware for cyclic communications via PZD interface 1 (IF1) and interface 2 (IF2).

Value:
0: Inactive
1: Control Unit onboard
2: COMM BOARD
99: Automatic

Index:
[0] = Interface 1
[1] = Interface 2

Dependency: See also: p2030

Note: For value = 99 (automatic) the following applies:

- if a COMM BOARD is not inserted, then the integrated communication interface (PROFIBUS/USS) communicates via IF1.

- if a CBE20 is inserted, then PROFINET CBE20 communicates via IF1 and PROFIBUS/USS via IF2.

For a value not equal to 99 (automatic) the following applies:

- both indices must be set to a number not equal to 99 (automatic).

A new setting only becomes effective after POWER ON, reset or download.

p8840 COMM BOARD monitoring time / CB t_monit

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	65535000 [ms]	20 [ms]

Description: Sets the monitoring time to monitor the process data received via COMM BOARD.

If, during this time, the Control Unit does not receive any process data from the COMM BOARD, then an appropriate message is output.

Dependency: See also: p8835

Note: This monitoring function only monitors the connection between the Control Unit and COMM BOARD and not the data traffic on the fieldbus.
For CBE20, the parameter is only active for firmware version "SINAMICS Link" or "EtherNet/IP" (p8835 = 3, 4, 5).
For CBE20 firmware version Modbus TCP (p8835 =5) then the fieldbus data traffic is also monitored.
Value = 0: Monitoring is deactivated.

p8841[0...239] COMM BOARD send configuration data / CB s config_dat

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Sets the send configuration data for the COMM BOARD.
The setting is activated with p8842.
Dependency: See also: p8842
Note: The configuration data are specific to the inserted COMM BOARD.
For CBE20, the configuration data are not relevant.

p8842 Activate COMM BOARD send configuration / CB s config act

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2199, 2200
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Activate a modified send configuration for COMM BOARD.
With p8842 = 1, the values in p8841 are transferred to the COMM BOARD and activated. After this, p8842 is automatically set to zero.
Dependency: See also: p8841
Note: For CBE20, certain SINAMICS parameters are newly evaluated and activated. An existing, cyclic bus connection is interrupted.
For CBE20, the parameter is only active for firmware selection "SINAMICS Link" (p8835 = 3).

r8843.0...2 BO: IF2 PZD state / IF2 PZD state

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFIdrive PZD state.
Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint failure	Yes	No	-
02	Fieldbus operation	Yes	No	-

Dependency: See also: p2044
Note: When using the "setpoint failure" signal, the bus can be monitored and an application-specific response triggered when the setpoint fails.

p8844 IF2 fault delay / IF2 F delay

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2410
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [s]	100 [s]	0 [s]

Description: Sets the delay time to initiate fault F01910 after a setpoint failure.

The time until the fault is initiated can be used by the application. This means that is is possible to respond to the failure while the drive is still operational (e.g. emergency retraction).

Dependency: See also: r2043

p8848 IF2 PZD sampling time / IF2 PZD t_sample

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(3)	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1.00 [ms]	16.00 [ms]	4.00 [ms]

Description: Sets the sampling time for the cyclic interface 2 (IF2).

Note: The system only permits certain sampling times and after writing to this parameter, displays the value that has actually been set.

For clock cycle synchronous operation, the specified bus cycle time applies (Tdp).

r8849[0...139] COMM BOARD receive configuration data / CB r config_dat

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the receive configuration data for the COMM BOARD.

Note: For CBE20, the parameter is only active for firmware version "SINAMICS Link" or "EtherNet/IP" (p8835 = 3, 4).

r8850[0...19] CO: IF2 PZD receive word / IF2 PZD recv word

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

Note:
IF2: Interface 2
PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

r8850[0...63] CO: IF2 PZD receive word / IF2 PZD recv word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2485, 2491, 9204, 9206
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description:
Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Dependency: See also: r8860, r8890, r8891, r8892, r8893

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r8850 or r8860.

Note: IF2: Interface 2
PZD1 to PZD4 are displayed bit-serially in r8890 to r8893.

r8850[0...4] CO: IF2 PZD receive word / IF2 PZD recv word

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF2: Interface 2
PZD1 to PZD2 are displayed bit-serially in r8890 to r8891.

p8851[0...24] CI: IF2 PZD send word / IF2 PZD send word

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2493, 9210
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Note: IF2: Interface 2

p8851[0...63] CI: IF2 PZD send word / IF2 PZD send word

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2487, 9208
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Dependency: See also: p8861

Note: IF2: Interface 2

p8851[0...4] CI: IF2 PZD send word / IF2 PZD send word

TM31, TM15DI_DO, TM150

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2493, 9210
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the word format.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Note: IF2: Interface 2

r8853[0...24] IF2 diagnostics PZD send / IF2 diag PZD send

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2493
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-

06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Note: IF2: Interface 2

r8853[0...63] IF2 diagnostics PZD send / IF2 diag PZD send

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2487, 9208, 9210
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p8851, p8861

Note: IF2: Interface 2

r8853[0...4] IF2 diagnostics PZD send / IF2 diag PZD send

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2493
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the sent PZD (actual values) sent via interface 2.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Note: IF2: Interface 2

r8854 COMM BOARD state / CB state

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Status display for COMM BOARD.

Value:
0: No initialization
1: Fatal fault
2: Initialization
3: Send configuration
4: Receive configuration
5: Non-cyclic communication
6: Cyclic communications but no setpoints (stop/no clock cycle)
255: Cyclic communication

Note: For CBE20, the parameter is only active for firmware version "SINAMICS Link" (p8835 = 3).
For firmware version "PROFINET Device" or "EtherNet/IP" (p8835 = 1, 4), parameter p8956 should be observed.

r8858[0...39] COMM BOARD read diagnostics channel / CB diag_chan read

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the COMM BOARD diagnostics data.

Note: The display depends on the COMM BOARD being used.
For CBE20, the parameter is only active for firmware version "SINAMICS Link" or "EtherNet/IP" (p8835 = 3, 4).
Example for CBE20:
r8858[0] = 4201 --> Siemens CBE20
r8858[1] = 3 --> firmware version = SINAMICS Link (see p8835)
r8858[2 ... 39] --> only for internal Siemens diagnostics.

r8859[0...7] COMM BOARD identification data / CB ident_data

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	-

Description: Displays the COMM BOARD identification data

Index:
[0] = Version interface structure
[1] = Version interface driver
[2] = Company (Siemens = 42)
[3] = CB type
[4] = Firmware version
[5] = Firmware date (year)
[6] = Firmware date (day/month)
[7] = Firmware patch/hot fix

Note: Example for CBE20:
r8859[0] = 100 --> version of the interface structure V1.00
r8859[1] = 111 --> version of the interface driver V1.11
r8859[2] = 42 --> SIEMENS
r8859[3] = 0 --> CBE20
r8859[4] = 1200 --> first part, firmware version V12.00 (second part, see index 7)
r8859[5] = 2010 --> year 2010
r8859[6] = 2306 --> 23rd June
r8859[7] = 1300 --> second part, firmware version (complete version: V12.00.13.00)

r8860[0...62] CO: IF2 PZD receive double word / IF2 PZD recv DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer32	**Dyn. index:** -	**Function diagram:** 2485, 9204, 9206
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output for interconnecting the PZD (setpoints) received via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Dependency: See also: r8850

Notice: Where there is a multiple interconnection of a connector output, all the connector inputs must either have Integer or FloatingPoint data types.
A BICO interconnection for a single PZD can only take place either on r8850 or r8860.
A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

p8861[0...62] CI: IF2 PZD send double word / IF2 PZD send DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer32	**Dyn. index:** -	**Function diagram:** 2487, 9208, 9210
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects the PZD (actual values) to be sent via interface 2 in the double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Dependency: See also: p8851

Notice: A BICO interconnection for a single PZD can only take place either on p8851 or p8861.

Note: IF2: Interface 2

r8863[0...62] IF2 diagnostics PZD send double word / IF2 diag send DW

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 2487
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PZD sent via interface 2 (actual values) with double word format.

Index:
[0] = PZD 1 + 2
[1] = PZD 2 + 3
[2] = PZD 3 + 4
[3] = PZD 4 + 5
[4] = PZD 5 + 6
[5] = PZD 6 + 7
[6] = PZD 7 + 8
[7] = PZD 8 + 9
[8] = PZD 9 + 10
[9] = PZD 10 + 11
[10] = PZD 11 + 12
[11] = PZD 12 + 13
[12] = PZD 13 + 14
[13] = PZD 14 + 15
[14] = PZD 15 + 16
[15] = PZD 16 + 17
[16] = PZD 17 + 18
[17] = PZD 18 + 19
[18] = PZD 19 + 20
[19] = PZD 20 + 21
[20] = PZD 21 + 22
[21] = PZD 22 + 23
[22] = PZD 23 + 24
[23] = PZD 24 + 25
[24] = PZD 25 + 26
[25] = PZD 26 + 27
[26] = PZD 27 + 28
[27] = PZD 28 + 29
[28] = PZD 29 + 30
[29] = PZD 30 + 31
[30] = PZD 31 + 32
[31] = PZD 32 + 33
[32] = PZD 33 + 34
[33] = PZD 34 + 35
[34] = PZD 35 + 36
[35] = PZD 36 + 37
[36] = PZD 37 + 38
[37] = PZD 38 + 39
[38] = PZD 39 + 40
[39] = PZD 40 + 41
[40] = PZD 41 + 42
[41] = PZD 42 + 43
[42] = PZD 43 + 44
[43] = PZD 44 + 45
[44] = PZD 45 + 46
[45] = PZD 46 + 47
[46] = PZD 47 + 48
[47] = PZD 48 + 49
[48] = PZD 49 + 50
[49] = PZD 50 + 51
[50] = PZD 51 + 52
[51] = PZD 52 + 53
[52] = PZD 53 + 54
[53] = PZD 54 + 55
[54] = PZD 55 + 56
[55] = PZD 56 + 57
[56] = PZD 57 + 58
[57] = PZD 58 + 59
[58] = PZD 59 + 60
[59] = PZD 60 + 61
[60] = PZD 61 + 62
[61] = PZD 62 + 63
[62] = PZD 63 + 64

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-
	16	Bit 16	ON	OFF	-
	17	Bit 17	ON	OFF	-
	18	Bit 18	ON	OFF	-
	19	Bit 19	ON	OFF	-
	20	Bit 20	ON	OFF	-
	21	Bit 21	ON	OFF	-
	22	Bit 22	ON	OFF	-
	23	Bit 23	ON	OFF	-
	24	Bit 24	ON	OFF	-
	25	Bit 25	ON	OFF	-
	26	Bit 26	ON	OFF	-
	27	Bit 27	ON	OFF	-
	28	Bit 28	ON	OFF	-
	29	Bit 29	ON	OFF	-
	30	Bit 30	ON	OFF	-
	31	Bit 31	ON	OFF	-

Notice: A maximum of 4 indices of the "trace" function can be used.

Note: IF2: Interface 2

r8867[0...1] IF2 PZD maximum interconnected / IF2 PZDmaxIntercon

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display for the maximum interconnected PZD in the receive/send direction
Index 0: receive (r8850, r8860)
Index 1: send (p8851, p8861)

p8870[0...15] SINAMICS Link PZD receive word / PZD recv word

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20), TM31 (PN CBE20), TM15DI_DO (PN CBE20), TM150 (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32	0

Description: Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram.
For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:
- PZD p2050[index] is assigned by means of p8870[index], p8872[index].
For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:
- using p8870[index], p8872[index], the PZD is assigned r8850[Index].

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: See also: p8872

Note: Value range:
0: Not used
1 ... 32: telegram word
A pair of values p8870[index], p8872[index] may only be used once in single a device.
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8870[0...31] SINAMICS Link PZD receive word / PZD recv word

DC_CTRL_S (PN CBE20), DC_CTRL_R_S (PN CBE20), DC_CTRL (PN CBE20), DC_CTRL_R (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32	0

Description: Assignment of a PZD to a telegram word from a SINAMICS Link receive telegram.
For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:
- PZD p2050[index] is assigned by means of p8870[index], p8872[index].
For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:
- using p8870[index], p8872[index], the PZD is assigned r8850[Index].

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: See also: p8872

Note: Value range:
0: Not used
1 ... 32: telegram word
A pair of values p8870[index], p8872[index] may only be used once in single a device.
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8871[0...15] SINAMICS Link PZD send word / PZD send word

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20), TM31 (PN CBE20), TM15DI_DO (PN CBE20), TM150 (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32	0

Description: Assigns a PZD to a telegram word in the SINAMICS Link send telegram.
For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:
- p8871[index] assigns PZD p2051[index].
For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:
- p8871[index] assigns PZD p8851[index].

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency:
See also: p2051, p8851
See also: A50002

Note:
Value range:
0: Not used
1 ... 32: send telegram word
A specific telegram word send may only be used once within a single device.
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8871[0...31] SINAMICS Link PZD send word / PZD send word

DC_CTRL_S (PN CBE20), DC_CTRL_R_S (PN CBE20), DC_CTRL (PN CBE20), DC_CTRL_R (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	32	0

Description:
Assigns a PZD to a telegram word in the SINAMICS Link send telegram.
For p8839[0] = 2 (COMM BOARD via interface 1), the following applies:
- p8871[index] assigns PZD p2051[index].
For p8839[1] = 2 (COMM BOARD via interface 2), the following applies:
- p8871[index] assigns PZD p8851[index].

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: See also: p2051, p8851
See also: A50002

Note: Value range:
0: Not used
1 ... 32: send telegram word
A specific telegram word send may only be used once within a single device.
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8872[0...15] SINAMICS Link PZD receive address / PZD recv adr.

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20), TM31 (PN CBE20), TM15DI_DO (PN CBE20), TM150 (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	64	0

Description: Selects the address of the SINAMICS Link sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16

Dependency: See also: p8870

Note: Value range:
0: Not used
1 ... 64: address
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

p8872[0...31] SINAMICS Link PZD receive address / PZD recv adr.

DC_CTRL_S (PN CBE20), DC_CTRL_R_S (PN CBE20), DC_CTRL (PN CBE20), DC_CTRL_R (PN CBE20)

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2198, 2199
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	64	0

Description: Selects the address of the SINAMICS Link sender from which the process data (PZD) is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32

Dependency: See also: p8870
Note: Value range:
0: Not used
1 ... 64: address
A change only becomes effective after POWER ON, reset, project download or p8842 = 1.

r8874[0...19] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

r8874[0...63] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF2: Interface 2
Value range:
0 - 125: Bus address of the sender
255: Not assigned

r8874[0...4] IF2 diagnostics bus address PZD receive / IF2 diag addr recv

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the bus address of sender from which the PZD is received.
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

r8875[0...19] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.
Index: [0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20

r8875[0...63] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF2: Interface 2
Value range:
0 - 242: Byte offset
255: Not assigned

r8875[0...4] IF2 diagnostics telegram offset PZD receive / IF diag offs recv

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the receive telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

r8876[0...24] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25

r8876[0...63] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5
[5] = PZD 6
[6] = PZD 7
[7] = PZD 8
[8] = PZD 9
[9] = PZD 10
[10] = PZD 11
[11] = PZD 12
[12] = PZD 13
[13] = PZD 14
[14] = PZD 15
[15] = PZD 16
[16] = PZD 17
[17] = PZD 18
[18] = PZD 19
[19] = PZD 20
[20] = PZD 21
[21] = PZD 22
[22] = PZD 23
[23] = PZD 24
[24] = PZD 25
[25] = PZD 26
[26] = PZD 27
[27] = PZD 28
[28] = PZD 29
[29] = PZD 30
[30] = PZD 31
[31] = PZD 32
[32] = PZD 33
[33] = PZD 34
[34] = PZD 35
[35] = PZD 36
[36] = PZD 37
[37] = PZD 38
[38] = PZD 39
[39] = PZD 40
[40] = PZD 41
[41] = PZD 42
[42] = PZD 43
[43] = PZD 44
[44] = PZD 45
[45] = PZD 46
[46] = PZD 47
[47] = PZD 48
[48] = PZD 49
[49] = PZD 50
[50] = PZD 51
[51] = PZD 52
[52] = PZD 53
[53] = PZD 54
[54] = PZD 55
[55] = PZD 56
[56] = PZD 57
[57] = PZD 58
[58] = PZD 59
[59] = PZD 60
[60] = PZD 61
[61] = PZD 62
[62] = PZD 63
[63] = PZD 64

Note: IF2: Interface 2
Value range:
0 - 242: Byte offset
255: Not assigned

r8876[0...4] IF2 diagnostics telegram offset PZD send / IF2 diag offs send

TM31, TM15DI_DO, TM150

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the byte offset of the PZD in the send telegram.

Index:
[0] = PZD 1
[1] = PZD 2
[2] = PZD 3
[3] = PZD 4
[4] = PZD 5

p8880[0...15] BI: IF2 binector-connector converter status word 1 / Bin/con ZSW1

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2489
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form status word 1.

Index:
[0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p8888, r8889

p8881[0...15] BI: IF2 binector-connector converter status word 2 / Bin/con ZSW2

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2489
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form status word 2.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p8888, r8889

p8882[0...15] BI: IF2 binector-connector converter status word 3 / Bin/con ZSW3

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2489
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form free status word 3.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p8888, r8889

p8883[0...15] BI: IF2 binector-connector converter status word 4 / Bin/con ZSW4

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2489
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form free status word 4.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p8888, r8889

p8884[0...15] BI: IF2 binector-connector converter status word 5 / Bin/con ZSW5

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2489
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Selects bits to be sent via interface 2.
The individual bits are combined to form free status word 5.

Index: [0] = Bit 0
[1] = Bit 1
[2] = Bit 2
[3] = Bit 3
[4] = Bit 4
[5] = Bit 5
[6] = Bit 6
[7] = Bit 7
[8] = Bit 8
[9] = Bit 9
[10] = Bit 10
[11] = Bit 11
[12] = Bit 12
[13] = Bit 13
[14] = Bit 14
[15] = Bit 15

Dependency: See also: p8888, r8889

p8888[0...4] IF2 invert binector-connector converter status word / Bin/con ZSW inv

All objects	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2489
	P group: Communications	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector inputs of the binector-connector converter.

Index: [0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	Inverted	Not inverted	-
	01	Bit 1	Inverted	Not inverted	-
	02	Bit 2	Inverted	Not inverted	-
	03	Bit 3	Inverted	Not inverted	-
	04	Bit 4	Inverted	Not inverted	-
	05	Bit 5	Inverted	Not inverted	-
	06	Bit 6	Inverted	Not inverted	-
	07	Bit 7	Inverted	Not inverted	-
	08	Bit 8	Inverted	Not inverted	-
	09	Bit 9	Inverted	Not inverted	-
	10	Bit 10	Inverted	Not inverted	-
	11	Bit 11	Inverted	Not inverted	-
	12	Bit 12	Inverted	Not inverted	-
	13	Bit 13	Inverted	Not inverted	-
	14	Bit 14	Inverted	Not inverted	-
	15	Bit 15	Inverted	Not inverted	-

Dependency: See also: p8880, p8881, p8882, p8883, p8884, r8889

r8889[0...4] CO: IF2 send binector-connector converter status word / Bin/con ZSW send

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Connector output to interconnect the status words to a PZD send word.

Index:
[0] = Status word 1
[1] = Status word 2
[2] = Free status word 3
[3] = Free status word 4
[4] = Free status word 5

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Bit 0	ON	OFF	-
	01	Bit 1	ON	OFF	-
	02	Bit 2	ON	OFF	-
	03	Bit 3	ON	OFF	-
	04	Bit 4	ON	OFF	-
	05	Bit 5	ON	OFF	-
	06	Bit 6	ON	OFF	-
	07	Bit 7	ON	OFF	-
	08	Bit 8	ON	OFF	-
	09	Bit 9	ON	OFF	-
	10	Bit 10	ON	OFF	-
	11	Bit 11	ON	OFF	-
	12	Bit 12	ON	OFF	-
	13	Bit 13	ON	OFF	-
	14	Bit 14	ON	OFF	-
	15	Bit 15	ON	OFF	-

Dependency: See also: p8851, p8880, p8881, p8882, p8883, p8884, p8888

Note: r8889 together with p8880 to p8884 forms five binector-connector converters.

r8890.0...15 BO: IF2 PZD1 receive bit-serial / IF2 PZD1 recv bitw

All objects

Can be changed: -
Calculated: -
Access level: 3
Data type: Unsigned16
Dyn. index: -
Function diagram: 2485, 2491, 9204, 9206
P group: Communications
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for bit-serial interconnection of PZD1 (normally control word 1) received via interface 2.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: r8850
Note: IF2: Interface 2

r8891.0...15 BO: IF2 PZD2 receive bit-serial / IF2 PZD2 recv bitw

All objects

Can be changed: -
Calculated: -
Access level: 3
Data type: Unsigned16
Dyn. index: -
Function diagram: 2485, 2491, 9204, 9206
P group: Communications
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for bit-serial interconnection of PZD2 received via interface 2.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: r8850
Note: IF2: Interface 2

r8892.0...15 BO: IF2 PZD3 receive bit-serial / IF2 PZD3 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Calculated: -
Access level: 3
Data type: Unsigned16
Dyn. index: -
Function diagram: 2485, 9204, 9206
P group: Communications
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for bit-serial interconnection of PZD3 received via interface 2.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: r8850
Note: IF2: Interface 2

r8893.0...15 BO: IF2 PZD4 receive bit-serial / IF2 PZD4 recv bitw

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R, DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -
Calculated: -
Access level: 3
Data type: Unsigned16
Dyn. index: -
Function diagram: 2485, 9204, 9206
P group: Communications
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for bit-serial interconnection of PZD4 (normally control word 2) received via interface 2.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: r8850
Note: IF2: Interface 2

r8894.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2485, 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[0].

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: p8899

r8895.0...15 BO: IF2 connector-binector converter binector output / Con/bin outp

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2485, 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Binector output for bit-serial interconnection of a PZD word received via interface 2.
The PZD is selected via p8899[1].

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	ON	OFF	-
01	Bit 1	ON	OFF	-
02	Bit 2	ON	OFF	-
03	Bit 3	ON	OFF	-
04	Bit 4	ON	OFF	-
05	Bit 5	ON	OFF	-
06	Bit 6	ON	OFF	-
07	Bit 7	ON	OFF	-
08	Bit 8	ON	OFF	-
09	Bit 9	ON	OFF	-
10	Bit 10	ON	OFF	-
11	Bit 11	ON	OFF	-
12	Bit 12	ON	OFF	-
13	Bit 13	ON	OFF	-
14	Bit 14	ON	OFF	-
15	Bit 15	ON	OFF	-

Dependency: See also: p8898, p8899

p8898[0...1] IF2 invert connector-binector converter binector output / Con/bin outp inv

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2485, 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector outputs of the connector-binector converter.
Using p8898[0], the signals of CI: p8899[0] are influenced.
Using p8898[1], the signals of CI: p8899[1] are influenced.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Inverted	Not inverted	-
01	Bit 1	Inverted	Not inverted	-
02	Bit 2	Inverted	Not inverted	-
03	Bit 3	Inverted	Not inverted	-
04	Bit 4	Inverted	Not inverted	-
05	Bit 5	Inverted	Not inverted	-
06	Bit 6	Inverted	Not inverted	-
07	Bit 7	Inverted	Not inverted	-
08	Bit 8	Inverted	Not inverted	-
09	Bit 9	Inverted	Not inverted	-
10	Bit 10	Inverted	Not inverted	-
11	Bit 11	Inverted	Not inverted	-
12	Bit 12	Inverted	Not inverted	-
13	Bit 13	Inverted	Not inverted	-
14	Bit 14	Inverted	Not inverted	-
15	Bit 15	Inverted	Not inverted	-

Dependency: See also: r8894, r8895, p8899

p8899[0...1] CI: IF2 connector-binector converter signal source / Con/bin S_src

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 2485, 2491
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the connector-binector converter.
A PZD receive word can be selected as signal source. The signals are available to be serially passed-on (interconnection).

Dependency: See also: r8850, r8894, r8895, p8898

Note: From the signal source set via the connector input, the corresponding lower 16 bits are converted.
p8899[0...1] together with r8894.0...15 and r8895.0...15 forms two connector-binector converters:
Connector input p8899[0] to binector output in r8894.0...15
Connector input p8899[1] to binector output in r8895.0...15

r8909 PN device ID / PN device ID

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the PROFINET Device ID.
Every SINAMICS device type has its own PROFINET Device ID and its own PROFINET GSD.

Note: List of the SINAMICS Device IDs:
0501 hex: S120/S150
0504 hex: G130/G150
050A hex: DC MASTER
050C hex: MV
050F hex: G120P
0510 hex: G120C
0511 hex: G120 CU240E-2
0512 hex: G120D
0513 hex: G120 CU250S-2 Vector
0514 hex: G110M
051B hex: S210

p8940[0...239] CBE2x Name of Station / CBE2x Name Stat

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Sets the station name for the Communication Board Ethernet 20/25 (CBE20/CBE25).
Dependency: See also: p8945, r8950
Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8941[0...3] CBE2x IP address / CBE2x IP addr

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Sets the IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25).
Dependency: See also: p8945, r8951
Note: The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8942[0...3] CBE2x Default Gateway / CBE2x Def Gateway

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Sets the standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25).
Dependency: See also: p8945, r8952
Note: The setting p8942[0...3] = 0 or p8942 = p8941 (own IP address) means that a standard gateway has not been set.
The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8943[0...3] CBE2x Subnet Mask / CBE2x Subnet Mask

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Sets the subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Dependency: See also: p8945, r8953

Note: The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8944 CBE2x DHCP Mode / CBE2x DHCP Mode

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Value:
0: DHCP off
2: DHCP on, identification using MAC address
3: DHCP on, identification via name of station

Dependency: See also: p8945, r8954

Notice: When the DHCP mode is active (p8944 not equal to 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: The interface configuration (p8940 and following) is activated with p8945.
The parameter is not influenced by setting the factory setting.

p8945 CBE2x activate interface configuration / CBE2x int config

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Setting to activate the interface configuration for the Communication Board Ethernet 20/25 (CBE20/CBE25).
p8945 is automatically set to 0 at the end of an operation.

Value:
0: No function
1: Activate configuration
2: Activate and save configuration
3: Delete configuration

Dependency: See also: p8940, p8941, p8942, p8943, p8944
See also: A08565

Notice: When the DHCP mode is active (p8944 > 0), then PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

Note: For CBE20, the parameter is only valid for firmware version "PROFINET Device" (p8835 = 1), "EtherNet/IP" (p8835 = 4) or "MODBUS TCP (p8835 = 5). Otherwise, it is locked.
This restriction is not applicable for the CBE25.
When a project is downloaded, the interface configuration is only activated if parameter p8945 is set = 1 or 2 in the offline project.
For p8945 = 1:
The interface configuration (p8940 and following) is activated.
For p8945 = 2:
The interface configuration (p8940 and following) is activated - and is saved in a non-volatile fashion (retentively).
For p8945 = 3:
All storage locations for the interface configuration are restored to the factory setting.
The factory setting of the interface configuration is loaded when activated (p8945 = 1) or with the next POWER ON.

r8950[0...239] CBE2x Name of Station actual / CBE2x Name act

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual station name for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8951[0...3] CBE2x IP Address actual / CBE2x IP addr

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the actual IP address for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8952[0...3] CBE2x Default Gateway actual / CBE2x def GW act

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the actual standard gateway for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8953[0...3] CBE2x Subnet Mask actual / CBE2x Sub Mask act

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the actual subnet mask for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8954 CBE2x DHCP Mode actual / CBE2x DHCP act

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	-

Description: Displays the actual DHCP mode for the Communication Board Ethernet 20/25 (CBE20/CBE25).

Value:
0: DHCP off
2: DHCP on, identification using MAC address
3: DHCP on, identification via name of station

Notice: When the DHCP mode is active (parameter value greater than 0), PROFINET communication via this interface is no longer possible! However, the interface can be used by the STARTER/SCOUT commissioning tool.

r8955[0...5] CBE2x MAC address / CBE2x MAC Addr

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	00FF hex	-

Description: Displays the MAC address for the Communication Board Ethernet 20/25 (CBE20/CBE25).

r8956[0...1] CBE2x cyclic connection state / CBE2x cyc conn st

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	13	-

Description: Displays the status of the cyclic connections via the Communication Board Ethernet 20/25 (CBE20/CBE25).

Value:
0: Interrupted
1: Not connected
2: Connection starts to be established
3: Module information expected
4: Module information received
5: Module address expected
6: Module address received
7: Parameterization data expected
8: Parameterization data received
9: Evaluate parameterization data
10: Connection being established completion expected
11: Configured controller RUN expected
12: Configured controller STOP
13: Configured controller RUN

Index: [0] = Controller 1
[1] = Controller 2

Note: For CBE20, the parameter for firmware versions "PROFINET Device" and "EtherNet/IP" (p8835 = 1, 4) is active.
For PROFINET, the following applies:
If value = 10:
If the connection remains in this state, then when using PROFINET IRT the following can apply:
- topology error (incorrect port assignment).
- synchronization missing.
For EtherNet/IP, the following applies:
Only a cyclic connection is possible for EtherNet/IP. Index 0 indicates the status of the cyclic connection.

r8957[0...5] CBE2x cyclic connection diagnostics / CBE2x cyc con diag

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: For diagnostics, displays the cyclic connections via the Communication Board Ethernet 20/25 (CBE20/CBE25).

Index:
[0] = Number of cyclic connections
[1] = Number of send subslots of all connections
[2] = Number of send net data (bytes) of all connections
[3] = Number of receive subslots of all connections
[4] = Number of receive net data (bytes) of all connections
[5] = Connection type (RT, IRT)

Note:
For CBE20, the parameter for firmware versions "PROFINET Device" and "EtherNet/IP" (p8835 = 1, 4) is active.
For PROFINET, the following applies:
For index [5]:
Bit 0 = 1: there is at least one RT connection.
Bit 1 = 1: there is an IRT connection.
For EtherNet/IP, the following applies:
For index [1, 3, 5]:
These indices are not relevant.

r8959 CBE2x DAP ID / CBE2x DAP ID

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	-

Description: Displays the DAP ID for PROFINET via the Communication Board Ethernet 20/25 (CBE20/CBE25).
The combination of device ID (r8909) and DAP ID (r8959) uniquely identifies a PROFINET access point.

Note:
DAP ID: Device Access Point ID
DAP ID = 20008 hex: SINAMICS CBE20 V4.6
DAP ID = 20009 hex: SINAMICS CBE20 V4.7
DAP ID = 2000A hex: SINAMICS CBE20 V4.8
DAP ID = 20209 hex: SINAMICS CBE25 V4.7

r8960[0...3] PN subslot controller assignment / PN subslot assign

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	8	-

Description: Displays the controller assignment of a PROFINET subslot on the actual drive object.
The display is only relevant for Shared Device.

Index:
[0] = Subslot 2 PROFIsafe
[1] = Subslot 3 PZD telegram
[2] = Subslot 4 PZD supplementary data
[3] = Subslot 5 PZD supplementary data

Note:
Example:
If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

r8970[0...3] CBE2x subslot controller assignment / CBE2x subslot

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20), DC_CTRL_S (PN CBE20), DC_CTRL_R_S (PN CBE20), DC_CTRL (PN CBE20), DC_CTRL_R (PN CBE20), TM31 (PN CBE20), TM15DI_DO (PN CBE20), TM150 (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	8	-

Description: Displays the controller assignment of a PROFINET subslot on the actual drive object.

Index: [0] = Subslot 2 PROFIsafe
[1] = Subslot 3 PZD telegram
[2] = Subslot 4 PZD supplementary data
[3] = Subslot 5 PZD supplementary data

Dependency: See also: r8971, r8972

Note: Example:
If the parameter contains the value 2 in index [1], then this means that subslot 3 is assigned to controller 2.

r8971[0...3] CBE2x IP Address Remote Controller 1 / CBE2x IP Rem Ctrl1

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the IP address of the first PROFINET controller connected with the device via CBE20/CBE25.

r8972[0...3] CBE2x IP Address Remote Controller 2 / CBE2x IP Rem Ctrl2

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	-

Description: Displays the IP address of the second PROFINET controller connected with the device via CBE20/CBE25.

p9206[0...2] Topology direct access / Topo access

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Data setting to read topology properties.
The result is displayed depending on the property in r9207 or r9208.
For index [0]:
0: actual topology, 1: target topology
For index [1]:
Sets the component number of the component involved.
For index [2]:
7: Name (r9208)
8: Component type (r9207)
9: Number of DRIVE-CLiQ connections (r9207)
11: Manufacturer (upper byte) and version (lower byte) (r9207)
12: Serial number (r9208)
13: Index (r9207)
15: Comparison level (r9207)
23: Article number (r9207)
24: Hardware serial number (r9208)
25: Envelope article number (r9207)
28: Firmware version (r9207)
29: EEPROM version (r9207)
30: Hardware version (r9207)
1000: Name of DRIVE-CLiQ connection 0 (r9208)
1001: Name of DRIVE-CLiQ connection 1 (r9208)
...
1015: Name of DRIVE-CLiQ connection 15 (r9208)

Index: [0] = Actual topology/target topology
[1] = Component number
[2] = Identifier/property

Dependency: See also: r9207, r9208

r9207 Topology direct access integer value / Topo access int

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the value for the property set in p9206.
A value is only displayed for integer type properties.

Dependency: See also: p9206, r9208

r9208[0...50] Topology direct access string / Topo access string

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the value for the property set in p9206.
A value is only displayed for string type properties.

Dependency: See also: p9206, r9207

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

p9210 Flashing component number / Flash comp_no.

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	499	0

Description: Sets the component number for a component to get its status LED to flash.

Dependency: See also: p9211

p9211 Flash function / Flash fct.

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1	1	-1

Description: Sets the function for the components selected in p9210.
After initiating a function, the parameter is automatically reset again.
Example:
- set the component number (p9210).
- select the "flashing on" function (set p9211 = 1).

Value:
-1: Select function
0: Flashing off
1: Flashing on

Dependency: See also: p9210

Notice: If a task cannot be executed (e.g. the component number in p9210 does not exist), the following applies:
- there is no negative feedback signal.
- the value is reset anyway.

r9220 Statistics number of entries / Stat entries qty

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of statistic entries in r9222.

Dependency: In p9221, the component Id is set whose statistical entries are to be displayed.
See also: p9221

p9221 Statistic components Id / Statistic comp Id

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	00FF hex	0002 hex

Description: Selects the component Id whose statistics are to be displayed in r9222.

r9222[0...n] Statistic DRIVE-CLiQ acyclic communication / Stat DQ acycl comm

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** r9220	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the statistics for the acyclic DRIVE-CLiQ communication of a component.
The component is preset in p9221.
The entry comprises the following elements:
Index 0: Parameter Id.
Index 1: Number of messages sent.
Index 2: Minimum time of all acyclic tasks referred to parameter Id (index 0).
Index 3: Maximum time of all acyclic requests referred to the parameter Id (index 0).
Index 4: Average of all acyclic requests referred to the parameter Id (index 0).
The time unit is 10 µs.

Dependency: The number of statistic entries is displayed in p9220.
In p9221, the component Id can be set whose statistic is to be displayed.
See also: r9220, p9221

Note: As a statistic entry comprises 5 data, when calling the entries via the terminal, a size that represents a multiple of 5 must be specified.
Example:
The 2nd entry should be called:
rdp 1 9222 5 5
or
rdpa 1 9222 5 5

p9400 Safely remove memory card / Mem_card rem

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	100	0

Description: Setting and display when memory card is "removed safely".
Procedure:
Setting p9400 = 2 results in a value of 3
--> The memory card can be removed safely. After removal the value sets itself to 0 automatically.
Setting p9400 = 2 results in a value of 100
--> The memory card cannot be removed safely. Removal may destroy the file system on the memory card. It may be necessary to set p9400 = 2 again.

Value:
0: No memory card inserted
1: Memory card inserted
2: Request "safe removal" of the memory card
3: "Safe removal" possible
100: "Safe removal" not possible due to access

Dependency: See also: r9401

Notice: Removing the memory card without a request (p9400 = 2) and confirmation (p9400 = 3) may destroy the file system on the memory card. The memory card will then no longer work properly and must be replaced.

Note: The status when the memory card is being "removed safely" is shown in r9401.
For value = 0, 1, 3, 100:
These values can only be displayed, not set.

r9401 Safely remove memory card status / Mem_card rem stat

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status of the memory card.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Memory card inserted	Yes	No	-
01	Memory card activated	Yes	No	-
02	SIEMENS memory card	Yes	No	-
03	Memory card as USB data storage medium from the PC used	Yes	No	-

Dependency: See also: p9400

Note: For bit 01, 00:
Bit 1/0 = 0/0: No memory card inserted (corresponds to p9400 = 0).
Bit 1/0 = 0/1: "Safe removal" possible (corresponds to p9400 = 3).
Bit 1/0 = 1/0: Status not possible.
Bit 1/0 = 1/1: Memory card inserted (corresponds to p9400 = 1, 2, 100).
For bit 02, 00:
Bit 2/0 = 0/0: No memory card inserted.
Bit 2/0 = 0/1: Memory card inserted, but not a SIEMENS memory card.
Bit 2/0 = 1/0: Status not possible.
Bit 2/0 = 1/1: SIEMENS memory card inserted.

r9406[0...19] PS file parameter number parameter not transferred / PS par_no n transf

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameters that were not able to be transferred when reading the parameter back-up files (PS files) from the non-volatile memory (e.g. memory card).
r9406[0] = 0
--> All of the parameter values were able to be transferred error-free.
r9406[0...x] > 0
--> indicates the parameter number in the following cases:
- parameter, whose value was not able to be completely accepted.
- indexed parameter, where at least 1 index was not able to be accepted. The first index that is not transferred is displayed in r9407.

Dependency: See also: r9407, r9408

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9407[0...19] PS file parameter index parameter not transferred / PS parameter index

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the first index of the parameters that could not be transferred when the parameter backup files (PS files) were read from the non-volatile memory (e.g. memory card).
If, from an indexed parameter, at least one index was not able to be transferred, then the parameter number is displayed in r9406[n] and the first index that was not transferred is displayed in r9407[n].
r9406[0] = 0
--> All of the parameter values were able to be transferred error-free.
r9406[n] > 0
--> Displays r9407[n] the first index of the parameter number r9406[n] that was not transferred.

Dependency: See also: r9406, r9408

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9408[0...19] PS file fault code parameter not transferred / PS fault code

All objects

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Only for internal Siemens service purposes.

Dependency: See also: r9406, r9407

Note: All indices from r9406 to r9408 designate the same parameter.
r9406[x] parameter number, parameter not accepted
r9407[x] parameter index, parameter not accepted
r9408[x] fault code, parameter not accepted

r9409 Number of parameters to be saved / Qty par to save

All objects

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of modified parameters and those that have still not be saved for this drive object.

Dependency: See also: p0971, p0977

Notice: Inherent to the system, the list of the parameters to be backed up is empty after the following actions:
- Download
- Warm restart
- Factory setting

In these cases, a new parameter backup must be initiated, which is then the starting point for the list of modified parameters.

Note: The modified parameters that still need to be saved are internally listed in r9410 ... r9419.

r9450[0...29] Reference value change parameter with unsuccessful calculation / Ref_chg par n poss

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameters for which the re-calculation was unsuccessful after an internal system reference value change.

Dependency: See also: F07086

r9451[0...29] Units changeover adapted parameters / Unit_chngov par

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the parameters whose parameter would have to be changed during a units changeover.

Dependency: See also: F07088

r9481 Number of BICO interconnections / BICO count

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of BICO interconnections (signal sinks).

Dependency: See also: r9482, r9483

Note: The selected BICO interconnections should be entered into r9482 and r9483.

r9482[0...n] BICO interconnections BI/CI parameters / BICO BI/CI par

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** r9481	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the signal sinks (binector/connector inputs, BI/CI parameters).
The number of BICO interconnections is displayed in r9481.

Dependency: See also: r9481, r9483

Note: The list is sorted according to signal sources and is structured as follows:
r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
...

r9483[0...n] BICO interconnections BO/CO parameters / BICO BO/CO par

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** r9481	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the signal sources (binector/connector outputs, BO/CO parameters).
The number of BICO interconnections is displayed in r9481.
Dependency: See also: r9481, r9482
Note: The list is sorted according to signal sources and is structured as follows:
r9842[0]: Interconnection 1 (signal sink, BICO coded), r9843[0]: Interconnection 1 (signal source, BICO coded)
r9842[1]: Interconnection 2 (signal sink, BICO coded), r9843[1]: Interconnection 2 (signal source, BICO coded)
...

p9484 BICO interconnections search signal source / BICO S_src srch

All objects

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	4294967295	0

Description: Sets the signal source (BO/CO parameter, BICO coded) to search in the signal sinks.
The question is answered:
How often is a connection made to a signal source in the drive object and from which index are these interconnections saved (r9482 and r9483)?
Dependency: See also: r9481, r9482, r9483, r9485, r9486

r9485 BICO interconnections signal source search count / BICO S_src srchQty

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of BICO interconnections to the signal sink being searched for.
Dependency: See also: r9481, r9482, r9483, p9484, r9486
Note: The signal source to be searched is set in p9484 (BICO-coded).
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9486 BICO interconnections signal source search first index / BICO S_src srchIdx

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the first index of the signal source being searched for.

Dependency: See also: r9481, r9482, r9483, p9484, r9485
Note: The signal source to be searched is set in p9484 (BICO-coded).
The search result is contained in r9482 and r9483 and is specified by the count (r9485) and the first index (r9486).

r9490 Number of BICO interconnections to other drives / Qty BICO to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of signal sources from this drive to other drives/drive objects (Binector Output/Connector Output, BO/CO).
Dependency: See also: r9491, r9492, p9493

r9491[0...9] BI/CI of BICO interconnections to other drives / BI/CI to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the signal receiver list (Binector Input/Connector Input, BI/CI) for the first interconnections between this drive and other drives/drive objects.
Dependency: See also: r9490, r9492, p9493
Notice: A drive cannot be deleted if this list is not empty!
Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.
Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

r9492[0...9] BO/CO of BICO interconnections to other drives / BO/CO to drive

All objects

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the signal source list (Binector Output/Connector Output, BO/CO) for the first interconnections between this drive and other drives/drive objects.
Dependency: See also: r9490, r9491, p9493
Notice: A drive cannot be deleted if this list is not empty!
Otherwise, another drive would continue to attempt to read a signal from a drive that no longer existed.
Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9493[0...9] Reset BICO interconnections to other drives / Reset BICO to drv

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	15	15

Description: Setting to reset the BICO interconnections to other drives.
Each interconnection can be individually reset.

Value:
0: Set connection to 0
1: Set connection to 1 (100 %)
2: Set connection to factory setting
15: Finished

Dependency: See also: r9490, r9491, r9492

Note: All indices of r9491 to p9493 designate the same interconnection.
r9491[x] contains the signal receiver and r9492[x] the matching signal source; p9493[x] can be set to modify the interconnection.

p9495 BICO behavior for deactivated drive objects / Behav for deact DO

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the behavior for BICO interconnections to drive objects that are either not capable of operation or have been deactivated.
BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).

Value:
0: Inactive
1: Save interconnections
2: Save interconnections and establish the factory setting

Dependency: See also: p9496, p9497, p9498, p9499
See also: A01318, A01507

Note: For p9495 = 0, the following applies:
- the number of interconnections is zero (p9497 = 0).
For p9495 not equal to 0, the following applies:
- the BI/CI parameters involved are listed in p9498[0...29] (signal sink).
- the associated BO/CO parameters are listed in p9499[0...29] (signal source).

p9496 BICO behavior when activating drive objects / Behav when act DO

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the behavior when activating BICO interconnections to drive objects that are either not capable of operation or have been deactivated.

Value:
0: Inactive
1: Restore the interconnections from the list
2: Delete the interconnections from the list

Dependency: See also: p9495, p9497, p9498, p9499
See also: A01318, A01507

Note: The BI/CI parameters involved are listed in p9498[0...29] (signal sink).
The associated BO/CO parameters are listed in p9499[0...29] (signal source).
After p9496 = 1, 2 the following applies:
- p9497 = 0
- p9496 = 0

p9497 BICO interconnections to deactivated drive objects number / Interconn obj qty

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: Displays the number of saved BICO interconnections to drive objects that are either not capable of operation or have been deactivated.
BO/CO parameters are on the drive object that is either not capable of operation or has been deactivated (signal source).

Dependency: See also: p9495, p9496, p9498, p9499
See also: A01318, A01507

p9498[0...29] BICO BI/CI parameters to deactivated drive objects / BI/CI to deact obj

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Displays the saved BI/CI parameters (signal sink), whose source is located on drive objects that are either not capable of operation or have been deactivated.

Dependency: See also: p9495, p9496, p9497, p9499
See also: A01318, A01507

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

p9499[0...29] BICO BO/CO parameters to deactivated drive objects / BO/CO to deact obj

All objects

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Commands	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Displays the saved BO/CO parameters (signal source), which are located on drive objects that are either not capable of operation or have been deactivated.

Dependency: See also: p9495, p9496, p9497, p9498
See also: A01318, A01507

Note: A BICO interconnection (signal sink, signal source) is displayed in the same index of p9498 and p9499.

r9900 Actual topology number of indices / Act topo indices

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the number of indices of the actual topology.

Dependency: See also: r9901
Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning tool.

r9901[0...n] Actual topology / Act topo

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** r9900	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the actual topology of the drive unit.
The actual topology is sub-divided into several sections. Each of the following data is saved under an index.
General data on the topology:
- version
- attribute to compare the actual topology and target topology
- number of components

Data on a component:
- type component of the node ID of the component
- number of DRIVE-CLiQ sockets in the Node Identifier
- manufacturer and version of the Node Identifier
- serial number of the Node Identifier (4 indices)
- index of the component
- article number (8 indices)
- attribute to compare the actual topology and target topology of the component
- communications address
- number of port types
- port type
- number of ports of the port type
- communications address of the associated/linked component
- number of the associated/linked port
- communications address of the associated/linked component
- number of the associated port, etc.

Data on the next component:
- etc.

Dependency: See also: r9900
Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning tool.

p9902 Target topology number of indices / TargetTopo indices

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
1	65535	1

Description: Sets the number of target topology indices.
Dependency: See also: p9903
Note: Only for internal Siemens use.
The parameter is not displayed for the STARTER commissioning tool.

p9903[0...n] Target topology / Target topo

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** p9902	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF hex	0000 hex

Description: Sets the target topology of the drive unit.
The target topology is sub-divided into several sections. Each of the following data is saved under an index.
General data on the topology:
- version
- attribute to compare the actual topology and target topology
- number of components

Data on a component:
- type component of the Node Identifier of the component
- number of DRIVE-CLiQ sockets in the Node Identifier
- manufacturer and version of the Node Identifier
- serial number of the Node Identifier (4 indices)
- index of the component
- article number (8 indices)
- attribute to compare the actual topology and target topology of the component
- component number
- number of port types
- port type
- number of ports of the port type
- component number of the associated/linked component
- number of the associated/linked port
- component number of the associated/linked component
- number of the associated port, etc.

Data on the next component:
- etc.

Dependency: See also: p9902

Note: The target topology can only be changed using the commissioning tool.
The parameter is not displayed for the STARTER commissioning tool.
Changes only become effective when the state of p0009 = 101 changes to 0 or 111.

p9904 Topology comparison acknowledge differences / Topo_compare ackn

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: If, when comparing the actual topology and target topology, only error has occurred, that can be acknowledged, then using this parameter, a new comparison can be started - acknowledging the error in the target topology.

Differences that can be acknowledged:

- topology comparison, component shifted
- topology comparison, serial number of a component has been detected to be different (byte 3 = 1)
- topology comparison shows one component that is connected differently

The following parameter values are available:

p9904 = 1 --> the procedure is started.

p9904 = 0 after starting --> the procedure has been successfully completed.

p9904 = 1 after starting --> the procedure has not been successfully completed.

The possible causes for an unsuccessful procedure are located in bytes 4, 3, 2.

Byte 2:

Number of structural differences.

Byte 3:

Number of differences that can be acknowledged (p9904).

Byte 4:

Number of differences. These differences can be resolved as follows:

- sets the topology comparison (p9906 or p9907/p9908).
- change over the actual topology.

The appropriate action should be selected corresponding to the message that is displayed/output.

Note: In order to permanently accept the acknowledgment of the fault that can be resolved, then it must be saved in a non-volatile fashion (p0977).

p9905 Device specialization / Specialization

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: With p9905 = 1, the serial numbers and the hardware versions of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers.

With p9905 = 2, the serial numbers, the hardware versions and the article numbers of all of the components are transferred from the actual topology into the target topology and a new comparison is started.

For this device specialization, the components of the target topology may only differ from those of the actual topology by the serial numbers and article numbers.

Note: p9905 is automatically set to 0 at the end of the operation.

In order to permanently accept the data, it is necessary to save in a non-volatile fashion (p0977).

p9906 Topology comparison all components comparison level / Topo_comp all lev

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	0

Description: Sets the type of comparison between the actual topology and target topology.
The comparison is started by setting the required value.

Value:
0: High: Compares the complete electronic rating plate
1: Medium: Compares the component type and the article number
2: Low: Compares the component type
3: Minimum: Compares the component class
99: Topology has different comparison stages

Note: The electronic rating plate comprises the following data:
- component type (e.g. "SMC20")
- article number (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:
p9906 = 0: Component type, Article Number, Hardware version, Manufacturer, Serial No.
p9906 = 1: Component type, Article Number
p9906 = 2: Component type
p9906 = 3: Component class (e.g. Sensor Module or Motor Module)

p9907 Topology comparison component number / Topo_cmpr comp_no

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: Enters the number of the component where the setting of how the actual topology should be compared to the target topology should be changed.

Dependency: See also: p9908

p9908 Topology comparison of a component comparison level / Topo_comp level 1

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	99	0

Description: Sets the type of comparison of a component in the target topology with the actual topology.
The comparison is started by setting the required value.

Value:
0: High: Compares the complete electronic rating plate
1: Medium: Compares the component type and the article number
2: Low: Compares the component type
3: Minimum: Compares the component class
99: Topology has different comparison stages

Dependency: See also: p9907

Note: The electronic rating plate comprises the following data:
- component type (e.g. "SMC20")
- article number (e.g. "6SL3055-0AA0-5BA0")
- manufacturer (e.g. SIEMENS)
- hardware version (e.g. "A")
- Serial No. (e.g. "T-P30050495")

When comparing the topology, the following data is compared in the target and actual topologies:
p9908 = 0: Component type, Article No., Hardware version, Manufacturer, Serial No.
p9908 = 1: Component type, Article Number
p9908 = 2: Component type
p9908 = 3: Component class (e.g. Sensor Module or Motor Module)

p9909 Topology comparison component replacement / Topo_cmpr replace

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: For p9909 = 1, the serial number and the hardware version of the new replaced component is automatically transferred from the actual topology into the target topology and then saved in a non-volatile fashion.
For the components that have been replaced, the electronic rating plate must match as far as the following data is concerned:
- component type (e.g. "SMC20")
- article number (e.g. "6SL3055-0AA0-5BA0")

For p9909 = 0, serial numbers and hardware versions are not automatically transferred. In this case, the transfer must be made using p9904.

Dependency: See also: p9904, p9905

Note: The modified target topology is automatically saved in a non-volatile fashion when the drive object runs-up (e.g. after a POWER ON).
Special case for Control Unit and option slot modules:
When replacing these components, independent of p9909, the serial number and hardware version are automatically transferred and saved in a non-volatile fashion.

p9910 Target topology accept additional components / Add comp accept

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Accept additional inserted DRIVE-CLiQ components into the target topology.
The corresponding drive objects are added to the project.

Value:
0: No selection
1: Transfer components

p9915 DRIVE-CLiQ data transfer error shutdown threshold master / DQ fault master

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	0007 07FF hex	0007 02FF hex

Description: Only for internal Siemens service purposes.

p9916 DRIVE-CLiQ data transfer error shutdown threshold slave / DQ fault slave

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	0007 07FF hex	0007 02FF hex

Description: Only for internal Siemens service purposes.

p9918 Licensing active Trial License / Trial License act

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Activating the "Trial License" function.
Activation must be made for each period. A period comprises 300 hours. 3 periods are available.
The actual status of the "Trial License" function is indicated in r9919.
It is not possible to activate the "Trial License" function in the following situations:
- the existing license is adequate.
- the function requiring a license does not support "Trial License".

Value:
0: Inactive
1: Activate Trial License

Dependency: See also: r9919

Note: After a period has expired, then p9918 is automatically set = 0.

r9919[0...3] Licensing Trial License status / Trial License stat

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status of the "Trial License" function.

Index:
[0] = Period actual remaining time
[1] = Period actual
[2] = Maximum period duration
[3] = Maximum number of periods

Dependency: See also: p9918

Note:
For index [0]:
Displays the remaining time of the actual period in hours.
For index [1]:
Displays the actual periods.
For index [2]:
Displays the maximum duration of a period in hours.
For index [3]:
Displays the number of maximum periods.

p9920[0...99] Licensing enter license key / Enter license key

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Enters the license key for this drive unit.
Example of the license key:
EACZ-QBCA = 69 65 67 90 45 81 66 67 65 dec (ASCII characters)
Index 0 = license key character 1 (e.g. 69 dec)
Index 1 = license key character 2 (e.g. 65 dec)
...
Index 8 = license key character 9 (e.g. 65 dec)
Index 9 = license key character 10 (e.g. 0 dec)
...

Dependency: See also: r7843, p9921
See also: F13000, A13001, F13010

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.
With the STARTER commissioning tool, the ASCII characters are not entered coded, i.e. the license key characters can be entered as printed in the Certificate of License. In this case, the commissioning tool codes the characters.

Note: For an invalid license key, all the indices have the value 0 dec.
Only the ASCII characters contained in a license key can be entered ("1" to "9", "A" to "H", "K" to "N", "P" to "Z" as well as "-").
When manually changing p9920[x] to the value 0 dec, all the values of all the following indices are also set to 0 dec.
After entering the license key, the license key must be activated (p9921).
The following fault and LED indicate that the licensing is not adequate:
- F13000 --> licensing not adequate
- LED READY --> flashes red at approximately 2 Hz

p9921 Licensing activate license key / Act license key

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Activates the entered license key.
The following is executed when activating the license key.
- the checksum of the entered license key is checked.
- the entered license key is saved in a non-volatile fashion on the memory card.
- re-enter the license key.

Value:
0: Inactive
1: Activate start license key

Dependency: See also: p9920
See also: F13000, A13001, F13010

Note: Before activation, the license key entered using parameter p9920 is checked. If this check identifies an error, activation is rejected. In this case, writing a 1 to p9921 is rejected.
When the license key has been activated, p9921 is automatically set to 0.

r9925[0...99] Firmware file incorrect / FW file incorr

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the directory and name of the file whose status as shipped from the factory was identified as impermissible.

Dependency: See also: r9926
See also: A01016

Note: The directory and name of the file is displayed in the ASCII code.

r9926 Firmware check status / FW check status

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status when the firmware is checked when the system is booted.
0: Firmware not yet checked.
1: Check running.
2: Check successfully completed.
3: Check indicates an error.

Dependency: See also: r9925
See also: A01016

p9930[0...8] System logbook activation / SYSLOG activation

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Only for service purposes.

Index: [0] = System logbook stage (0: Not active)
[1] = COM2/COM1 (0: COM2, 1: COM1)
[2] = Activate file write (0: Not active)
[3] = Display time stamp (0: Not displayed)
[4...7] = Reserved
[8] = System logbook file size (stages, each 10 kB)

Notice: Before switching off the Control Unit, ensure that the system logbook is switched out (p9930[0] = 0).
If writing to the file is activated (p9930[2] = 1), writing to the file must be deactivated again before switching off the Control Unit (p9930[2] = 0) in order to ensure that the system logbook has been completely written to the file.

p9931[0...194] System logbook module selection / SYSLOG mod select.

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0000 hex	FFFF FFFF hex	0000 hex

Description: Only for service purposes.

p9932 Save system logbook EEPROM / SYSLOG EEPROM save

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	255	0

Description: Only for service purposes.

r9935.0 BO: POWER ON delay signal / POWER ON t_delay

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector output for a delay after POWER ON.
After switch-on, binector output r9935.0 is set with the start of the first sampling time and is again reset after approx. 100 ms.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	POWER ON delay signal	High	Low	-

r9936[0...199] DRIVE-CLiQ diagnostic error counter connection / DQdiag err counter

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the error counter for the individual DRIVE-CLiQ connections/cables.
r9936[0]: sum of the error counter for all connections
r9936[1]: not used
r9936[2]: error counter for the feeder cable to DRIVE-CLiQ components with component number 2
...
r9936[199]: error counter for the feeder cable to DRIVE-CLiQ components with component number 199
The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit.

Dependency: See also: p9937, p9938

p9937 DRIVE-CLiQ diagnostic configuration / DQ diag config

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Sets the configuration for the DRIVE-CLiQ diagnostics (error counter r9936).
Using this function, connections and cables of DRIVE-CLiQ connections can be checked for transfer errors. The error counter is evaluated in the PHY blocks involved.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Alarm for connection error	Yes	No	-
08	Reset error counter	Yes	No	-

Dependency: See also: r9936, p9938
See also: A01839

Note: For bit 00:
To activate this function, p9938 must be set to 0 (inactive).
After changing the error counter (r9936), an appropriate alarm is output.
The alarm automatically disappears after 5 seconds.
For bit 08:
With p9937.8 = 1, the error counters are reset (r9936[0...199]).
After the reset, p9937.8 is automatically set to 0.

p9938 DRIVE-CLiQ detailed diagnostics configuration / DQ diag config

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	6	0

Description: Sets the configuration for the DRIVE-CLiQ detailed diagnostics (r9943).
Using the detailed diagnostics, it is possible to investigate data transfer errors on an individual connection, selected using p9942.

Value:
0: Inactive
1: Sum send and receive errors
2: Only send errors
3: Only receive errors
4: Siemens internal
5: Siemens internal
6: Siemens internal

Dependency: The functions in p9938 can only be set for p9937.0 = 0.
See also: r9936, p9937, p9939, p9942

Notice: If value = 0:
- detailed diagnostics is inactive.
- the error counter is active (r9936).
If value > 0:
- the error counter is inactive (r9936).
- the detailed diagnostics as configured is active (r9943).

p9939 DRIVE-CLiQ detailed diagnostics time interval / DQ detail t_interv

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1 [s]	3600 [s]	1 [s]

Description: Sets the time interval for recording the error counter in r9943.

Dependency: See also: r9936, p9938, p9942, r9943

p9941 Target topology feature delete all components / Feature delete

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: C1(1)	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: Topology	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 0
Min:	**Max:**	**Factory setting:**
0	1	0

Description: For p9941 =1, the serial numbers of all components in the target topology are deleted (zero is written).
Through activation and deactivation this enables the actual topology components to be newly assigned to the target topology components.

Note: p9941 is automatically set to 0 at the end of the operation.
A warm restart is triggered automatically after p0009 = 0.

p9942 DRIVE-CLiQ detailed diagnostics select individual connection / DQ detail conn

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	199	0

Description: Sets the component, whose feeder cable is monitored for data transfer errors.
The feeder cable is the DRIVE-CLiQ cable that is connected to a component in the direction of the Control Unit.
Errors that have occurred in the selected time interval (p9939) can be read-out from r9943.

Dependency: See also: r9936, p9938, p9939, r9943

r9943 DRIVE-CLiQ detailed diagn. individual connection error counter / DQ det err counter

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Integer32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the connection errors of the individual connection that have occurred within the time interval (p9939).
The detailed diagnostics for the individual connection is activated via p9938 > 0 and is selected via p9942.

Dependency: See also: r9936, p9938, p9939, p9942

r9975[0...7] System utilization measured / Sys util meas

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the measured system utilization.
The higher the value displayed, the higher the system utilization.

Index: [0] = Computing time utilization (min)
[1] = Computing time utilization (averaged)
[2] = Computing time utilization (max)
[3] = Largest total utilization (min)
[4] = Largest total utilization (averaged)
[5] = Largest total utilization (max)
[6] = Reserved
[7] = Reserved

Dependency: See also: r9976, r9979, r9980, r9981
See also: F01054, F01205

Note: For index [3...5]:
The total utilizations are determined using all sampling times used. The largest total utilizations are mapped here. The sampling time with the largest total utilization is displayed in r9979.
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9976[0...7] System utilization / Sys util

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the system utilization.
If the utilization is greater than 100%, fault F01054 is output.

Index: [0] = Reserved
[1] = Computing time utilization
[2] = Reserved
[3] = Reserved
[4] = Reserved
[5] = Largest total utilization
[6] = Reserved
[7] = Reserved

Dependency: See also: r9979, r9980
See also: F01054, F01205

Note: For index [1]:
The value shows the total computing time load of the system.
For index [5]:
The total utilization is determined using all sampling times used. The largest total utilization is mapped here. The sampling time with the largest total utilization is displayed in r9979.
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9979 Sampling time with largest total utilization / t_sampl lg total

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the sampling time with the largest total utilization.

Dependency: See also: r7901, r9976
See also: F01054

Note: The largest total utilization is displayed in r9976[5].
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9980[0...165] Sampling times utilization calculated / t_sampl util calc

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the calculated utilizations for the active sampling times based on the existing target topology.

Index:
[0] = Net utilization 0
[1] = Total utilization 0
[2] = Net utilization 1
[3] = Total utilization 1
[4] = Net utilization 2
[5] = Total utilization 2
[6] = Net utilization 3
[7] = Total utilization 3
[8] = Net utilization 4
[9] = Total utilization 4
[10] = Net utilization 5
[11] = Total utilization 5
[12] = Net utilization 6
[13] = Total utilization 6
[14] = Net utilization 7
[15] = Total utilization 7
[16] = Net utilization 8
[17] = Total utilization 8
[18] = Net utilization 9
[19] = Total utilization 9
[20] = Net utilization 10
[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14
[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21
[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32

[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51
[104] = Net utilization 52
[105] = Total utilization 52
[106] = Net utilization 53
[107] = Total utilization 53
[108] = Net utilization 54
[109] = Total utilization 54
[110] = Net utilization 55
[111] = Total utilization 55
[112] = Net utilization 56
[113] = Total utilization 56
[114] = Net utilization 57
[115] = Total utilization 57
[116] = Net utilization 58
[117] = Total utilization 58
[118] = Net utilization 59
[119] = Total utilization 59
[120] = Net utilization 60
[121] = Total utilization 60
[122] = Net utilization 61
[123] = Total utilization 61
[124] = Net utilization 62
[125] = Total utilization 62
[126] = Net utilization 63
[127] = Total utilization 63
[128] = Net utilization 64
[129] = Total utilization 64
[130] = Net utilization 65
[131] = Total utilization 65

[132] = Net utilization 66
[133] = Total utilization 66
[134] = Net utilization 67
[135] = Total utilization 67
[136] = Net utilization 68
[137] = Total utilization 68
[138] = Net utilization 69
[139] = Total utilization 69
[140] = Net utilization 70
[141] = Total utilization 70
[142] = Net utilization 71
[143] = Total utilization 71
[144] = Net utilization 72
[145] = Total utilization 72
[146] = Net utilization 73
[147] = Total utilization 73
[148] = Net utilization 74
[149] = Total utilization 74
[150] = Net utilization 75
[151] = Total utilization 75
[152] = Net utilization 76
[153] = Total utilization 76
[154] = Net utilization 77
[155] = Total utilization 77
[156] = Net utilization 78
[157] = Total utilization 78
[158] = Net utilization 79
[159] = Total utilization 79
[160] = Net utilization 80
[161] = Total utilization 80
[162] = Net utilization 81
[163] = Total utilization 81
[164] = Net utilization 82
[165] = Total utilization 82

Dependency: See also: r7901, r9976, r9979
See also: F01054

Note: The corresponding sampling times can be read out in parameter r7901.
Net utilization:
Computing time load that is only called by the sampling time involved.
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9981[0...165] Sampling times utilization measured / t_sampl util meas

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the utilizations measured for the active sampling times.

Index:
[0] = Net utilization 0
[1] = Total utilization 0
[2] = Net utilization 1
[3] = Total utilization 1
[4] = Net utilization 2
[5] = Total utilization 2
[6] = Net utilization 3
[7] = Total utilization 3
[8] = Net utilization 4
[9] = Total utilization 4
[10] = Net utilization 5
[11] = Total utilization 5
[12] = Net utilization 6
[13] = Total utilization 6
[14] = Net utilization 7
[15] = Total utilization 7
[16] = Net utilization 8
[17] = Total utilization 8
[18] = Net utilization 9
[19] = Total utilization 9
[20] = Net utilization 10
[21] = Total utilization 10
[22] = Net utilization 11
[23] = Total utilization 11
[24] = Net utilization 12
[25] = Total utilization 12
[26] = Net utilization 13
[27] = Total utilization 13
[28] = Net utilization 14
[29] = Total utilization 14
[30] = Net utilization 15
[31] = Total utilization 15
[32] = Net utilization 16
[33] = Total utilization 16
[34] = Net utilization 17
[35] = Total utilization 17
[36] = Net utilization 18
[37] = Total utilization 18
[38] = Net utilization 19
[39] = Total utilization 19
[40] = Net utilization 20
[41] = Total utilization 20
[42] = Net utilization 21
[43] = Total utilization 21
[44] = Net utilization 22
[45] = Total utilization 22
[46] = Net utilization 23
[47] = Total utilization 23
[48] = Net utilization 24
[49] = Total utilization 24
[50] = Net utilization 25
[51] = Total utilization 25
[52] = Net utilization 26
[53] = Total utilization 26
[54] = Net utilization 27
[55] = Total utilization 27
[56] = Net utilization 28
[57] = Total utilization 28
[58] = Net utilization 29
[59] = Total utilization 29
[60] = Net utilization 30
[61] = Total utilization 30
[62] = Net utilization 31
[63] = Total utilization 31
[64] = Net utilization 32
[65] = Total utilization 32

[66] = Net utilization 33
[67] = Total utilization 33
[68] = Net utilization 34
[69] = Total utilization 34
[70] = Net utilization 35
[71] = Total utilization 35
[72] = Net utilization 36
[73] = Total utilization 36
[74] = Net utilization 37
[75] = Total utilization 37
[76] = Net utilization 38
[77] = Total utilization 38
[78] = Net utilization 39
[79] = Total utilization 39
[80] = Net utilization 40
[81] = Total utilization 40
[82] = Net utilization 41
[83] = Total utilization 41
[84] = Net utilization 42
[85] = Total utilization 42
[86] = Net utilization 43
[87] = Total utilization 43
[88] = Net utilization 44
[89] = Total utilization 44
[90] = Net utilization 45
[91] = Total utilization 45
[92] = Net utilization 46
[93] = Total utilization 46
[94] = Net utilization 47
[95] = Total utilization 47
[96] = Net utilization 48
[97] = Total utilization 48
[98] = Net utilization 49
[99] = Total utilization 49
[100] = Net utilization 50
[101] = Total utilization 50
[102] = Net utilization 51
[103] = Total utilization 51
[104] = Net utilization 52
[105] = Total utilization 52
[106] = Net utilization 53
[107] = Total utilization 53
[108] = Net utilization 54
[109] = Total utilization 54
[110] = Net utilization 55
[111] = Total utilization 55
[112] = Net utilization 56
[113] = Total utilization 56
[114] = Net utilization 57
[115] = Total utilization 57
[116] = Net utilization 58
[117] = Total utilization 58
[118] = Net utilization 59
[119] = Total utilization 59
[120] = Net utilization 60
[121] = Total utilization 60
[122] = Net utilization 61
[123] = Total utilization 61
[124] = Net utilization 62
[125] = Total utilization 62
[126] = Net utilization 63
[127] = Total utilization 63
[128] = Net utilization 64
[129] = Total utilization 64
[130] = Net utilization 65
[131] = Total utilization 65

[132] = Net utilization 66
[133] = Total utilization 66
[134] = Net utilization 67
[135] = Total utilization 67
[136] = Net utilization 68
[137] = Total utilization 68
[138] = Net utilization 69
[139] = Total utilization 69
[140] = Net utilization 70
[141] = Total utilization 70
[142] = Net utilization 71
[143] = Total utilization 71
[144] = Net utilization 72
[145] = Total utilization 72
[146] = Net utilization 73
[147] = Total utilization 73
[148] = Net utilization 74
[149] = Total utilization 74
[150] = Net utilization 75
[151] = Total utilization 75
[152] = Net utilization 76
[153] = Total utilization 76
[154] = Net utilization 77
[155] = Total utilization 77
[156] = Net utilization 78
[157] = Total utilization 78
[158] = Net utilization 79
[159] = Total utilization 79
[160] = Net utilization 80
[161] = Total utilization 80
[162] = Net utilization 81
[163] = Total utilization 81
[164] = Net utilization 82
[165] = Total utilization 82

Dependency: See also: r7901, r9975, r9980
See also: F01054

Note: The corresponding sampling times can be read out in parameter r7901.
Net utilization:
Computing time load that is only called by the sampling time involved.
Total utilization:
Computing time load of sampling time involved including load from higher-priority sampling times (interrupts).

r9982[0...4] Data memory utilization / Mem_util dat_mem

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the calculated data memory utilization rates based on the existing target topology.

Index: [0] = Fast data memory 1
[1] = Fast data memory 2
[2] = Fast data memory 3
[3] = Fast data memory 4
[4] = Reserved

Dependency: See also: F01068

r9983[0...4] Measured data memory utilization (actual load) / Mem_ut dat_mem ms

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the measured data memory utilization rates based on the existing target topology.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

Dependency: See also: F01068

r9984[0...4] Data memory utilization TEC / Data mem util TEC

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the data memory utilization as a result of Technology Extensions.

Index:
[0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Reserved

Dependency: See also: F01068

Note: TEC: Technology Extension

r9986[0...7] DRIVE-CLiQ system load / DQ system load

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ system utilization based on the existing target topology.
The values are only available in the "Initialization finished" state (r3988 = 800).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

r9987[0...7] DRIVE-CLiQ bandwidth load / DQ bandw load

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ bandwidth utilization based on the existing target topology.
The values are only available in the "Initialization finished" state (r3988 = 800).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

r9988[0...7] DRIVE-CLiQ DPRAM load / DQ DPRAM load

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the calculated DRIVE-CLiQ DPRAM load based on the existing target topology.
The values are not made available until the RUNUP READY (800) state is adopted (see p3988).
Index 0 ... 7 corresponds to DRIVE-CLiQ socket X100 ... X107.

Dependency: See also: F01340

p9990 DO memory usage actual value determination selection / Mem_use ActVal sel

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	65535	0

Description: The meaning of the parameter differs for reading and writing.
Read:
- Returns the number of memory areas monitored.
Write:
- Memory usage of a drive object: Enter drive object number
- Memory usage of the complete system: Enter value 65535

r9991[0...4] Memory usage drive object actual value / Mem_use DO ActVal

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the memory usage for each drive object as actual value.

Index: [0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9992[0...4] Memory usage drive object reference value / Mem_use DO ref val

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the memory usage for each drive object as reference value.

Index: [0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

r9993[0...4] Memory utilization Technology Extension / Mem_util TEC

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the memory usage of a Technology Extension.

Index: [0] = Fast Memory 1
[1] = Fast Memory 2
[2] = Fast Memory 3
[3] = Fast Memory 4
[4] = Heap

Note: TEC: Technology Extension

r9999[0...99] Software error internal supplementary diagnostics / SW_err int diag

CU_DC_S, CU_DC_R_S, CU_DC, CU_DC_R

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Diagnostics parameter to display additional information for internal software errors.

Note: Only for internal Siemens troubleshooting.

p60000 PROFIdrive reference speed / PD n_ref

DC_CTRL_S, DC_CTRL_R_S, DC_CTRL, DC_CTRL_R

Can be changed: T	**Calculated:** CALC_MOD_ALL	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: Communications	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
6.00 [rpm]	210000.00 [rpm]	210000.00 [rpm]

Description: Sets the reference quantity for speed.
The reference quantity corresponds to 100% or 4000 hex (word) or 4000 0000 hex (double word).

Dependency: See also: p2000

Note: Parameter p60000 is an image of parameter p2000 in conformance with PROFIdrive.
A change always effects both parameters.

r61000[0...239] PROFINET Name of Station / PN Name of Station

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 2410
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays PROFINET Name of Station.

Notice: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r61001[0...3] PROFINET IP of Station / PN IP of Station

CU_DC_S (PN CBE20), CU_DC_R_S (PN CBE20), CU_DC (PN CBE20), CU_DC_R (PN CBE20)

Can be changed: -
Data type: Unsigned8
P group: -
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 3
Function diagram: 2410
Unit selection: -
Expert list: 1
Factory setting:
-

Description: Displays PROFINET IP of Station.

Product: SINAMICS DC MASTER OA, Version: 1503000, Language: eng
Objects: DC_CTRL

r50000 Operating display / Op_display

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651, 6905
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description:

o0.0 No torque direction switched on
o0.1 Torque direction I switched on
o0.2 Torque direction II switched on
o0.9 Wait for enable from master
o1.0 Wait time for brake opening time running
o1.1 Wait for operating enable at terminal 13
o1.2 Wait for operating enable (signal source according to p0852) - or for the
"Close brake" command to be withdrawn (signal source according to p0858)
o1.3 Wait time running after withdrawing an OFF command (jogging, OFF1, OFF3)
o1.4 Wait for field reversal to be implemented or for "Braking by field reversal" to be withdrawn
o1.5 Wait for operating enable from the optimization run
o1.6 Wait for withdrawal of the immediate pulse inhibit (signal source acc. to p50177)
o1.7 Wait until SINAMICS DCMs connected in parallel are in status o0
o1.8 Wait until the power unit topology has been switched over
o2.0 Wait for setpoint |r52193| >= p50091[1]
o3.0 Wait for the thyristor check to be completed
o3.1 Wait for the line symmetry check to be completed
o3.2 Wait for a DC contactor to pick up
o3.3 Wait for the feedback signal, "Line contactor" (signal source acc. to p50691)
o4.0 Wait for voltage at power connections 1U1, 1V1, 1W1
o4.1 Wait for fuse monitoring to signal OK
o4.5 Wait for precharging of the CCP's chopper capacitors to be completed
o5.0 Wait until the field current actual value r52265 is > p50396 and until "I_field ext > If_min" (see p50265)
o5.1 Wait for voltage at power connections 3U1, 3W1
Note:
A specific time, which can be set in p50089, represents the maximum wait time in states o4 and o5 combined. If, after this time, the relevant conditions have still not been met, the corresponding error message will be triggered.
o6.0 Wait for the auxiliaries to power up (wait time p50093)
o6.1 Wait for a setpoint <= p50091[0] at RFG input (p52193)
o7.0 Wait for switch-on via terminal 12
o7.1 Wait for switch-on (signal source according to p0840)
o7.2 Wait for the "Braking by field reversal" command to be withdrawn
o7.3 Wait for parallel master to switch on
o7.4 Optimization run executes pre-work/post-work
o7.5 Wait until the SINAMICS DCM devices connected in parallel are ready to be switched on
o7.6 Wait for "Load MLFB" to be completed (carried out by manufacturer prior to delivery)
o8.0 Wait for closing lockout to be acknowledged
o8.1 Simulation mode active (see p51840)
o9.1 Quick stop (OFF3) (signal source acc. to p0848) present
o9.2 Quick stop (OFF3) (signal source acc. to p0849) present
o10.1 Voltage disconnect (OFF2) (signal source acc. to p0844) pending
o10.2 Voltage disconnect (OFF2) (signal source acc. to p0845) pending
o10.3 E stop (safety shutdown) (terminal 105/106) pending
o10.6 CUD right

o11.0 Fault
o12.0 Initializ. of line voltage sensing for field in progress
o12.1 Initializ. of line voltage sensing for armature in progr.
o12.3 Read out data from gating modules (armature and field)
o12.4 Offset calibr. of curr. act. val. sensing being performed
o12.5 Read out data from the power unit
o12.6 Wait for second processor (TMS320) to go into normal operation

r50012 Motor temperature / Mot temp

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8030
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [°C]	- [°C]	- [°C]

Description: Displays the motor temperature.
The temperature sensor is connected via terminal X177.53/54/55 of the CUD.

Dependency: The temperature value is only displayed when using one of the following temperature sensors:
- KTY84 (p50490 = 1): measuring range = -40 °C to +300 °C
- PT100 (p50490 = 6): measuring range = -200 °C to +300 °C
- NTC thermistor K227 (p50490 = 7): measuring range = +85 °C to +200 °C
- PT1000 (p50490 = 8): measuring range = -200 °C to +300 °C

See also: p50490, r52051

Note: If p50490 = 0, 2 to 5, a value of 0 is displayed.

r50013[0...4] Temperature sensor/Module / Temp sensor/Mod

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8048
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [°C]	- [°C]	- [°C]

Description: Displays the temperature of the various temperature sensors for device and modules.

Index: [0] = Temperature sensor 1
[1] = Temperature sensor 2
[2] = Temperature sensor 3
[3] = Gating module temperature
[4] = CUD Control Unit temperature

Note: Temperature sensors which are not in use return a high negative value (approx. -200 °C).

r50014[0...1] Temperature rises calculated / Temp rise calc

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8038, 8042
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Displays the values calculated for the temperature rise of the motors and the thyristors.

Index: [0] = Motor temperature rise
[1] = Thyristor temperature rise

Dependency: See also: p50075, r52310

r50015 Armature circuit rms value of phase-to-phase line voltage / Arm cct V_line rms

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the phase-to-phase line voltage in the armature circuit (rms value).

r50016 Field circuit line voltage rms value / F cct V_line rms

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the line voltage in the field circuit (rms value).

r50017[0...1] Line frequency / f_line

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6854, 6950, 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Hz]	- [Hz]	- [Hz]

Description: Displays the line frequency in the armature circuit/field circuit.

Index: [0] = Armature circuit
[1] = Field circuit

r50018 Armature firing angle / Arm fir angle

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [°]	- [°]	- [°]

Description: Displays the firing angle on the armature circuit.

r50019 Armature current actual value / Arm I_act

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the internal signed current actual value in the armature circuit.
The value is averaged over 6 cycles.

Note: This parameter is referred to the rated motor current.
The following applies:
100 % corresponds to p50100[ii], were ii = active DDS

r50020 Closed-loop armature current control motor current set abs value / Ia ctr I_set abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the absolute value of the motor current setpoint.

Note: This parameter is referred to the rated motor current.
The following applies:
100 % corresponds to p50100[ii], were ii = active DDS

r50021 Torque limiting torque setpoint after limiting / Tqe set after lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the torque setpoint after limiting.

Note: 1 corresponds to 0.1% of the rated torque of the motor.

r50022 Torque limiting torque setpoint before limiting / Tqe set bef lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the torque setpoint before limiting.

Note: 1 corresponds to 0.1% of the rated torque of the motor.

r50025 Speed controller actual value selection / Act sel

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the selected speed actual value on the speed controller.

r50028 Speed setpoint before the ramp-function generator display / n_set bef RFG disp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2000	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [rpm]	- [rpm]	- [rpm]

Description: Displays the speed setpoint before the ramp-function generator.

Dependency: See also: r52193

r50029 Speed setpoint AOP30 display / n_set AOP30 disp

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [rpm]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: p2000
Max:
- [rpm]

Access level: 1
Function diagram: 3113
Unit selection: -
Expert list: 1
Factory setting:
- [rpm]

Description: Displays the speed setpoint from the Advanced Operator Panel 30 (AOP30).

r50030[0...3] CO: Device fan speed / Dev fan n

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [rpm]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [rpm]

Access level: 1
Function diagram: 8047
Unit selection: -
Expert list: 1
Factory setting:
- [rpm]

Description: Displays the speed of the device fan.

Index:
[0] = Fan 1 speed
[1] = Fan 2 speed
[2] = Fan 3 speed
[3] = Fan 4 speed

Dependency: See also: p50082, p50096
See also: F60167

Note: The following options are available, dependent upon the power unit used:
- No fans
- 2 DC fans
- 1 AC fan
- 2 AC fan
- 2 AC fans + 1 DC fan

r50033 Field voltage actual value / Uf act val

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [V]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [V]

Access level: 1
Function diagram: 6952
Unit selection: -
Expert list: 1
Factory setting:
- [V]

Description: Displays the actual value of the field voltage.

r50034 Field firing angle / Field fir angle

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [°]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [°]

Access level: 1
Function diagram: 6915
Unit selection: -
Expert list: 1
Factory setting:
- [°]

Description: Displays the firing angle on the field circuit.

r50035 Field current controller actual value / I_field ctr act

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
- [%]

Access level: 1
Function diagram: 6910
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Displays the actual value on the field current controller.

r50036 Field current controller setpoint / I_field ctr set

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [%]

Access level: 1
Function diagram: 6910
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Displays the setpoint value on the field current controller.

r50037 EMF actual value / EMF act

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [V]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [V]

Access level: 1
Function diagram: 6902
Unit selection: -
Expert list: 1
Factory setting:
- [V]

Description: Displays the EMF actual value.

r50038 Armature voltage actual value / Ua act

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [V]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [V]

Access level: 1
Function diagram: 6902
Unit selection: -
Expert list: 1
Factory setting:
- [V]

Description: Displays the actual value of the armature voltage.

r50039 Motor EMF setpoint / Mot EMF set

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [V]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
- [V]

Access level: 1
Function diagram: 6900
Unit selection: -
Expert list: 1
Factory setting:
- [V]

Description: Displays the EMF setpoint calculated from the motor data.

r50047[0...31] Faults additional information / Fault add info

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays more detailed information about faults which have occurred with numbers 60000 and higher.
[0] = Fault value
[1] = Additional information about the most recent fault which occurred (see corresponding fault)
...
[29] = Additional information about the most recent fault which occurred (see corresponding fault)
[30] = software version (internal like parameter r50060[1] or r7844[0])
[31] = Fault number

p50051 Optimization run selection / Opt run sel

DC_CTRL

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2660
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	30	0

Description: Setting to select the optimization run for the next ON command.

Value:
0: No optimization run
23: Armature current control (for inductive loads)
24: Closed-loop field current control
25: Closed-loop armature current control
26: Closed-loop speed control and moment of inertia
27: Field weakening control
28: Friction compensation
29: Torsion optimization
30: CCP (Converter Commutation Protector)

Notice: If value = 30:
The CCP optimization run does not require a switch-on command and is directly started when selecting the value.

Note: Only a value of 0 can be set at the right-hand CUD.
A value not equal to 0 can only be set in the operating states o7.0 and o7.1 if an optimization run is presently not active.
If value = 0:
No optimization run has been selected.
If value = 23:
Optimization run for pre-control and the current controller for the armature converter (for inductive loads).
If value = 24:
Optimization run for pre-control and the current controller for the field converter.
If value = 25:
Optimization run for pre-control and the current controller for the armature converter.
If value = 26:
Optimization run for the speed controller and moment of inertia.
If value = 27:
Optimization run for field weakening.
If value = 28:
Optimization run for friction compensation.
If value = 29:
Optimization run for speed controllers and moment of inertia for drives that are capable of oscillation.
If value = 30:
Optimization run for CCP (Converter Commutation Protector).

r50052 Optimization run status / Opt run status

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2660
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	701	-

Description: Displays the status during the optimization run.

Value:

0: No optimization run
1: Wait for operating state 7.4
2: Check prerequisites
3: Save original interconnection
4: Interconnect optimization parameters
5: Wait for operating state 0.x or 1.5
6: Set optimized parameter values
7: Wait for operating state 8.0
8: Troubleshooting
9: Exit optimization run
101: Set field current to 100%
102: Measure field circuit resistance
103: Measure field circuit inductance
201: Wait for field decay
202: Set armature current to 100%
203: Measure armature circuit resistance
204: Measure armature circuit inductance
301: Record speed characteristic
302: Stop motor
401: Calculate nominal EMF
402: Calculate nominal speed
403: Record field characteristic 91% field current
404: Record field characteristic 83% field current
405: Record field characteristic 76% field current
406: Record field characteristic 70% field current
407: Record field characteristic 65% field current
408: Record field characteristic 60.5% field current
409: Record field characteristic 56.5% field current
410: Record field characteristic 53% field current
411: Record field characteristic 50% field current
412: Record field characteristic 47% field current
413: Record field characteristic 44% field current
414: Record field characteristic 41% field current
415: Record field characteristic 38% field current
416: Record field characteristic 35% field current
417: Record field characteristic 32% field current
418: Record field characteristic 29% field current
419: Record field characteristic 26% field current
420: Record field characteristic 23% field current
421: Record field characteristic 20% field current
422: Record field characteristic 17% field current
423: Record field characteristic 14% field current
424: Record field characteristic 11% field current
425: Record field characteristic 8% field current
426: Recording of field characteristic is complete
501: Wait for field to build up
502: Recording the friction characteristic - 10% rated speed
503: Recording the friction characteristic - 20% rated speed
504: Recording the friction characteristic - 30% rated speed
505: Recording the friction characteristic - 40% rated speed
506: Recording the friction characteristic - 50% rated speed
507: Recording the friction characteristic - 60% rated speed
508: Recording the friction characteristic - 70% rated speed
509: Recording the friction characteristic - 80% rated speed
510: Recording the friction characteristic - 90% rated speed
511: Recording the friction characteristic - 100% rated speed
701: Calculation is carried out

r50060[0...14] Software version / SW version

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the existing software versions.

Index:
[0] = Complete device version external
[1] = Complete device version internal
[2] = DSAC Bootloader Version
[3] = BIOS version
[4] = Configuration EEPROM version
[5] = Base system version
[6] = DC MASTER version
[7] = TMS version
[8] = TMS image version
[9] = TMS bootloader version
[10] = TMS bootloader image version
[11] = Powerstack properties version
[12] = In-plant information
[13] = DCC version
[14] = FBLOCKS version

Note: Some of these software versions are also displayed at other parameters.
Index 0 <--> r7844[1]
Index 1 <--> r7844[0]
Index 2 <--> r0197
Index 5 <--> r0018
Index 6, 13, 14 <--> r4957[x]

r50063[0...1] CUD information / CUD info

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8054
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays information about the Control Unit DC MASTER (CUD).

Index:
[0] = CUD position
[1] = CUD variant

Note: For index [0]:
Indicates the position of the Control Unit DC MASTER (CUD) in the device.
- Value = 0: CUD is installed on the left.
- Value = 1: CUD is installed on the right.
For index [1]:
Indicates the variant of the Control Unit DC MASTER (CUD).
- Value = 0: CUD is the "Standard" version.
- Value = 1: CUD is the "Advanced" version.

p50066 Power unit I2t monitoring derating factor K1 limit value / PU fact K1 lim val

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 8042
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.50	1.00	0.50

Description: Sets the limit value for derating factor K1 (thermal power reduction factor).
This limit value is necessary for devices with option L99.
If this limit value is fallen below, then an appropriate alarm is output.

Dependency: See also: A60082

Note: The derating factor K1 should be taken from the following reference:
SINAMICS DCM Operating Instructions - Chapter "Sensor for ambient or air intake temperature"

p50067 Load class / Load class

DC_CTRL

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 6960
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	5	1

Description: Load class setting.
Dependent upon the selected load class, the device's rated direct current is reduced to a value which will vary according to power unit and load class.
The current value of the device's rated direct current is displayed via r50072[1].

Value:
1: DC I
2: DC II
3: DC III
4: DC IV
5: US rating

Note: If the device's rated direct current is also reduced via p50076[0], the smaller of the two values will be applied.
If p50067 is set to a value > 1, you must ensure that the "dynamic overload capability of the power unit" is enabled (in other words, a value > 0 must be set in p50075).
The device does not check for compliance with the load class set in p50067. If the power unit is able to tolerate it, the device can run at overload for longer than is permitted by the load class.
The actual permissible overload duration for each power unit is always longer than the overload duration permitted by the load class. The device checks for compliance with the overload duration actually permitted by the power unit.

r50068[0...95] Power unit nameplate options / PU options

DC_CTRL

Can be changed: - | **Calculated:** - | **Access level:** 1
Data type: Unsigned8 | **Dyn. index:** - | **Function diagram:** 6960
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the options according to the power unit's nameplate.

Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50069[0...31] Power unit serial number / PU ser no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the serial number of the power unit.

Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50070[0...31] Power unit article number / PU article no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the article number (MLFB) of the power unit.

Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50071 Device rated line-side voltage armature / Device Ua_rated

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the device rated line-side voltage for the armature as indicated on the device's nameplate.

r50072[0...1] Device rated direct current armature / Device Ia rated

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6800, 6825, 6830, 6840, 6850, 6851, 6855, 6910, 6960, 6965, 8038, 8040, 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [A]	- [A]	- [A]

Description: Displays the device rated direct current (armature).

Index: [0] = Device rated direct current armature or power unit (CM)
[1] = Reduced rated direct current armature

Dependency: See also: p51822

Note: For index [0]:
Device rated direct current (armature) as indicated on the device rating plate - or for the Control Module, corresponding to the value in parameter p51822.
For index [1]:
Actual device rated direct current (armature) according to the setting in parameter p50076[0] or p50067.
Also see the note for parameter p50076[0].

r50073[0...1] Device rated direct current field / Device If_rated

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900, 6905, 6910, 6912, 6960, 8044
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [A]	- [A]	- [A]

Description: Displays the device rated direct current (field).

Index: [0] = Device rated direct current field
[1] = Reduced rated direct current field

Note: When using an external field device (p50082 > 20) the rated device DC field current is taken from the value set in p51838.

For index [0]:

Device rated direct current (field) as indicated on the device's nameplate (output direct current at power connections 3C and 3D).

For index [1]:

Actual device rated direct current (field) according to the setting in parameter p50076[1].

r50074 Device rated line-side voltage field / V_rated field

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [Vrms]	- [Vrms]	- [Vrms]

Description: Displays the device rated line-side voltage for the field as indicated on the device's nameplate.

p50075 Power unit I2t monitoring response / PU I2t mon resp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the response for I2t monitoring of the power unit.

Value:
0: Dynamic overload not permitted
1: Dynamic overload possible, A60039
2: Dynamic overload possible, F60139

Note: If value = 0:

Dynamic overload capability is not permissible. The armature current setpoint (r52133) is limited to p50077 * r50072[1].

A value of 0 can only be set, if p50067 = 1.

If value = 1:

Dynamic overload capability is permissible. As long as the calculated temperature rise of the thyristors does not exceed the permissible value, the armature current setpoint is limited to the value p50077 * r50072[1] * 180%.

If the permissible value is exceeded, the device will protect itself by reducing the current limit to p50077 * r50072[1]. Alarm A60039 is triggered at the same time.

The armature current setpoint limit will only be increased back to the value p50077 * r50072[1] * 180% and alarm A60039 will only disappear once the calculated temperature rise of the thyristors falls back below the permissible value and the armature current setpoint is less than the device rated current r50072[1].

If value = 2:

Dynamic overload capability is permissible. If the calculated temperature rise of the thyristors exceeds the permissible value, the drive will be shut down with fault F60139.

p50076[0...1] Device rated direct current reduction / Device I_rated red

DC_CTRL

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6850, 6960
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
1.0 [%]	100.0 [%]	100.0 [%]

Description: Sets the reduction of the device rated direct current for armature and field.
The device rated direct current is reduced to the value set here to better adapt the device to the motor.

Index: [0] = Armature
[1] = Field

Note: - If a load class has been set in parameter p50067 which reduces the device rated direct current, the smaller of the two values will be applied.
- The value set in index 0 (armature) results in a hardware-based adaption of the current actual value sensing gain. This can only be adapted in a discrete stages. As a consequence, the value set here is not precisely effective, but the next possible value. The actually effective rated device current can be seen in parameter r50072[1].
The following applies:
r50072[1] = K * r50072[0]
K = A/255
A = p50076[0] * 255/100 (rounded to the next lower integer number)

p50077 Power unit I2t monitoring derating factor / PU I2t mon derat

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6840, 8042
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.50	1.00	1.00

Description: Sets the derating factor for I2t monitoring of the power unit.

Note: Derating is required in the following cases:
- Operation at increased ambient temperature
- Installation altitude more than 1000 m above sea level
The derating factor should be taken from the following reference:
SINAMICS DCM Operating Instructions - Chapter "Derating" and "Sensor for ambient or air intake temperature"

p50078[0...1] Supply voltage rated value / V_supp rated val

DC_CTRL

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6855, 6900, 6902, 6950, 6952, 6960
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
10 [Vrms]	2000 [Vrms]	400 [Vrms]

Description: Sets the rated value of the supply voltage for armature and field.
This parameter should be used to set the rated voltage value of the actual line used to supply power to the power unit.

Index: [0] = Armature 1U1/1V1/1W1
[1] = Field 3U1/3W1

Note: This value is the reference value for the following parameters:
p50351, p50352, p50353
r52285 to r52289, r52291, r52292, r52301, r52302, r52303, r52305
For index [0]:
Only values less than r50071 can be set.
For index [1]:
Only values less than r50074 can be set.

p50079 Armature gating unit short pulses/long pulses / Arm sh/lg pulse

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the short pulses/long pulses on the armature gating unit.
Value = 0:
The gating unit emits short pulses (0.89 ms = approx. 16 degrees at 50 Hz).
Value = 1:
The gating unit emits long pulses (pulse duration up to approx. 0.1 ms before the next pulse) (e.g. required in the case of field infeed from the armature terminals).

Value:
0: Short pulses
1: Long pulses

p50080 Brake control braking mode / Brake ctr mode

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2750
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the braking mode for brake control.

Value:
0: No brake
1: Holding brake
2: Operational brake

Dependency: See also: p50370, p50371

Note: If p50080 = 1 (holding brake):
If the "Enable operation" command is withdrawn or the "Disconnect voltage" or "E-stop" command is set, the "Close brake" command will not be set until "n < n_min" is reached.
If p50080 = 2 (operational brake):
If the "Enable operation" command is withdrawn or the "Disconnect voltage" or "E-stop" command is set, the "Close brake" command will be set immediately (in other words, even if the motor is still running).

p50081[0...n] Field weakening activation / Field weak act

DC_CTRL

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the activation/de-activation of EMF-dependent field weakening.

Value:
0: Deactivated
1: Activated

Notice: When field weakening is active (p50081 = 1), a valid field characteristic must be available (p50117 = 1); if not, the optimization run for field weakening (p50051 = 27) must be performed.

p50082 Field power unit operating mode / Field PU op mode

DC_CTRL

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6910, 8044, 8047
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	24	2

Description: Sets the operating mode for the field power unit.

If p50082 = 1, 2, 3, 4, the motor flux is calculated according to the field characteristic (p50120 to p50139) as a function of the field current actual value (r52265).

Value:

0: No field
1: Field switched with line contactor
2: Standstill field for >= o7.0
3: Field continuously active
4: Field switched with Auxiliaries ON signal
21: External field device, otherwise same as position 1
22: External field device, otherwise same as position 2
23: External field device, otherwise same as position 3
24: External field device, otherwise same as position 4

Dependency: See also: r50073, p50076, p50258, p50265, p50612, p51838, r52265, r52268, r52290

Notice: Although it is permissible for the parameter to be changed to values not equal to 0 in operating states o1.0, such changes will not be applied until operating states greater than or equal to o7.0.

Note: If an external field device is used, the setpoint comes from r52268 (e.g. via an analog output or over the peer-to-peer interface).

The rated direct current of the external field device should be set in p51838. This value is also displayed in r50073[1]. p50076[2] is redundant.

If the external field device sends a field current actual value signal, this should be fed in via p50612. If the external field device is not able to send a field current actual value signal, p50263 should be set to a value of 1 or 2.

If the external field device sends an I_field < I_field_min signal, this can be fed in at injection point p50265.

If p50082 = 0:

- No field is used (e.g. in the case of permanent-magnet motors). The field firing pulses are disabled. The motor flux is set to the value for 100% rated flux.

If p50082 = 1:

- Internal field power unit. The line supplies for the field and armature sections are connected or disconnected simultaneously. The field firing pulses are enabled/disabled at the same time as the line contactor closes/opens; the field current decays with the field time constant during freewheeling.

If p50082 = 2:

- Internal field power unit. Automatic injection of standstill field set in p50257 after expiry of a period of time set in p50258 once operating state o7 or higher has been reached.

If p50082 = 3:

- Internal field power unit. The field is active continuously.

If p50082 = 4:

- Internal field power unit. The field is switched together with the Auxiliaries ON signal (p53210.2).

If p50082 = 21:

- External field device. The field is controlled in the same way as with p50082 = 1.

If p50082 = 22:

- External field device. The field is controlled in the same way as with p50082 = 2.

If p50082 = 23:

- External field device. The field is controlled in the same way as with p50082 = 3.

If p50082 = 24:

- External field device. The field is controlled in the same way as with p50082 = 4.

p50083[0...n] Speed controller actual value selection / n_ctr act sel

DC_CTRL

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	5	0

Description: Selection of the speed actual value.

Value:
0: Selection de-activated
1: Analog tachometer
2: Pulse encoder
3: EMF actual value internal
4: Free interconnection using p50609
5: DRIVE-CLiQ encoder

Dependency: See also: p50115, p50609

Alarm: If value = 3:

⚠ Monitoring for overspeed is only active subject to restrictions since if the EMF is used as the speed actual value with a field current actual value which is too low, very high motor speeds will be reached.

Note: If value = 3:

The EMF actual value is evaluated with p50115.

p50084 Closed-loop speed control/Closed-loop current/torque control sel / n/I/tqe ctr sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6810, 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	2	1

Description: Sets closed-loop speed control or closed-loop current/torque control.

Value:
1: Closed-loop speed control
2: Closed-loop current/torque control

Note: If value = 2:

The setpoint provided by the RFG output is set as the current/torque setpoint and the speed controller is bypassed.

p50085[0...3] Sequence control line contactor OFF delay / Seq ctrl MC delay

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	60.0 [s]	[0] 10.0 [s] [1] 0.0 [s] [2] 0.0 [s] [3] 0.0 [s]

Description: Sets the switch-off delay time for the main contactor.

Index:
[0] = OFF delay jogging
[1] = OFF delay OFF1
[2] = Reserved
[3] = OFF delay OFF3

Note: For index [0]:

When withdrawing "Jog", the drive brakes down to n_min (p50370, p50371). Then time p50085[0] starts to run. The main contactor is opened after the delay time has expired. During the delay time, the drive remains in operating state o1.3.

For index [1]:

After OFF1, the drive brakes down to n_min (p50370, p50371). Then time p50085[1] starts to run. The main contactor is opened after the delay time has expired. During the delay time, the drive remains in operating state o1.3.

After the delay time has elapsed, the drive switches into operating state o7,

For index [2]:

Reserved

For index [3]:

After a quick stop (OFF3), the drive brakes down to n_min (p50370, p50371). Then time p50085[3] starts to run. The main contactor is opened after the delay time has expired. During the delay time, the drive remains in operating state o1.3.

After the delay time has elapsed, the drive switches into operating state o9,

p50086 Sequence control line voltage failure duration permissible / V_line_fail t perm

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	10.00 [s]	0.00 [s]

Description: Sets the permissible duration of a line voltage failure.

If a line voltage failure lasts longer than this time, the corresponding fault will be triggered.

If the line voltage failure is shorter than the set time, a restart will follow automatically.

Dependency: See also: F60004, F60005, F60006, F60007, F60008, F60009

Caution: The value in p50090 must be smaller than that in p50086 (unless for a value = 0.0) and in p50089!

p50087 Brake control brake opening time / Br ctr t open

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2750
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-10.00 [s]	10.00 [s]	0.00 [s]

Description: Sets the brake opening time

When "Open brake" is sent, the firing pulse enable is delayed by this time.

Note: For a negative time setting:

With "Open brake", a delay corresponding to the set time is applied in relation to the enable for the firing pulses for the thyristors. During this time, the motor works in opposition to the brake, which is still closed. This is useful, for example, in the cases of suspended loads.

For a positive time setting:

When the "Switch on", "Jog" or "Creep" command is sent with operation enabled, the firing pulses for the thyristors are not enabled until the set time has elapsed. During this time, the drive is in operating state o1.0 to give a holding brake the opportunity to open in advance.

p50088 Brake control brake closing time / Br ctr t close

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2750
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [s]	10.00 [s]	0.00 [s]

Description: Sets the brake closing time.
When "Close brake" is sent, the firing pulse inhibit is delayed by this time.

Note: During this time, the drive is in operating state o1.1, o1.2, or o1.0 and is still applying torque.

p50089 Sequence control voltage at power unit wait time / S ctr V at PU t

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2651
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [s]	60.00 [s]	2.00 [s]

Description: Sets the wait time for voltage and field current at the power unit.
Once the line contactor has dropped out and the "Switch on", "Jog" or "Creep" commands have been sent, in operating states o4 and o5, the drive waits for voltage at the power unit and for a field current actual value (r52265) > 50% of the field current setpoint (r52268).
If, during this time, no voltage is detected at the power unit and the field current is missing, a message is output accordingly.

Dependency: See also: p50353

Caution: The value in p50090 must be smaller than that in p50086 (unless p50086 = 0.0) and p50089!

Note: This parameter indicates the total wait times during which the drive must pass through operating states o4 and o5 (response threshold for monitoring for the presence of voltage at the power unit, see p50353).

p50090 Line voltage stabilization time / V_line t_stabil

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6950, 6952
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [s]	1.00 [s]	0.05 [s]

Description: Sets the line voltage stabilization time.

Caution: The value in p50090 must be smaller than that in p50086 (unless p50086 = 0.0) and p50089!

Note: When the "Switch on", "Jog" or "Creep" command is sent and also after a phase failure affecting the line infeed has been detected with the "Automatic restart" function parameterized (p50086 > 0), the drive waits in operating state o4 for voltage at the power unit.
If amplitude, frequency and phase symmetry remain within the permissible tolerance for longer than this set stabilization time, line voltage is assumed to be present at the power connections.

p50091[0...1] Sequence control setpoint threshold / S ctr set thresh

DC_CTRL

Can be changed: U, T
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 2650, 2651
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
0.00 [%]
Max:
200.00 [%]
Factory setting:
[0] 200.00 [%]
[1] 0.00 [%]

Description: Sets the thresholds for "Switch on only with low setpoint" and "Automatic pulse inhibit with low setpoint".

Index: [0] = Switch on only with low setpoint
[1] = Automatic pulse inhibit with low setpoint

Dependency: See also: r52166, r52193

Note: If p50091[0]:
Switching on is possible only if a setpoint |r52193| < p50091[0] is present at the RFG input.
If a higher setpoint is present, following activation, state o6 will remain set until |r52193| < p50091[0].
If p50091[1]:
If |r52193| and r52166 are smaller than p50091[1], the firing pulses will be inhibited and the motor will switch to state o2.0.

p50092[0...3] Field reversal wait times / Field rev t_wait

DC_CTRL

Can be changed: U, T
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6920
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
0.0 [s]
Max:
10.0 [s]
Factory setting:
[0] 3.0 [s]
[1] 0.2 [s]
[2] 0.1 [s]
[3] 3.0 [s]

Description: Sets the times to control the reversing contactor to reverse the field for a 2-quadrant device with field reversal.

Index: [0] = Field decay
[1] = Control new field contactor
[2] = Enable field firing pulses
[3] = After field build up before armature enable

Dependency: See also: p50580, p50581, p50583, r53195

Note: For index [0]:
Wait time for the field to decay before opening the actual field contactor.
When initiating an operation to reverse the field, after reaching I_Field (r52265) < I_Field_min (p50394), this wait time expires before the actual field contactor is opened.
For index [1]:
Wait time before controlling the new field contactor.
After the actual field contactor has opened, this wait time expires before the field contactor is controlled for the "new" field direction (the dropout delay time of the contactor used is generally higher than the closing delay time).
For index [2]:
Wait time before enabling the field firing pulses.
After controlling the field contactor for the "new" field direction, this wait time expires before the field firing pulses are enabled. This time must be greater than the closing delay time of the contactor being used.
For index [3]:
Wait time after the field has been re-established before the armature is enabled.
After the field firing pulses have been enabled, the field current actual value I_field in the "new" field direction reaches the value I_field (r52265) > I_field_set (r52268) * p50398/100%. This wait time then starts to run. After this expires, the internal (armature) "operating enable for field reversal" is issued, and the drive is no longer held in operating state o1.4.
After the field current has been re-established, this wait time allows the system to wait for the overshoot of the field current actual value to end and therefore the overshoot of the EMF of the DC motor before armature operation is enabled. This is intended to avoid armature overcurrents due to an excessively high EMF during an overshoot.

p50093 Sequence control line contactor ON delay / Line cont t_ON

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	120.0 [s]	0.0 [s]

Description: Sets the ON delay for the line contactor.
The switching on of the line contactor in relation to that of the auxiliaries is delayed by the time set here.

p50094 Sequence control auxiliaries OFF delay / Aux t_OFF

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	6500.0 [s]	0.0 [s]

Description: Sets the OFF delay for the auxiliaries.
The switching off of the auxiliaries in relation to that of the line contactor is delayed by the time set here.

p50095 Sequence control DC circuit contactor wait time / DC cont t_wait

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	1.00 [s]	0.00 [s]

Description: Sets the wait time for a contactor in the DC circuit.
The time set in p50095 starts to elapse during a switch-on operation when operating state o5 is reached.
If this time is still running when operating state o4 is exited, then the system stays in state o3.2 until this time lapses.

Dependency: See also: p50691

Notice: If the motor is connected to the DC current output (terminal 1C1, 1D1) via a contactor, then generally, this contactor is also controlled from the relay for the line contactor (terminals 109, 110). In this case, it must be ensured that the firing pulses are only enabled after it is completely certain that the contactor has closed. To realize this, this additional wait time is required when switching on.

Note: If the function "Feedback line contactor" is used, a change to 1 signal must be detected via p50691 within the time set in p50095. Otherwise, state o3.3 is kept until this time elapses and afterwards fault F60104 is triggered with fault value 6.

p50096 Device fan run-on time / Dev fan t_run-on

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8047
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	3600.0 [s]	240.0 [s]

Description: Sets the run-on time for the device fan(s).

After a pulse inhibit (reaching an operating state >= 0.9), the device fan(s) run-on until the power unit has cooled down and until the run-time has expired.

The power unit is considered to have been cooled down if all of the following conditions apply:

- All temperature sensors of the power unit indicate values less than 35 °C.
- The thermal model for the thyristors supplies a value of less than 5 %.
- The field current is less than 10 A.

Dependency: See also: r53135

See also: F60167

p50097 Field current response to faults / I_field resp to F

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets the response of the field current to faults.

Value:
0: Inhibit field pulses
1: Enable field pulses

Note: If value = 0:

The field pulses are inhibited when a fault occurs.

If value = 1:

The field pulses are not inhibited when a fault occurs. However, it will not be possible to increase the field current setpoint any further.

p50098 Sequence control contactor in DC circuit / Cont in DC cct

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2651, 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting for using a contactor in the DC circuit.

The value for armature voltage Ua (r50038) is always set to 0 % if p50098 = 1 and the DC circuit contactor has dropped out (r53081.0 = 0). This is because in this case the motor terminals are isolated from the output terminals 1C and 1D on the SINAMICS DC MASTER, thereby preventing the sensing of the armature voltage Ua (and thus the EMF).

Value:
0: No contactor in DC circuit
1: Contactor in DC circuit

Dependency: See also: r50037, r50038, r52123, r52286, r52287, r52291, r52292

p50099 Communication monitoring delay time / Com mon t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300, 9350
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.000 [s] | 1000.000 [s] | 10.000 [s]

Description: Sets the delay time for monitoring the communication interfaces.
Following the switching on of the electronic supply, the monitoring mechanisms for the communication interfaces in the proximity of the drive (parallel interface and peer-to-peer interface) do not become active until the delay time set here has elapsed.

Dependency: See also: r53300, r53310
See also: F60012, F60014

Note: This will prevent the interface monitoring mechanisms responding in the event of the electronic power supply to the components being switched on at different times.

p50100[0...n] Motor rated armature current / Mot rated I_armat

DC_CTRL

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6851, 8038
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [A] | 20000.0 [A] | 0.0 [A]

Description: Sets the rated armature current as indicated on the motor's nameplate.

Note: If p50100 = 0.0 A, the drive cannot be switched on and put into operation.

p50101[0...n] Motor rated armature voltage / Mot rated V_armat

DC_CTRL

Can be changed: C2(1), T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
10 [V] | 2800 [V] | 400 [V]

Description: Sets the rated armature voltage as indicated on the motor's nameplate.
This parameter is used, for example, to specify the trigger point in field weakening operation.

Note: If a significant voltage drop is to be expected at the motor's supply line when the motor is at rated current (e.g. very long motor cable), a value increased by this voltage drop should be set at p50101.

p50102[0...n] Motor rated excitation current / Mot rated I_exc

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6905
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [A] | 600.00 [A] | 0.00 [A]

Description: Sets the rated excitation current as indicated on the motor's nameplate.

Note: If p50102 = 0.00 A, the drive cannot be switched on and put into operation.

p50103[0...n] Minimum motor excitation current / Mot I_exc min

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6905
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [A]	600.00 [A]	0.00 [A]

Description: Sets the minimum excitation current for the motor.

p50104[0...n] Speed-dependent current limitation speed n1 / I_lim n_dep n1

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8040
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1 [rpm]	10000 [rpm]	5000 [rpm]

Description: Sets speed n1 according to the motor's nameplate for "speed-dependent current limitation".
The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107).
This parameter sets speed n1 for the 1st pair of values (p50104/p50105).

Dependency: See also: p50105, p50106, p50107, p50108, p50109

Note: The following condition applies:
p50104 <= p50106 (n1 <= n2)

p50105[0...n] Speed-dependent current limitation armature current I1 / I_lim n_dep I1

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8040
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.1 [A]	20000.0 [A]	0.1 [A]

Description: Sets armature current I1 according to the motor's nameplate for "speed-dependent current limitation".
The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107).
This parameter sets armature current I1 for the 1st pair of values (p50104/p50105).

Dependency: See also: p50104, p50106, p50107, p50108, p50109

Note: The following condition applies:
p50105 >= p50107 (I1 >= I2)

p50106[0...n] Speed-dependent current limitation speed n2 / I_lim n_dep n2

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8040
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1 [rpm]	10000 [rpm]	5000 [rpm]

Description: Sets speed n2 according to the motor's nameplate for "speed-dependent current limitation".
The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107).
This parameter sets speed n2 for the 2nd pair of values (p50106/p50107).

Dependency: See also: p50104, p50105, p50107, p50108, p50109

Note: The following condition applies:
p50104 <= p50106 (n1 <= n2)

p50107[0...n] Speed-dependent current limitation armature current I2 / I_lim n_dep I2

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8040
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.1 [A]	20000.0 [A]	0.1 [A]

Description: Sets armature current I2 according to the motor's nameplate for "speed-dependent current limitation".
The characteristic for "speed-dependent current limitation" is defined by 2 pairs of values (p50104/p50105, p50106/p50107).
This parameter sets armature current I2 for the 2nd pair of values (p50106/p50107).

Dependency: See also: p50104, p50105, p50106, p50108, p50109

Note: The following condition applies:
p50105 >= p50107 (I1 >= I2)

p50108[0...n] Speed-dependent current limitation maximum operating speed n3 / I_lim n_dep n3

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8040
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1 [rpm]	10000 [rpm]	5000 [rpm]

Description: Sets the maximum operating speed n3 for "speed-dependent current limitation".

Dependency: See also: p50104, p50105, p50106, p50107, p50109

Note: In this parameter, the following maximum speed must be set dependent upon the setting of the signal source for the speed actual value (p50083):
- p50083 = 1 (analog tachometer): Speed prevailing at a tachometer voltage according to p50741
- p50083 = 2 (incremental encoder TTL/HTL): Same value as maximum speed according to p50143.
- p50083 = 3 (operation without tachometer): Speed prevailing at an EMF according to p50115.

p50109[0...n] Speed-dependent current limitation activation / I_lim n_dep act

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 8040
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets activation/de-activation of the "speed-dependent current limitation" function.

Value:
0: Deactivated
1: Activated

p50110[0...n] Armature circuit resistance / Ra

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6852, 6855, 6900, 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [ohm]	4000.000 [ohm]	0.000 [ohm]

Description: Sets the armature circuit resistance.

Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25).

p50111[0...n] Armature circuit inductance / La

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6852, 6854, 6902
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.000 [mH]	1000000.000 [mH]	0.000 [mH]

Description: Sets the armature circuit inductance.
Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25).

p50112[0...n] Field circuit resistance / R_field circuit

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.000 [ohm]	4000.000 [ohm]	0.000 [ohm]

Description: Sets the field circuit resistance.
Note: The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24).

p50113[0...n] Motor I2t monitoring continuous current factor / Mot I2t I_cont

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8038
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.50	2.00	1.00

Description: Sets the permissible continuous armature current for motor I2t monitoring.
Note: At this permissible continuous current, fault F60137 is not output.
The current is calculated as follows: p50113 * p50100

p50114[0...n] Motor thermal time constant / Mot T therm

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8038
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [s]	10000 [s]	600 [s]

Description: Sets the thermal time constant of the motor.
Note: Value = 0:
The motor's I2t monitoring is de-activated.

p50115[0...n] Speed controller EMF at maximum speed / EMF at n_max

DC_CTRL	**Can be changed:** C2(1), U, T	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1.00 [%]	140.00 [%]	100.00 [%]

Description: Setting of the percentage value in relation to p50078[0] for specifying the EMF at maximum speed.
The speed is adjusted using the EMF as the speed actual value.

p50116[0...n] Field circuit inductance / L_field circuit

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [mH]	1000000.0 [mH]	0.0 [mH]

Description: Sets the field circuit inductance.
Dependency: See also: p51597
Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the field converter (p50051 = 24).

p50117[0...n] Field characteristic status / Field char stat

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Status of the field characteristic.
Value:
0: Field characteristic not recorded
1: Field characteristic recorded
Note: The parameter is set automatically during the optimization run for field weakening (p50051 = 27).
If p50117 = 1, the field characteristic is valid (p50118 to p50139).

p50118[0...n] EMF rated value / EMF rated

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [%]	200 [%]	63 [%]

Description: Sets the EMF generated at full field (corresponding to p50102) and a speed according to p50119.
Dependency: See also: p50119
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only the ratio of p50118 to p50119 is decisive for field weakening control.
If p50102 is modified subsequently or the maximum speed is altered downstream, the optimization run for field weakening has to be repeated.
If p50100, p50101 or p50110 is modified subsequently, the optimization run for field weakening does not have to be repeated.

p50119[0...n] Rated speed / n_rated

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 200.0 [%] | 100.0 [%]

Description: Sets the speed generated at full field (corresponding to p50102) and an EMF actual value according to p50118.
Dependency: See also: p50118
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only the ratio of p50118 to p50119 is decisive for field weakening control.
If p50102 is modified subsequently or the maximum speed is altered downstream, the optimization run for field weakening has to be repeated.
If p50100, p50101 or p50110 is modified subsequently, the optimization run for field weakening does not have to be repeated.

p50120[0...n] Field current for motor flux 0% / I_field flux 0%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets the field current for a motor flux of 0%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values less than p50121 can be set.

p50121[0...n] Field current for motor flux 5% / I_field flux 5%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 3.7 [%]

Description: Sets the field current for a motor flux of 5%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50120 and less than p50122 can be set.

p50122[0...n] Field current for motor flux 10% / I_field flux 10%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 7.3 [%]

Description: Sets the field current for a motor flux of 10%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50121 and less than p50123 can be set.

p50123[0...n] Field current for motor flux 15% / I_field flux 15%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 11.0 [%]

Description: Sets the field current for a motor flux of 15%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50122 and less than p50124 can be set.

p50124[0...n] Field current for motor flux 20% / I_field flux 20%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 14.7 [%]

Description: Sets the field current for a motor flux of 20%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50123 and less than p50125 can be set.

p50125[0...n] Field current for motor flux 25% / I_field flux 25%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 18.4 [%]

Description: Sets the field current for a motor flux of 25%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50124 and less than p50126 can be set.

p50126[0...n] Field current for motor flux 30% / I_field flux 30%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 22.0 [%]

Description: Sets the field current for a motor flux of 30%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50125 and less than p50127 can be set.

p50127[0...n] Field current for motor flux 35% / I_field flux 35%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 25.7 [%]

Description: Sets the field current for a motor flux of 35%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50126 and less than p50128 can be set.

p50128[0...n] Field current for motor flux 40% / I_field flux 40%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 29.4 [%]

Description: Sets the field current for a motor flux of 40%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50127 and less than p50129 can be set.

p50129[0...n] Field current for motor flux 45% / I_field flux 45%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 33.1 [%]

Description: Sets the field current for a motor flux of 45%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50128 and less than p50130 can be set.

p50130[0...n] Field current for motor flux 50% / I_field flux 50%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 36.8 [%]

Description: Sets the field current for a motor flux of 50%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50129 and less than p50131 can be set.

p50131[0...n] Field current for motor flux 55% / I_field flux 55%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 40.6 [%]

Description: Sets the field current for a motor flux of 55%.

Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50130 and less than p50132 can be set.

p50132[0...n] Field current for motor flux 60% / I_field flux 60%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 44.6 [%]

Description: Sets the field current for a motor flux of 60%.

Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50131 and less than p50133 can be set.

p50133[0...n] Field current for motor flux 65% / I_field flux 65%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 48.9 [%]

Description: Sets the field current for a motor flux of 65%.

Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50132 and less than p50134 can be set.

p50134[0...n] Field current for motor flux 70% / I_field flux 70%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 53.6 [%]

Description: Sets the field current for a motor flux of 70%.

Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50133 and less than p50135 can be set.

p50135[0...n] Field current for motor flux 75% / I_field flux 75%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 58.9 [%]

Description: Sets the field current for a motor flux of 75%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50134 and less than p50136 can be set.

p50136[0...n] Field current for motor flux 80% / I_field flux 80%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 64.9 [%]

Description: Sets the field current for a motor flux of 80%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50135 and less than p50137 can be set.

p50137[0...n] Field current for motor flux 85% / I_field flux 85%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 71.8 [%]

Description: Sets the field current for a motor flux of 85%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50136 and less than p50138 can be set.

p50138[0...n] Field current for motor flux 90% / I_field flux 90%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 79.8 [%]

Description: Sets the field current for a motor flux of 90%.
Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50137 and less than p50139 can be set.

p50139[0...n] Field current for motor flux 95% / I_field flux 95%

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6900, 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.0 [%]	100.0 [%]	89.1 [%]

Description: Setting of the field current for a motor flux of 95%.

Note: This parameter is set automatically during the optimization run for field weakening (p50051 = 27).
Only values greater than p50138 can be set.

p50140 Motor I2t monitoring starting behavior / Mot I2t strt behav

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 8038
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
2	12	12

Description: Sets the starting behavior for I2t monitoring of the motor.

Value:
2: Start I2t with zero
12: Start I2t with saved value

Note: If value = 2:
After a brief power supply failure of less than 2s, the system does not continue to calculate with 0, but with the actual temperature value. After a longer failure, the calculation is started with 0.

If value = 12:
For motor I2t monitoring, when switching off, the model temperature is saved in a non-volatile fashion. When switching on, the saved value is taken into account in the model calculation. As a consequence, the UL508C specification is fulfilled.

p50148[0...n] Armature converter Alpha W limit (single-phase operation) / A Alpha W lim 1-ph

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6860
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
120.0 [°]	180.0 [°]	178.0 [°]

Description: Sets the inverter stability limit for the firing angle of the armature converter in single-phase operation.

Dependency: See also: r53190

Note: The status of the Alpha W limit is shown in r53190.8.

p50149[0...n] Armature converter correction angle Alpha W limit / Arm corr Alpha W

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6860
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-60.0 [°]	0.0 [°]	0.0 [°]

Description: Setting of the correction angle for current-dependent offset of the Alpha W limit.

p50150[0...n] Armature converter Alpha G limit / Arm Alpha G lim

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [°]	165.0 [°]	30.0 [°]

Description: Sets the rectifier stability limit for the firing angle of the armature converter.
Dependency: See also: r53190
Note: The status of the Alpha G limit is shown in r53190.7.

p50151[0...n] Armature converter Alpha W limit / Arm Alpha W lim

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	120.0 [°]	165.0 [°]	150.0 [°]

Description: Sets the inverter stability limit for the firing angle of the armature converter.
Dependency: See also: r53190
Note: The status of the Alpha W limit is shown in r53190.8.

p50152[0...n] Armature average number of line periods / Arm line per no.

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Function diagram:** 6950
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1	20	20

Description: Setting of the number of line periods for line frequency correction in the armature circuit.
Note: The internal line synchronization for the armature firing pulses derived from the power terminals (line infeed) is averaged over the number of line periods set in this parameter.

In the case of operation on "weak" power supplies with unstable frequencies (on a diesel-driven generator, for example (isolated operation)), this parameter must be set lower than for operation on "constant V/Hz" systems to achieve a higher frequency correction speed.

p50153[0...n] Control word for armature pre-control / A prec STW

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6855
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	3	1

Description: Sets the control word for armature pre-control.
Value:
0: Armature pre-control disabled and pre-control = 165 °
1: Armature pre-control active
2: Armature pre-control active EMF only with torque direction chge
3: Armature pre-control active EMF irrelevant

Note: If value = 3:

For pre-control, in this case the EMF is applied with a value of 0 (recommended setting in the case of supplying high inductances from armature terminals, e.g. solenoids, field supply).

p50154[0...n] Closed-loop armature current control integral comp activation / Ia ctr I comp act

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6855
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	1

Description: Sets activation/de-activation of the integral component on the armature current controller.

Value:
0: Deactivated
1: Activated

Note: If value = 0:
The integral component of the armature current controller is kept constantly at zero (i.e. the armature current controller functions solely as a proportional controller).

p50155[0...n] Closed-loop armature current control P gain / Ia ctr Kp

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6855
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01	200.00	0.10

Description: Sets the P gain of the armature current controller.

Dependency: See also: p50175

Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25).
The P gain (Kp) for the armature current controller is calculated as follows:
Kp = p50155 x |p50175|

p50156[0...n] Closed-loop armature current control integral time / Ia ctr Tn

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6855
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.001 [s]	10.000 [s]	0.200 [s]

Description: Sets the integral time of the armature current controller.

Dependency: See also: p50176

Note: The parameter is set automatically during the optimization run for pre-control and the current controller for the armature converter (p50051 = 25).
The integral time (Tn) for the armature current controller is calculated as follows:
Tn = p50156 x |p50176|

p50157[0...n] Current limitation setpoint integrator selection / I_set integ sel

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6845
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Selection of the current setpoint integrator.

Value:
0: Reduced gearbox stressing
1: Current setpoint integrator

Note: If value = 0:
The integrator is only effective after a change in torque direction (only functions as a ramp-function generator for the current setpoint until the 1st time the output reaches the setpoint at the integrator input after a change in torque direction).
If value = 1:
The integrator is always effective (functions as a ramp-function generator for the current setpoint).

p50158[0...n] Current limitation setpoint integrator ramp-up time / Set integ t_r-up

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6845
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	1.000 [s]	0.000 [s]

Description: Sets the ramp-up time for the setpoint integrator during current limitation.
Duration of a ramp-up in the event of a setpoint jump from 0 to 100% of parameter r50072[1].

Notice: When setting a ramp-up time > 0.000 s, it is not permissible to enter a supplementary current setpoint via p50601[5]. p50601[5] must be set = 0.
Possible effect if this is not observed:
Torque direction change will not be able to be completed. The drive remains in one torque direction.

p50159[0...n] Auto-reversing stage changeover threshold / Auto-rev thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	100.00 [%]	0.01 [%]

Description: Sets the changeover threshold for the torque direction in the auto-reversing stage.

p50160[0...n] Auto-reversing stage additional torque-free interval / Auto-rev interval

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	2.000 [s]	0.000 [s]

Description: Sets the additional torque-free interval when switching over the torque direction in the auto-reversing stage.

p50161[0...n] Auto-reversing stage Alpha W pulses second pulse inhibited / Auto-rev Alpha W1

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	50000	0

Description: Sets the additional Alpha W pulses with inhibited second pulse in the auto-reversing stage.
Recommendation: This parameter should be set to values > 0 in particular when supplying high inductances (e.g. infeed of solenoids).
Dependency: See also: p50179

Note: Number of additional Alpha W pulses with disabled second pulse following detection of I = 0 signal prior to a change in torque direction.

These pulses cause the current to decay prior to a change in torque direction.

When it drops below the thyristor holding current value, the current is suddenly chopped by the unfired second thyristor and the residual energy stored in the load inductance must be dissipated via a protective circuit (e.g. a varistor) to prevent the load inductance from producing an overvoltage.

p50162[0...n] EMF selection / EMF sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6852
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	4	1

Description: Sets the calculation method for the EMF in armature pre-control.

Value:
1: Measured EMF
2: EMF with Ua from p50193
3: EMF with EMF from p50193
4: EMF with EMF from r52167

Note: If p50162 = 1:

The EMF derived from the measured armature voltage (r52123) is used.

If p50162 = 2:

The EMF for armature current pre-control is calculated from the armature voltage selected with p50193 (the resistive + inductive armature voltage drop is subtracted internally).

If p50162 = 3:

The parameter selected with p50193 is used as the EMF for armature current pre-control. This setting also allows a closed-loop DC link voltage control to be implemented.

If p50162 = 4:

The EMF for the armature precontrol (12-pulse in parallel) is calculated as follows:

r52290 * (r52167/p50119) * p50118

p50163[0...n] EMF smoothing selection / EMF smoothing sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6852
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	160	6

Description: Sets the method for filtering the EMF for armature pre-control.

Value:
0: No filtering
1: Averaging over last 1 EMF values
2: Average over last 2 EMF values
3: Average over last 3 EMF values
4: Average over last 4 EMF values
5: Average over last 5 EMF values
6: Average over last 6 EMF values
10: PT1 time constant = 10 ms
20: PT1 time constant = 20 ms
40: PT1 time constant = 40 ms
80: PT1 time constant = 80 ms
160: PT1 time constant = 160 ms

p50164[0...n] Closed-loop armature current ctr proportional comp activation / Ia ctr Kp act

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6855
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Sets activation/de-activation of the proportional component for armature current control.

Value:
0: Deactivated
1: Activated

Note: If value = 0:

The proportional component of the armature current controller is kept constantly at zero (i.e. the armature current controller functions solely as an integral controller).

p50165[0...n] BI: Signal source for change in torque direction enable / Torq dir en sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6860
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	53190.0

Description: Sets the signal source to enable a torque direction in the event of a change in torque direction.

1 signal:

Enable available for M0 or MI.

0 signal:

Enable available for M0 or MII.

p50166 Thyristor blocking voltage calculation activation / Thy_block_calc act

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6950
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to activate/de-activate the calculation of the thyristor blocking voltage.

Value:
0: De-activating
1: Activating

Note: The calculation of the thyristor blocking voltage can only be activated if the hardware (Power Interface Module) supports this function.

This parameter is only evaluated once while powering up, i.e. a change only becomes effective after a new start or after powering up with saved parameters (p0976 = 11).

p50169[0...n] Torque limiting selection torque limiting/current limitation / T lim sel T/I_lim

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6830
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Setting to select torque limiting or current limitation.

Value:
0: Current limiting
1: Torque limiting

Dependency: If p50169 = 1 or p50170 = 1:
A valid field characteristic (p50117 = 1) is required, otherwise fault F60055 will be output on power up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27).
Parameter p50263 defines the input variable for determining the motor flux.
If p50169 = 1 and p50170 = 1:
This is an invalid setting.
If p50170 = 1, it will not be possible to set p50169 = 1.
See also: p50051, p50117, p50263

Note: If p50169 = 0:
Current limitation.
If p50169 = 1:
Torque limiting; in other words, the pre-set torque limit is converted into a current limit:
current limit = torque limit/motor flux

p50170[0...n] Selection of control type for closed-loop current/torque control / Ctrl type I/tq sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the controller's control type (closed-loop current control or closed-loop torque control).
p50170 = 0:
The controller is current-controlled.
p50170 = 1:
The controller is torque-controlled; in other words, the torque setpoint is converted into a current setpoint (current setpoint = torque setpoint/motor flux).

Value:
0: Current control
1: Torque control

Dependency: If p50169 or p50170 is set to a value of 1, there must be a valid field characteristic (p50117 = 1); otherwise fault F60055 will be output on power up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27).
Parameter p50263 defines the input variable for determining the motor flux.
If p50169 = 1 and p50170 = 1:
This is an invalid setting. If p50169 = 1, it will not be possible to set p50170 = 1.
See also: p50051, p50117, p50173, p50263

Note: The following parameters are used to change over between current control and torque control:
- Signal source via connector input p50173.
or
- Fixed set value in p50170.

p50171[0...n] Current limitation armature current limit torque dir I factor / Ia lim t d I fact

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6825, 6840
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	300.0 [%]	100.0 [%]

Description: Sets the factor for the armature current limit in torque direction I.

p50172[0...n] Current limitation armature current limit torque dir II factor / Ia lim t d II fact

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6825, 6840
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-300.0 [%]	0.0 [%]	-100.0 [%]

Description: Sets the factor for the armature current limit in torque direction II.

p50173[0...n] BI: Signal source for closed-loop current/torque control ctr type / Ctr I/tq ctr sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** CDS, p0170 | **Function diagram:** 6835
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for changeover between closed-loop current control and closed-loop torque control.
p50170 = 0 and p50173 = 0 signal:
The controller is current-controlled.
p50170 = 1 or p50173 = 1 signal:
The controller is operated in the torque-controlled mode; in other words, the torque setpoint is converted into a current setpoint (current setpoint = torque setpoint/motor flux).

Dependency: If p50169 or p50170 is set to a value of 1, there must be a valid field characteristic (p50117 = 1); otherwise fault F60055 will be output on power up. If this setting is selected, the optimization run for field weakening must be performed in advance (p50051 = 27).
Parameter p50263 defines the input variable for determining the motor flux.
See also: p50170

Note: The following parameters are used to change over between current control and torque control:
- Signal source via connector input p50173.
or
- Fixed set value in p50170.

p50174 Torque limiting for OFF1 & OFF3 / T_lim OFF1 & OFF3

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 6840
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	1

Description: Selects whether the torque limiting should be active for OFF1 and for OFF3.
Value:
0: Torque limiting for OFF1 & OFF3 active
1: Torque limiting for OFF1 & OFF3 not active
Dependency: See also: r52133, r52147

p50175[0...n] CI: Signal source for closed-loop armature current control P gain / Ia ctr Kp sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Function diagram:** 6855
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	1

Description: Sets the signal source for variable control of the armature current controller's P gain.
Dependency: See also: p50155

Note: The P gain (Kp) for the armature current controller is calculated as follows:
Kp = p50155 x |p50175|

p50176[0...n] CI: Signal source for closed-loop armature current ctr integr time / Ia ctr Tn sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for variable control of the armature current controller's integral time.

Note: The integral time (Tn) for the armature current controller is calculated as follows:
Tn = p50156 x |p50176|

p50177[0...n] BI: Signal source for the "No immediate pulse inhibit" command / No pulse inh sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the "No immediate pulse inhibit" command.
A low signal will cause the armature firing pulses to be inhibited immediately without waiting for the I = 0 signal or sending Alpha W pulses for current decay. The additional Alpha W pulses (as set in p50161 and p50179) are not output either. As long as this command is pending, it will not be possible to switch to an operating state lower than o1.6.

Note: This command can be used, for example, if the drive is being used to supply a field rather than a motor and the current is to be reduced via an external built-on field discharge resistor connected in parallel.

p50178[0...n] BI: Sig source for the "Fire all thyristors simultaneously" command / All thy fire sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the "Fire all thyristors simultaneously" command.
The default setting of this command (high signal) causes all 6 thyristors on thyristor bridge I to be fired continuously and simultaneously. Changeover to long pulses is automatic.

Note: However, this command is only active if no line voltage is applied to the armature power unit.

p50179[0...n] Auto-reversing stage Alpha W pluses second pulse enabled / Auto-rev Alpha W2

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	50000	0

Description: Sets the additional Alpha W pulses with enabled second pulse in the auto-reversing stage.

Recommendation: This parameter should be set to values > 0 in particular when supplying high inductances (e.g. infeed of solenoids).

Note: Number of additional Alpha W pulses with enabled second pulse following detection of I = 0 signal prior to a change in torque direction.

These pulses cause the current to decay before a change in torque direction; the thyristors are fired in pairs to prevent sudden chopping and the generation of overvoltage by the load inductance when the current drops below the thyristor holding current.

When a change in torque direction is required, the current in the existing direction must be reduced.

p50180[0...n] Torque limiting torque limit 1 positive / T lim 1 pos

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6825
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-300.00 [%] | 300.00 [%] | 300.00 [%]

Description: Sets positive torque limit 1.
Dependency: See also: p50182
Note: If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1.

p50181[0...n] Torque limiting torque limit 1 negative / T lim 1 neg

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6825
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-300.00 [%] | 300.00 [%] | -300.00 [%]

Description: Sets negative torque limit 1.
Dependency: See also: p50183
Note: If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1.

p50182[0...n] Torque limiting torque limit 2 positive / M_ lim 2 pos

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6825
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-300.00 [%] | 300.00 [%] | 300.00 [%]

Description: Sets positive torque limit 2.
Dependency: See also: p50180
Note: If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1.

p50183[0...n] Torque limiting torque limit 2 negative / M_lim 2 neg

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6825
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-300.00 [%] | 300.00 [%] | -300.00 [%]

Description: Sets negative torque limit 2.
Dependency: See also: p50181
Note: If torque limit changeover is selected (p50694 = 1) and the speed is higher than the set changeover speed (p50184), then torque limit 2 is activated in place of torque limit 1.

p50184[0...n] Torque limiting changeover speed / T lim n_chng

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6825
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	120.00 [%]	0.00 [%]

Description: Sets the changeover speed for torque limit selection.

Dependency: See also: r52166

Note: If torque limit changeover is selected (p50694 = 1) and the speed (p52166) is higher than the changeover speed set in p50184, then torque limit 2 (p50182, p50183) is activated in place of torque limit 1 (p50180, p50181).

p50190[0...n] CI-loop arm current ctr prectr setpoint smoothing time constant / Ia prec set T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the armature current setpoints at the armature current pre-control input for closed-loop armature current control.

Note: The smoothing time constant is used to decouple armature current pre-control from the armature current controller.

p50191[0...n] CI-loop arm current ctr curr controller setp sm time constant / Ia ctr set T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the armature setpoint for closed-loop armature current control.

The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

Note: The smoothing time constant is used to decouple armature current pre-control from the armature current controller.

p50192[0...n] Armature Alpha W limit control word / A Alpha W lim STW

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the control word for the Alpha W limit on the armature.

Value:
0: Alpha W limit = 165 ° with pulsating armature current
1: Alpha W limit = p50151

Note:
If value = 0:
Continuous current: Alpha W limit = parameter p50151
Pulsating current: Alpha W limit = 165 °
If value = 1:
Alpha W limit = parameter p50151

p50193 CI: EMF/Ua external signal source / EMF/Ua ext sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6852
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52287[0]

Description: Sets the signal source for EMF actual value or armature voltage actual value for armature current pre-control.
If p50162[D] = 2: Armature voltage actual value
If p50162[D] = 3: EMF actual value

p50200[0...n] Speed controller speed actual value smoothing time constant / n_ctr n_act T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for smoothing the speed actual value on the speed controller.

p50201[0...n] Band-stop 1 resonant frequency / Band-st 1 f_n

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1 [Hz]	140 [Hz]	1 [Hz]

Description: Sets the resonant frequency for band-stop 1.
Dependency: See also: p50202, p50628, r52177

p50202[0...n] Band-stop 1 quality / Band-st 1 quality

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	3	0

Description: Sets the quality for band-stop 1.
Value:
0: Quality = 0.5
1: Quality = 1
2: Quality = 2
3: Quality = 3
Dependency: See also: p50201, p50628, r52177

p50203[0...n] Band-stop 2 resonant frequency / Band-st 2 f_n

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1 [Hz]	140 [Hz]	1 [Hz]

Description: Sets the resonant frequency for band-stop 2.

Dependency: See also: p50204, p50629, r52178

p50204[0...n] Band-stop 2 quality / Band-st 2 quality

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0 | 3 | 0

Description: Sets the quality for band-stop 2.
Value:
0: Quality = 0.5
1: Quality = 1
2: Quality = 2
3: Quality = 3
Dependency: See also: p50203, p50629, r52178

p50205[0...n] Derivative-action element derivative-action time / D-act el t_d-act

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0 [ms] | 1000 [ms] | 0 [ms]

Description: Sets the derivative-action time for the derivative-action element.
Dependency: See also: p50206, p50627, r52168, r52169

p50206[0...n] Derivative-action element smoothing time / Der-act el t_DAE

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0 [ms] | 100 [ms] | 0 [ms]

Description: Sets the smoothing time for the derivative-action element.
Dependency: See also: p50205, p50627, r52168, r52169

p50207 CI: Lead/lag element signal source / Lead/lag elem S_s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52179[0]

Description: Sets the signal source for the lead/lag element.
Dependency: See also: p50208, p50209, r52156

p50208[0...n] Lead/lag element rate time / Lead/lag t_rate

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	2 [ms]	10000 [ms]	2 [ms]

Description: Sets the rate time for the lead/lag element.
Dependency: See also: p50207, p50209, r52156

p50209[0...n] Lead/lag element filter time / Lead/lag t_filter

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	2 [ms]	10000 [ms]	2 [ms]

Description: Sets the filter time for the lead/lag element.
Dependency: See also: p50207, p50208, r52156

r50217 Speed controller droop effective / n_ctr droop eff

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the effective droop on the speed controller.
Notice: The effective droop is displayed as absolute factor without any dimensions and it is especially important to note that it is not a percentage.
Example:
r50217 = 0.05 --> corresponds to an effective droop of 5 %.

r50218 Speed controller integral time effective / n_ctr Tn eff

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [s]	- [s]	- [s]

Description: Displays the effective integral time (Tn) on the speed controller.

r50219 CO: Speed controller P-gain effective / n_ctr Kp eff

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the effective P gain (Kp) on the speed controller.

p50220[0...n] Speed controller changeover PI/P speed setpoint threshold / PI/P n_set thresh

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6815
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	200.00 [%]	200.00 [%]

Description: Sets the threshold for the speed setpoint to changeover between PI and P control,
so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled.

Dependency: See also: p50221, p50222, p50698, r52166

p50221[0...n] Speed controller changeover PI/P hysteresis / PI/P hyst

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6815
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	100.00 [%]	2.00 [%]

Description: Sets the hysteresis to changeover over between PI and P control,
so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled.

Dependency: See also: p50222, p50698, r52166

p50222[0...n] Speed controller changeover PI/P speed actual value threshold / PI/P n_act thresh

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6815
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	10.00 [%]	0.00 [%]

Description: Sets the threshold for the speed actual value to changeover between PI and P control,
so that overshoot-free stopping of the drive with setpoint = 0 is possible with the controllers enabled.

Dependency: See also: p50221, p50698, r52166

p50223[0...n] Speed controller pre-control enable / n_ctr prec ena

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6815
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the enable signal for pre-control of the speed controller.

Value:
0: No enable
1: Enable

Note: Dependent upon the setting, the following values are added to the output of the speed controller as a torque setpoint:
Value = 0: No enable (0%)
Value = 1: Enable (r52171)

p50224[0...n] Speed controller integral component configuration / n_ctr I comp conf

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	1

Description: Sets the response of the integral component on the speed controller.

Value:
0: Integral component off (absolute P controller)
1: Stop integral component from defined tqe/I limit
2: Stop integral component from defined tqe limit
3: Stop integral component at +/- 200%

p50225[0...n] Speed controller adaptation Kp y coordinate 2 / Adapt Kp y2

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.01	2000.00	3.00

Description: Sets the y coordinate for pair of values 2 for adaptation of the P gain (Kp).

Note: The value is set automatically during the optimization run for the speed controller (p50051 = 26).
The adaptation of the P gain (Kp) is defined using 2 pairs of values.
Pair of values 1:
p50556/p50550 (x/y coordinate)
Pair of values 2:
p50559/p50225 (x/y coordinate)

p50226[0...n] Speed controller adaptation Tn y coordinate 2 / Adapt Tn y2

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.010 [s]	10.000 [s]	0.650 [s]

Description: Sets the y coordinate for pair of values 2 for adaptation of the integral time (Tn).

Note: The value is set automatically during the optimization run for the speed controller (p50051 = 26).
The adaptation of the integral time (Tn) is defined using 2 pairs of values.
Pair of values 1:
p50557/p50551 (x/y coordinate)
Pair of values 2:
p50560/p50226 (x/y coordinate)

p50227[0...n] Speed controller adaptation droop y coordinate 2 / Adapt droop y2

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000	10.000	0.000

Description: Sets the y coordinate for pair of values 2 for adaptation of the droop.

Notice: - For the droop, generally values up to 10 % are practical (p50227 = 0.000 ... 0.100). Under certain circumstances, higher values can result in an unstable response of the speed controller.
- The droop is entered as absolute factor without any dimensions and it is especially important to note that it is not a percentage.
Example:
Set droop = 5 % --> p50227 = 0.05

Note: The adaptation of the droop is defined using 2 pairs of values.
Pair of values 1:
p50558/p50552 (x/y coordinate)
Pair of values 2:
p50561/p50227 (x/y coordinate)

p50228[0...n] Speed controller speed setpoint smoothing time constant / n_ctr n_set T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for smoothing the speed setpoint on the speed controller.

Recommendation: If the ramp-function generator is being used, setting lower values may be sensible.

p50229[0...n] Master/slave drive ctrl speed controller tracking I component / M/S drve ctr track

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting for the control of the integral component tracking on the speed controller.

Value:
0: Tracking ON
1: Tracking OFF

Dependency: See also: p50084, p50687

Note: p50229 = 0:
Tracking of the integral component on the speed controller activated. The speed actual value is used as speed setpoint and the integral component of the speed controller is tracked so that r52148 = r52140 results.
p50229 = 1:
Tracking of the integral component on the speed controller de-activated.

p50230[0...n] Set speed controller integral component duration / Set I_comp dur

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the duration for setting the integral component on the speed controller.
Following a positive edge on binector input p50695, the integral component of the speed controller is set to the value of the signal source set at connector input p50631.
If p50230 = 0:
The integral component of the speed controller is set to the instantaneous value of the signal present at connector input p50631.
If p50230 > 0:
The integral component of the speed controller is tracked continuously during the time set to the value of the signal present at connector input p50631.

p50231[0...n] Speed controller adaptation selection / n_ctrl Adapt sel

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Selects the calculation of the Kp adaptation for the speed controller.
If p50230 = 0:
Kp = p50553 * p50225
For p50230 = 1, the following applies:
Kp is calculated based on the parameterized characteristic.

Value:
0: Basic
1: Standard

Dependency: See also: p50225, p50553

p50234[0...n] Speed controller proportional component enable / n_ctr P_comp ena

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6815
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Setting for enabling the proportional component for the speed controller.

Value:
0: Without proportional component
1: With proportional component

p50236 Speed controller optimization speed controller dynamic response / n_ctr_opt dyn

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	10 [%]	100 [%]	75 [%]

Description: Sets the dynamic response of the speed control circuit as the default for the speed controller optimization run.

Recommendation: On drives with gear backlash, for example, optimization should be started commencing with low dynamic response values at and above 10%.
Values of up to 100 % can be selected for drives with the highest demands placed on synchronous operation and dynamic performance.

Note: If this value is changed, the optimization run for the speed controller will have to be performed again before the new value is applied.

p50237[0...n] Speed controller reference model natural frequency / n_ctrl ref_m fn

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6812
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [Hz]	150.0 [Hz]	0.0 [Hz]

Description: Sets the natural frequency of a PT2 element for the reference model of the speed controller.

Recommendation: The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled.

Dependency: In conjunction with p50238 and p50239, the characteristics (in time) of the P-controlled speed control loop can be emulated.
See also: p50238, p50239

p50238[0...n] Speed controller reference model damping / n_ctrl ref_m d

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000	5.000	1.000

Description: Sets the damping of a PT2 element for the reference model of the speed controller.
Recommendation: The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled.
Dependency: In conjunction with p50237 and p50239, the characteristics (in time) of the P-controlled speed control loop can be emulated.
See also: p50237, p50239

p50239[0...n] Speed controller reference model dead time / n_ctr ref_m t_dead

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00	2.00	0.00

Description: Sets the "fractional" dead time for the reference model of the speed controller.
This parameter emulates the computing dead time of the proportionally controlled speed control loop.
The multiplier set refers to the speed controller clock cycle.
Recommendation: The reference model is correctly set when the characteristics of r52154 (reference model output) and r52167 (actual speed value) are virtually identical when the I component of the speed controller is disabled.
Dependency: In conjunction with p50237 and p50238, the characteristics (in time) of the P-controlled speed control loop can be emulated.
See also: p50237, p50238

p50240[0...n] Speed controller reference model activation / n_ctrl ref_m act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate the influence of the reference model for the speed controller.
Value:
0: Reference model not effective
1: Reference model effective
Dependency: See also: p50241

p50241 CI: Speed controller reference model signal source / n_ctrl ref_m sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52155[0]

Description: Sets the signal source for the input signal of the reference model for the speed controller.

Dependency: See also: p50240

p50250[0...n] Field converter Alpha G limit / Field Alpha G lim

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6915
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [°]	180 [°]	0 [°]

Description: Sets the rectifier stability limit for the firing angle of the field converter.
Dependency: See also: r53191
Note: The status of the Alpha G limit is shown in r53191.1.

p50251[0...n] Field converter Alpha W limit / Field Alpha W lim

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6915
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [°]	180 [°]	180 [°]

Description: Sets the inverter stability limit for the firing angle of the field converter.
Dependency: See also: r53191
Note: The status of the Alpha W limit is shown in r53191.0.

p50252[0...n] Field average number of line periods / Field line per no.

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned16	**Dyn. index:** DDS, p0180	**Function diagram:** 6952
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1	20	20

Description: Setting of the number of line periods for line frequency correction in the field circuit.
Note: The internal line synchronization for the field firing pulses derived from the power terminals (line infeed) is averaged over the number of line periods set in this parameter.
In the case of operation on "weak" power supplies with unstable frequencies (on a diesel-driven generator, for example (isolated operation)), this parameter must be set lower than for operation on "constant V/Hz" systems to achieve a higher frequency correction speed.

p50253[0...n] Field pre-control activation / Field prec act

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Sets activation/de-activation for field pre-control.
Value:
0: Deactivated
1: Activated
Note: If value = 0:
The field pre-control output is -100% (corresponds to 180 °).

p50254[0...n] Field current controller integral component activation / I_field_ctr I comp

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets activation/de-activation of the integral component on the field current controller.

Value:
0: Deactivated
1: Activated

Dependency: See also: p50255, p50256

Note: If value = 0:
The integral component of the field current controller is kept constantly at zero (i.e. the field current controller functions solely as a proportional controller).

p50255[0...n] Field current controller P gain / I_field ctr Kp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.01	100.00	5.00

Description: Sets the P gain of the field current controller.

Dependency: See also: p50256

Note: The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24).

p50256[0...n] Field current controller integral time / I_field ctr Tn

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.001 [s]	10.000 [s]	0.200 [s]

Description: Sets the integral time of the field current controller.

Dependency: See also: p50255

Note: The parameter is set automatically during the optimization run for closed-loop field current control (p50051 = 24).

p50257[0...n] Closed-loop field current control standstill field / If_ctr stst_field

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets the standstill field for closed-loop field current control.

Dependency: See also: p50692

Note: The field current is reduced to this value when the "Automatic field current reduction" function is parameterized (p50082 = 2) or in the case of signal-driven selection of the "Standstill excitation" function (p50692).

p50258[0...n] CI-loop field current control field current reduction delay time / If_ctr I_red t_del

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [s]	60.0 [s]	10.0 [s]

Description: Sets the delay time for automatic field current reduction.

p50260[0...n] Field current pre-control setpoint smoothing time constant / Field_prec set T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the setpoint for field current pre-control.
Dependency: See also: p50261
Note: This smoothing enables field-current pre-control to be decoupled from the field current controller.

p50261[0...n] Field current controller setpoint smoothing time constant / I_field_ctr set T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the setpoint for the field current controller.
Dependency: See also: p50260
Note: This smoothing enables field-current pre-control to be decoupled from the field current controller.

p50263[0...n] Selection of motor flux input variable / Mot fl input sel

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	2	1

Description: Selection of the input variable for determining the motor flux.
Value:
0: Field current controller actual value (r52265)
1: EMF pre-control output (r52293 or r52268)
2: Field current controller setpoint (r52268)

Note: If value = 0:
This setting is recommended for a fully compensated DC motor.
If value = 1:
This setting is recommended for an uncompensated DC motor. The EMF controller must be active for this setting (the EMF controller compensates the armature reaction).
If value = 2:
This setting is recommended for a fully compensated DC motor.
Advantage compared with value = 0:
Values derived from the setpoint are generally steadier than those derived from the actual value.
Disadvantage compared with value = 0:
The actual value can deviate from the setpoint dramatically, thereby distorting the motor flux calculation.

p50264[0...n] Field current controller proportional component activation / I_field_ctr P comp

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets activation/de-activation of the proportional component on the field current controller.
Value: 0: Deactivated
1: Activated
Dependency: See also: p50255, p50256
Note: If value = 0:
The proportional component of the field current controller is kept constantly at zero (i.e. the field current controller functions solely as an integral controller).

p50265[0...n] BI: Signal source for field current monitoring / I_field mon sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 8044
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for external monitoring of the field current.
The delay time in p50397 is started after a 1/0 signal and a corresponding fault is triggered once it has elapsed.
Dependency: See also: p50397
See also: F60005

p50266[0...n] CI: Field current controller Tn factor signal source / If_ctrTnFact sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for a factor of the integral time Tn for the field current controller.
Dependency: See also: p50256

p50267[0...n] CI: Field current controller Kp factor signal source / If_ctrKpFact sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6908
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source for a factor of the proportional gain Kp for the field current controller.

Dependency: See also: p50255

p50269 Freeze field current setpoint operating mode / If freeze op_mode

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6905
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	2	2

Description: Sets the operating mode for the "Freeze field current setpoint" function.

Value:
0: Never freeze
1: Freeze for tachometer breakage
2: Freeze for every fault

Notice: For settings 0 and 1, when a fault message occurs, the EMF control remains active.
Even if the speed sensing is faulted or if the contactor on the DC side is open.
In these cases, the EMF controller cannot prevent overvoltages occurring at the motor.
As a consequence, measures must be ensured on the system side that ensure that the motor is not damaged by overvoltages.

p50272 Field current reduction activation / I_field_red act

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets activation/de-activation of automatic field current reduction if the EMF is too high for braking operation.

Value:
0: Fault
1: Alarm and field reduction

Dependency: See also: F60043, A60143

Note: If value = 0:
If the EMF is too high for braking operation, a message is output accordingly.

p50273[0...n] EMF controller pre-control activation / EMF ctr prec act

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	1

Description: Sets activation/de-activation for EMF controller pre-control.

Value:
0: Deactivated
1: Activated

Note: If value = 0:
The EMF controller's pre-control output is set to 100% (corresponding to the rated excitation current of the motor (p50102)).

p50274[0...n] EMF controller integral component activation / EMF ctr I comp act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets activation/de-activation of the integral component on the EMF controller.
Value: 0: Deactivated
1: Activated
Dependency: See also: p50284
Note: If value = 0:
The integral component of the EMF controller is kept constantly at zero (i.e. the EMF controller functions solely as a proportional controller).

p50275[0...n] EMF controller P gain / EMF ctr Kp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.01	100.00	0.60

Description: Sets the P gain of the EMF controller.
Dependency: See also: p50276
Note: The parameter is set automatically during the optimization run for field weakening (p50051 = 27).

p50276[0...n] EMF controller integral time / EMF ctr Tn

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.010 [s]	10.000 [s]	0.200 [s]

Description: Sets the integral time of the EMF controller.
Dependency: See also: p50275
Note: The parameter is set automatically during the optimization run for field weakening (p50051 = 27).

p50277[0...n] EMF controller droop / EMF ctr droop

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	10.0 [%]	0.0 [%]

Description: Sets the value for the EMF controller's droop feedback.
Note: If value = 0:
Droop feedback is de-activated.

p50280[0...n] EMF controller pre-control setpoint smoothing time constant / EMF prec set T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the setpoint for EMF controller pre-control.
Dependency: See also: p50283
Note: This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller.

p50281[0...n] EMF controller setpoint smoothing time constant / EMF ctr set T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the EMF controller's setpoint.
Dependency: See also: p50282
Note: This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller.

p50282[0...n] EMF controller actual value smoothing time constant / EMF ctr act T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the EMF controller's actual value.
Dependency: See also: p50281
Note: This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller.

p50283[0...n] EMF controller pre-control actual value smoothing time constant / EMF prec act T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the actual value for EMF controller pre-control.
Dependency: See also: p50280
Note: This smoothing enables the EMF controller pre-control to be decoupled from the EMF controller.

p50284[0...n] EMF controller proportional component activation / EMF ctr P comp act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets activation/de-activation of the proportional component on the EMF controller.

Value:
0: Deactivated
1: Activated

Dependency: See also: p50275, p50276

Note: If value = 0:
The proportional component of the EMF controller is kept constantly at zero (i.e. the EMF controller functions solely as an integral controller).

p50285[0...n] EMF setpoint reduction line voltage smoothing time / EMF set line t_sm

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6895
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	10.00 [s]	0.00 [s]

Description: Sets the smoothing time for the line voltage for the EMF setpoint reduction.

Dependency: See also: p50286, p50287, p50288, p50289, r52294

p50286[0...n] EMF setpoint reduction line voltage upper limit / EMF set line upper

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6895
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
100.0 [%]	150.0 [%]	110.0 [%]

Description: Sets the upper limit for the line voltage for EMF setpoint reduction.

Dependency: See also: p50287, p50288, p50289, r52294

p50287[0...n] EMF setpoint reduction line voltage lower limit / EMF set line lower

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6895
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets the lower limit for the line voltage for the EMF setpoint reduction.

Dependency: See also: p50286, p50288, p50289, r52294

p50288[0...n] EMF setpoint reduction evaluation factor / EMF set eval_fact

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6895
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	200.0 [%]	100.0 [%]

Description: Sets the evaluation factor for the EMF setpoint reduction.

Dependency: See also: p50286, p50287, p50289, r52294

p50289[0...n] BI: EMF setpoint reduction activation signal source / EMF set act sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6895
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source to activate the EMF setpoint reduction.

Dependency: See also: p50285, p50286, p50287, p50288, r52294

p50295[0...n] Transition rounding operating mode / RFG rounding mode

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3152
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the response to setpoint inversion on the ramp-function generator.

Value:
0: Hard setpoint change
1: Soft setpoint change

Note:
If p50295 = 0:

In the event of setpoint inversion during ramping up, ramp-up is aborted and ramp-down initial rounding commences immediately, and vice versa. As the setpoint is not increased (decreased) any further, the signal at the ramp-function generator output has a breakpoint (in other words, there is a step change in the acceleration rate).

If p50295 = 1:

In the event of setpoint inversion during ramping up, ramp-up is slowly switched over to ramp-down, and vice versa. The setpoint increases/decreases further. There is no breakpoint in the signal at the ramp-function generator output (in other words, there is no step change in the acceleration rate).

p50296[0...n] RFG quick stop (OFF3) ramp-down time / RFG OFF3 t_ramp-dn

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	650.00 [s]	3.00 [s]

Description: Sets the ramp-down time for quick stop (OFF3) on the ramp-function generator.

When the "Quick stop" command is sent, the drive is decelerated to 0 speed at the current limit.

However, if this is not permissible or desirable for mechanical reasons, a value > 0 must be set in this parameter. The drive will then decelerate along the down ramp set here.

p50297[0...n] RFG quick stop (OFF3) initial rounding / RFG OFF3 init rndg

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	100.00 [s]	0.00 [s]

Description: Sets the initial rounding for quick stop (OFF3) on the ramp-function generator.

p50298[0...n] RFG quick stop (OFF3) final rounding / RFG OFF3 fin rndg

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	100.00 [s]	0.00 [s]

Description: Sets the final rounding for quick stop (OFF3) on the ramp-function generator.

p50300[0...n] RFG positive setpoint limit after ramp-function generator / RFG pos after RFG

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3155
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	100.00 [%]

Description: Sets positive setpoint limiting after the ramp-function generator.

p50301[0...n] RFG negative setpoint limit after ramp-function generator / RFG neg after RFG

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3155
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	-100.00 [%]

Description: Sets negative setpoint limiting after the ramp-function generator.

p50302[0...n] RFG ramp-up integrator operating mode / RFG integ op mode

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	3	0

Description: Sets the operating mode for the ramp-up integrator.

The ramp-up integrator controls the changing over of the ramp-function generator parameter sets as appropriate for the set operating mode once the setpoint has been reached for the first time.

Value:
0: RFG normal operation
1: Operating mode 1
2: Operating mode 2
3: Operating mode 3

Note: If p50302 = 0:
- The parameter sets are not changed over and ramp-function generator setting 1 is always used (or the setting made using p50637, p50638).

If p50302 = 1:
- Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 0.

If p50302 = 2:
- Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 2.

If p50302 = 3:
- Once the setpoint has been reached for the first time, the ramp-function generator parameter set is changed over from 1 to 3.

p50303[0...n] RFG ramp-up time 1 / RFG t_ramp-up 1

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	650.00 [s]	10.00 [s]

Description: Sets the ramp-up time for ramp-function generator parameter set 1.

Note: The parameter is effective in the following cases:
- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50304[0...n] RFG ramp-down time 1 / RFG t_ramp-dn 1

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	650.00 [s]	10.00 [s]

Description: Sets the ramp-down time for ramp-function generator parameter set 1.

Note: The parameter is effective in the following cases:
- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50305[0...n] RFG initial rounding 1 / RFG init rndg 1

DC_CTRL

Can be changed: C2(1), U, T	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [s]	100.00 [s]	0.00 [s]

Description: Sets the initial rounding for ramp-function generator parameter set 1.

Dependency: See also: p50295

Note: The parameter is effective in the following cases:
- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50306[0...n] RFG final rounding 1 / RFG fin rndg 1

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3150
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [s] | 100.00 [s] | 0.00 [s]

Description: Sets the final rounding for ramp-function generator parameter set 1.
Dependency: See also: p50295
Note: The parameter is effective in the following cases:
- No quick stop (OFF3) active
- No other ramp-function generator parameter set selected
- No selection via ramp-up integrator

p50307[0...n] Ramp-function generator ramp-up time 2 / RFG t_ramp-up 2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3150
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [s] | 650.00 [s] | 10.00 [s]

Description: Sets the ramp-up time for ramp-function generator parameter set 2.

p50308[0...n] Ramp-function generator ramp-down time 2 / RFG ramp-dn time 2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3150
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [s] | 650.00 [s] | 10.00 [s]

Description: Sets the ramp-down time for ramp-function generator parameter set 2.

p50309[0...n] Ramp-function generator initial rounding 2 / RFG init rndg 2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3150
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [s] | 100.00 [s] | 0.00 [s]

Description: Sets the initial rounding for ramp-function generator parameter set 2.
Dependency: See also: p50295

p50310[0...n] Ramp-function generator final rounding 2 / RFG fin rndg 2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3150
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [s] | 100.00 [s] | 0.00 [s]

Description: Sets the final rounding for ramp-function generator parameter set 2.
Dependency: See also: p50295

p50311[0...n] Ramp-function generator ramp-up time 3 / RFG t_ramp-up 3

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	650.00 [s]	10.00 [s]

Description: Sets the ramp-up time for ramp-function generator parameter set 3.

p50312[0...n] Ramp-function generator ramp-down time 3 / RFG t_ramp-down 3

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	650.00 [s]	10.00 [s]

Description: Sets the ramp-down time for ramp-function generator parameter set 3.

p50313[0...n] Ramp-function generator initial rounding 3 / RFG init rndg 3

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	100.00 [s]	0.00 [s]

Description: Sets the initial rounding for ramp-function generator parameter set 3.
Dependency: See also: p50295

p50314[0...n] Ramp-function generator final rounding 3 / RFG fin rndg 3

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	100.00 [s]	0.00 [s]

Description: Sets the final rounding for ramp-function generator parameter set 3.
Dependency: See also: p50295

r50315[0...3] RFG effective times / RFG t effective

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [s]	- [s]	- [s]

Description: Displays the effective times on the ramp-function generator.
Index: [0] = Ramp-up time
[1] = Ramp-down time
[2] = Initial rounding
[3] = Final rounding

r50316 Ramp-function generator state / RFG state

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: Unsigned16
Dyn. index: -
Function diagram: 3152
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the state on the ramp-function generator.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Ramp-function generator enable	ON	OFF	3152
01	Ramp-function generator start	ON	OFF	3152
02	Setpoint enable & OFF1	ON	OFF	3152
03	Set ramp-function generator	ON	OFF	3152
04	Track ramp-function generator	ON	OFF	3152
05	Bypass ramp-function generator	ON	OFF	3152
07	Ramp-down	ON	OFF	3152
15	Ramp-up	ON	OFF	3152

p50317[0...n] RFG tracking enable / RFG track ena

DC_CTRL

Can be changed: T
Calculated: -
Access level: 2
Data type: Integer16
Dyn. index: DDS, p0180
Function diagram: 3152
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
0
1
0

Description: Sets the enable for ramp-function generator tracking.

Value:
0: Inhibit
1: Enable

Dependency: RFG tracking has to be controlled by setting a 1 signal at binector input p50647.
See also: p50647

p50318[0...n] RFG setting value selection / RFG set val sel

DC_CTRL

Can be changed: T
Calculated: -
Access level: 2
Data type: Integer16
Dyn. index: DDS, p0180
Function diagram: 3152
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
0
2
0

Description: Selection of the setting value for the ramp-function generator output for OFF1.

Value:
0: Ramp-function generator output not set
1: Set RFG output to setting value 1
2: Set ramp-function generator output to setting value 2

Recommendation: During "shutdown", limiting is not applied to the ramp-function generator output. As limiting the ramp-function generator output during "shutdown" does not generate a temporary increase in speed, p50318 should be set to 1 or 2.

Dependency: See also: p50650

Note:
If p50318 = 0:
The ramp-function generator output is not set.
If p50318 = 1:
The value supplied via connector input p50650[0] is applied as the setting value.
If p50318 = 2:
The value supplied via connector input p50650[1] is accepted as the setting value.

p50319[0...n] RFG setpoint enable delay time / RFG set_ena i_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3151
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [s]	10.00 [s]	0.00 [s]

Description: Sets the delay time for enabling the setpoint on the ramp-function generator.
In the case of a setpoint enable, the setpoint is not injected on the ramp-function generator until this time has elapsed.

p50320[0...n] Setpoint processing main setpoint factor / m_set_factor

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3135
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-300.00 [%]	300.00 [%]	100.00 [%]

Description: Sets the fixed factor for the main setpoint.
Dependency: See also: p50322

p50321[0...n] Setpoint processing additional setpoint factor / Add_set_factor

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3135
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-300.00 [%]	300.00 [%]	100.00 [%]

Description: Sets the fixed factor for the additional setpoint.
Dependency: See also: p50323

p50322[0...n] CI: Setpoint processing signal source for main setpoint factor / M set factor sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Function diagram:** 3135
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	1

Description: Sets the signal source for the variable factor for the main setpoint.
Dependency: See also: p50320

p50323[0...n] CI: Setpoint processing signal source for additional setpoint factor / Add set fac sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Function diagram:** 3135
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	1

Description: Sets the signal source for the variable factor for the additional setpoint.
Dependency: See also: p50321

p50330[0...n] RFG time unit / RFG time unit

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3150, 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the unit for the ramp-function generator times.

Value:
0: Second
1: Minute

Note: This time unit is applied to the following parameters:
p50296, p50297, p50298:
- Ramp-down time 4, initial rounding 4, final rounding 4

p50303, p50304, p50305, p50306:
- Ramp-up time 1, ramp-down time 1, initial rounding 1, final rounding 1

p50307, p50308, p50309, p50310:
- Ramp-up time 2, ramp-down time 2, initial rounding 2, final rounding 2

p50311, p50312, p50313, p50314:
- Ramp-up time 3, ramp-down time 3, initial rounding 3, final rounding 3

p50542:
- RFG dy/dt time difference

p50331 Braking distance Encoder Data Set selection / Br dist EDS sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	15	0

Description: Sets the Encoder Data Set (EDS) used to calculate the braking distance (r52047, r52048).

p50351[0...n] Line undervoltage threshold / Line V_under thr

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-97 [%]	0 [%]	-20 [%]

Description: Sets the threshold for detecting line undervoltage for armature or field.

Dependency: See also: F60006

Note: If the line voltage deviates by a higher value and does not fall back within the tolerance limits by the end of the restart time set in p50086, fault F60006 is triggered.
During the time of excess deviation, the drive is kept in operating state "o4".
For "optimization run for CCP" (p50051 = 30) the parameter is automatically set to -20% if the actual value is less than -20%.

p50352[0...n] Line overvoltage threshold / Line V_over thresh

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [%]	99 [%]	20 [%]

Description: Sets the threshold for detecting line undervoltage for armature or field.

Dependency: See also: F60007

Note: If the line voltage deviates by a higher value and return within the tolerance limits by the end of the restart time set in p50086, fault F60007 is triggered.

During the time of excess deviation, the drive is kept in operating state "o4".

p50353[0...n] Line monitoring phase failure threshold / Ph_fail thresh

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	3 [%]	100 [%]	40 [%]

Description: Sets the threshold for phase failure detection in the context of line monitoring.

Note: If the line voltage in operating states <= o4 undershoots the setting value and does not adopt an "OK" state within the restart time set in p50086, fault F60004 is triggered.

During the time that the threshold value is undershot and the voltage stabilization time which follows (set in p50090), the drive is kept in operating state o4.

If the drive is switched on in operating state o4, the voltages of all phases will not be checked for compliance with this threshold until the time set in p50089 has elapsed.

p50354 BI: Stall protection activation signal source / Stall pr act sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8046
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source to activate stall protection.

Dependency: See also: p50355, p50356

See also: F60035

Note: 1 signal: Stall protection activated

0 signal: Stall protection de-activated

p50355[0...n] Stall protection monitoring time / Stall t_mon

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8046
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [s]	600.0 [s]	0.5 [s]

Description: Sets the monitoring time for stall protection.

The set time starts when a stalled drive is detected. If these conditions still prevail once the time has elapsed, stall protection is activated and fault F60035 is triggered.

Dependency: See also: p50354, p50356

See also: F60035

Note: "Stall protection" monitoring is switched off when p50355 = 0.00 s.

p50356[0...n] Stall protection threshold / Stall prot thresh

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8046
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 10.0 [%] | 0.4 [%]

Description: Sets the speed threshold for stall protection.
Dependency: See also: p50355
See also: F60035

p50357[0...n] Tachometer interruption monitoring threshold / Tacho_mon thresh

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8046
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
10 [%] | 100 [%] | 10 [%]

Description: Sets the threshold for tachometer interruption monitoring.
Dependency: See also: F60042
Note: For p50357 = 100 %, the tachometer interruption monitoring is not active!

p50358[0...n] Blocking protection speed filter time / Block n t_filter

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8046
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.000 [s] | 10.000 [s] | 0.000 [s]

Description: Sets the filter time for the speed actual value for blocking protection.
Dependency: See also: p50354, p50356
See also: F60035

p50361[0...n] Line monitoring undervoltage delay time / V_under t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6954
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0 [ms] | 60000 [ms] | 0 [ms]

Description: Sets the delay time for undervoltage detection in the context of line monitoring.
Note: This time starts when undervoltage is detected. While this delay time is running, firing pulses are emitted; at the end of this time, fault F60006 is triggered.
If a time has been set for automatic restart (p50086), it will not begin until the time set here has elapsed.

p50362[0...n] Line monitoring overvoltage delay time / Line V_over t_del

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	60000 [ms]	0 [ms]

Description: Sets the delay time for overvoltage monitoring in the context of line monitoring.

Dependency: See also: F60007

Note: The triggering of fault F60007 (line overvoltage) is delayed by the time set at this parameter.

Firing pulses are emitted while this time is running. If a time has been set for automatic restart (p50086), it will not begin until the time set here has elapsed.

p50363[0...n] Line frequency minimum threshold / f_line min thresh

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	23.0 [Hz]	60.0 [Hz]	45.0 [Hz]

Description: Sets the threshold for detecting that the line frequency has been undershot.

Dependency: See also: F60008

Note: If the line frequency undershoots the value set here and does not rise back above it within the restart time set in p50086, fault F60008 is triggered.

All the while the line frequency remains lower than the value set here, the drive is kept in operating state "o4".

p50364[0...n] Line frequency maximum threshold / f_line max thresh

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6954
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	50.0 [Hz]	500.0 [Hz]	65.0 [Hz]

Description: Sets the threshold for detecting that the line frequency has been overshot.

Dependency: See also: F60009

Caution:

SINAMICS DCM DC converters are suitable for line frequencies from 50 Hz up to 60 Hz (rated value). Restricted operation in the extended frequency range (20 Hz to 500 Hz) is possible on request.

If a SINAMICS DCM DC converter is continuously operated in the extended frequency range, then it would be damaged or destroyed as a result of overheating.

The SINAMICS DCM Control Module is suitable for line frequencies from 20 Hz up to 500 Hz if it is operated with a power unit designed for this frequency range.

Note: If the line frequency overshoots the value set here and does not fall back below it within the restart time set in p50086, fault F60009 is triggered.

All the while the line frequency remains higher than the value set here, the drive is kept in operating state "o4".

p50366[0...1] CI: Current limitation signal source for speed and I2t monitoring / Ia lim n I2t sig s

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6840
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52129[0] [1] 52130[0]

Description: Sets the signal source for speed-dependent current limitation and current limitation from I2t monitoring.

Note: [0] = Speed-dependent current limitation
[1] = Current limitation from I2t monitoring

p50370[0...n] Messages for speed less than minimum speed threshold / n < n_min thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	0.50 [%]

Description: Sets the threshold for the "Speed less then minimum speed" message.

Dependency: See also: p50371, p50593, r53025

Note: The "Speed less than minimum speed" message is available as follows:
- r53025.6 (not inverted)
- r53025.7 (inverted)

p50371[0...n] Messages for speed less than minimum speed hysteresis / n < n_min hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	0.50 [%]

Description: Sets the hysteresis for the "Speed less then minimum speed" message.
The message is triggered when the threshold is undershot.
Once the value rises above the threshold plus the hysteresis, the message is withdrawn.

Dependency: See also: p50370, p50593, r53025

Note: The "Speed less than minimum speed reached" message is available as follows:
- r53025.6 (not inverted)
- r53025.7 (inverted)

p50372[0...n] Messages speed positive hysteresis / Msg n > 0 hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	10.00 [%]	0.10 [%]

Description: Sets the hysteresis for the "Speed positive" message.
This parameter acts on the "Speed setpoint positive" message as well as on the "Speed actual value positive" message.

Dependency: See also: p50594, p50598, r53025

Note: The "Speed positive" message is available as follows:
Setpoint:
- r53025.8 (not inverted)
- r53025.9 (inverted)
Actual value:
- r53025.12 (not inverted)
- r53025.13 (inverted)

p50373[0...n] Messages for reference speed threshold / Ref_speed thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	100.00 [%]

Description: Sets the threshold for the "Reference speed reached" message.
Dependency: See also: p50374, p50375, p50592, r53025
Note: The "Reference speed reached" message is available as follows:
- r53025.4 (not inverted)
- r53025.5 (inverted)

p50374[0...n] Messages for reference speed hysteresis / Ref_speed hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	3.00 [%]

Description: Sets the hysteresis for the "Reference speed reached" message.
The message is triggered when the threshold is overshot.
Once the value falls below the threshold minus the hysteresis, the message is withdrawn.
Dependency: See also: p50373, p50375, p50592, r53025

p50375[0...n] Messages for reference speed OFF delay / Ref_speed t_OFF

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	100.0 [s]	3.0 [s]

Description: Sets the OFF delay for the "Reference speed reached" message.
Dependency: See also: p50373, p50374, p50592, r53025

p50376[0...n] Messages for setpoint/actual value deviation 2 threshold / Set/act 2 thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	3.00 [%]

Description: Sets the threshold for the "Setpoint/actual value deviation 2 reached" message.
Dependency: See also: p50377, p50378, p50596, p50597, r53025

Note: The "Setpoint/actual value deviation 2 reached" message is available as follows:
- r53025.2 (not inverted)
- r53025.3 (inverted)

p50377[0...n] Messages for setpoint/actual value deviation 2 hysteresis / Set/act 2 hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	1.00 [%]

Description: Sets the hysteresis for the "Setpoint/actual value deviation 2 reached" message.
The message is triggered when the threshold is overshot.
Once the value falls below the threshold minus the hysteresis, the message is withdrawn.
Dependency: See also: p50376, p50378, p50596, p50597, r53025

p50378[0...n] Messages for setpoint/actual value deviation 2 OFF delay / Set/act 2 t_OFF

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	100.0 [s]	3.0 [s]

Description: Sets the OFF delay for the "Setpoint/actual value deviation 2 reached" message.
Dependency: See also: p50376, p50377, p50596, p50597, r53025

p50380[0...n] Messages for overspeed threshold positive direction of rotation / Msg n_over pos

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	200.0 [%]	120.0 [%]

Description: Sets the threshold for the maximum speed in positive direction of rotation.
Dependency: See also: p50381, p50595, r53025
See also: F60038
Note: The "Overspeed" message is available as follows:
- F60038
- r53025.10 (not inverted)
- r53025.11 (inverted)

p50381[0...n] Messages for overspeed threshold negative direction of rotation / Msg n_over neg

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.0 [%]	0.0 [%]	-120.0 [%]

Description: Sets the threshold for the maximum speed in negative direction of rotation.
Dependency: See also: p50380, p50595, r53025
See also: F60038

Note: The "Overspeed" message is available as follows:
- F60038
- r53025.10 (not inverted)
- r53025.11 (inverted)

p50388[0...n] Messages for setpoint-actual value deviation 1 threshold / Set/act 1 thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	3.00 [%]

Description: Sets the threshold for the "Setpoint/actual value deviation 1 reached" message.
Dependency: See also: p50389, p50390, p50590, p50591, r53025
See also: F60031
Note: The "Setpoint/actual value deviation 1 reached" message is available as follows:
- F60031
- r53025.0 (not inverted)
- r53025.1 (inverted)

p50389[0...n] Messages for setpoint-actual value deviation 1 hysteresis / Set/act 1 hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	1.00 [%]

Description: Sets the hysteresis for the "Setpoint/actual value deviation 1 reached" signal.
The message is triggered when the threshold is overshot.
Once the value falls below the threshold minus the hysteresis, the message is withdrawn.
Dependency: See also: p50388, p50390, p50590, p50591, r53025
See also: F60031

p50390[0...n] Messages for setpoint-actual value deviation 1 OFF delay / Set/act t_OFF

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	100.0 [s]	3.0 [s]

Description: Sets the OFF delay for the "Setpoint/actual value deviation 1 reached" signal.
Dependency: See also: p50388, p50389, p50590, p50591, r53025
See also: F60031

p50394[0...n] Messages for field current threshold minimum threshold / Msg If min thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	3.00 [%]

Description: Sets the threshold for the "Field current threshold minimum" message.
Dependency: See also: p50395, r53026

Note: This threshold also affects the phase logic execution in the context of the Direction reversal by field reversal and Braking by field reversal functions.
The "Field current threshold minimum" message is displayed via r53026.0.

p50395[0...n] Messages for field current threshold minimum hysteresis / Msg If min hyst

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	100.00 [%]	1.00 [%]

Description: Sets the hysteresis for the "Field current threshold minimum" message.
The message is triggered when the threshold is undershot.
Once the value rises above the threshold plus the hysteresis, the message is withdrawn.
Dependency: See also: r53026
Note: The "Field current threshold minimum" message is displayed via r53026.0.

p50396[0...n] Field current monitoring setpoint factor / If_mon set_fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8044
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1 [%]	100 [%]	50 [%]

Description: Sets the factor for the setpoint in the context of field current monitoring.
Dependency: See also: p50265, p50397
See also: F60005

p50397[0...n] Field current monitoring fault delay time / If_mon F t_del

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8044
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.02 [s]	60.00 [s]	0.50 [s]

Description: Sets the delay time for triggering fault F60005 in the context of field current monitoring.
Dependency: See also: p50265, p50396
See also: F60005

p50398[0...n] Messages for field current actual value less than setpoint fact / Msg If<set fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	80.00 [%]

Description: Sets the factor for the setpoint for the "Field current actual value less than setpoint" message.
Dependency: See also: p50399, r53026
Note: This threshold also affects the phase logic execution in the context of the Direction reversal by field reversal and Braking by field reversal functions.
The "Field current actual value less than setpoint" message is displayed via r53026.1.

p50399[0...n] Messages for field current actual value less than setpoint hyst / Msg If<set hyst

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 8025
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	1.00 [%]

Description: Sets the hysteresis for the "Field current actual value less than setpoint" message.
The message is triggered when the threshold is undershot (setpoint x factor).
Once the value rises above the threshold (setpoint x factor) plus the hysteresis, the message is withdrawn.
Dependency: See also: p50398, r53026
Note: The "Field current actual value less than setpoint" message is displayed via r53026.1.

p50401[0...n] Fixed value 1 / Fix val 1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets fixed value 1.
Dependency: See also: r52401
Note: This value can be interconnected via connector output r52401.

p50402[0...n] Fixed value 2 / Fix val 2

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets fixed value 2.
Dependency: See also: r52402
Note: This value can be interconnected via connector output r52402.

p50403[0...n] Fixed value 3 / Fix val 3

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets fixed value 3.
Dependency: See also: r52403
Note: This value can be interconnected via connector output r52403.

p50404[0...n] Fixed value 4 / Fix val 4

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 4.
Dependency: See also: r52404
Note: This value can be interconnected via connector output r52404.

p50405[0...n] Fixed value 5 / Fix val 5

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 5.
Dependency: See also: r52405
Note: This value can be interconnected via connector output r52405.

p50406[0...n] Fixed value 6 / Fix val 6

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 6.
Dependency: See also: r52406
Note: This value can be interconnected via connector output r52406.

p50407[0...n] Fixed value 7 / Fix val 7

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 7.
Dependency: See also: r52407
Note: This value can be interconnected via connector output r52407.

p50408[0...n] Fixed value 8 / Fix val 8

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 8.
Dependency: See also: r52408
Note: This value can be interconnected via connector output r52408.

p50409[0...n] Fixed value 9 / Fix val 9

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 9.
Dependency: See also: r52409
Note: This value can be interconnected via connector output r52409.

p50410[0...n] Fixed value 10 / Fix val 10

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 10.
Dependency: See also: r52410
Note: This value can be interconnected via connector output r52410.

p50411[0...n] Fixed value 11 / Fix val 11

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-200.00 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
200.00 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 11.
Dependency: See also: r52411
Note: This value can be interconnected via connector output r52411.

p50412[0...n] Fixed value 12 / Fix val 12

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min: -340.28235E36 [%]

Calculated: -
Dyn. index: DDS, p0180
Scaling: PERCENT
Max: 340.28235E36 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting: 0.00 [%]

Description: Sets fixed value 12.
Dependency: See also: r52412
Note: This value can be interconnected via connector output r52412.

p50413[0...n] Fixed value 13 / Fix val 13

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min: -340.28235E36 [%]

Calculated: -
Dyn. index: DDS, p0180
Scaling: PERCENT
Max: 340.28235E36 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting: 0.00 [%]

Description: Sets fixed value 13.
Dependency: See also: r52413
Note: This value can be interconnected via connector output r52413.

p50414[0...n] Fixed value 14 / Fix val 14

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min: -340.28235E36 [%]

Calculated: -
Dyn. index: DDS, p0180
Scaling: PERCENT
Max: 340.28235E36 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting: 0.00 [%]

Description: Sets fixed value 14.
Dependency: See also: r52414
Note: This value can be interconnected via connector output r52414.

p50415[0...n] Fixed value 15 / Fix val 15

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min: -340.28235E36 [%]

Calculated: -
Dyn. index: DDS, p0180
Scaling: PERCENT
Max: 340.28235E36 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting: 0.00 [%]

Description: Sets fixed value 15.
Dependency: See also: r52415
Note: This value can be interconnected via connector output r52415.

p50416[0...n] Fixed value 16 / Fix val 16

DC_CTRL

Can be changed: U, T
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-340.28235E36 [%]

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: PERCENT
Max:
340.28235E36 [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0.00 [%]

Description: Sets fixed value 16.
Dependency: See also: r52416
Note: This value can be interconnected via connector output r52416.

p50421[0...n] Fixed bit 0 / Fixed bit 0

DC_CTRL

Can be changed: U, T
Data type: Integer16
P group: -
Not for motor type: -
Min:
0

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: -
Max:
1

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0

Description: Sets the signal level for fixed bit 0.
Value:
0: Low
1: High
Dependency: See also: r53230
Note: This signal can be interconnected via binector output r53230.0.

p50422[0...n] Fixed bit 1 / Fixed bit 1

DC_CTRL

Can be changed: U, T
Data type: Integer16
P group: -
Not for motor type: -
Min:
0

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: -
Max:
1

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0

Description: Sets the signal level for fixed bit 1.
Value:
0: Low
1: High
Dependency: See also: r53230
Note: This signal can be interconnected via binector output r53230.1.

p50423[0...n] Fixed bit 2 / Fixed bit 2

DC_CTRL

Can be changed: U, T
Data type: Integer16
P group: -
Not for motor type: -
Min:
0

Calculated: -
Dyn. index: DDS, p0180
Unit group: -
Scaling: -
Max:
1

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
0

Description: Sets the signal level for fixed bit 2.
Value:
0: Low
1: High
Dependency: See also: r53230
Note: This signal can be interconnected via binector output r53230.2.

p50424[0...n] Fixed bit 3 / Fixed bit 3

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the signal level for fixed bit 3.

Value:
0: Low
1: High

Dependency: See also: r53230

Note: This signal can be interconnected via binector output r53230.3.

p50425[0...n] Fixed bit 4 / Fixed bit 4

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the signal level for fixed bit 4.

Value:
0: Low
1: High

Dependency: See also: r53230

Note: This signal can be interconnected via binector output r53230.4.

p50426[0...n] Fixed bit 5 / Fixed bit 5

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the signal level for fixed bit 5.

Value:
0: Low
1: High

Dependency: See also: r53230

Note: This signal can be interconnected via binector output r53230.5.

p50427[0...n] Fixed bit 6 / Fixed bit 6

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the signal level for fixed bit 6.

Value:
0: Low
1: High

Dependency: See also: r53230

Note: This signal can be interconnected via binector output r53230.6.

p50428[0...n] Fixed bit 7 / Fixed bit 7

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the signal level for fixed bit 7.

Value:
0: Low
1: High

Dependency: See also: r53230

Note: This signal can be interconnected via binector output r53230.7.

p50430[0...7] BI: Fixed setpoint signal source for connector selection / Fix set conn sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3115
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the selection of the connectors (p50431[0 to 7]).

Dependency: See also: p50431, p50432, p50680, p50681, r52204, r52209, r52210, r53170

p50431[0...7] CI: Signal source for fixed setpoint / Fix set sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3115
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal sources for generating the fixed setpoint (CO: r52204).

Dependency: See also: p50430, p50432, p50680, p50681, r52204, r52209, r52210, r53170

p50432[0...7] Fixed setpoint bypass ramp-function generator / Fix set bypass RFG

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 3115
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to enable or disable the impact of the individual fixed setpoints when generating signal r53170.10, "Bypass ramp-function generator".

Value:
0: Inhibit
1: Enable

Dependency: See also: r53170

Note: [0] = Enable bypassing of ramp-function generator at fixed setpoint 0
...
[7] = Enable bypassing of ramp-function generator at fixed setpoint 7

p50433[0...n] CI: Signal source for default setpoint / Def set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3113
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52011[0]

Description: Sets the signal source for the default setpoint.

p50435[0...7] BI: Jog setpoint signal source for connector selection / Jog set conn sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the selection of the connectors (p50436[0 to 7]).

p50436[0...7] CI: Signal source for jog setpoint / Jog set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for generating the jog setpoint (CO: r52202).

p50437[0...7] Jog setpoint bypass ramp-function generator / Jog set bypass RFG

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to enable or disable the impact of the individual jog setpoints when generating signal r53170.11, "Bypass ramp-function generator".

Value:
0: Do not bypass
1: Bypass

Note:
[0] = Enable bypassing of ramp-function generator at jog setpoint 0
...
[7] = Enable bypassing of ramp-function generator at jog setpoint 7

p50438[0...n] CI: Jog signal source for default setpoint / Jog def set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52208[0]

Description: Sets the signal source for the default setpoint when jog is not selected.

p50440[0...7] BI: Creep setpoint signal source for connector selection / Cr set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the selection of the connectors (p50441[0 to 7]) for the creep setpoint.

Dependency: See also: p50441

p50441[0...7] CI: Signal source for creep setpoint / Cr set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for generating the creep setpoint (CO: r52201).

Dependency: See also: r52201

p50442[0...7] Creep setpoint bypass ramp-function generator / Cr set bypass RFG

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to enable/disable the impact of the individual creep setpoints when generating signal r53170.12, "Bypass ramp-function generator".

Value:
0: Do not bypass
1: Bypass

Note: [0]: Enable bypassing of ramp-function generator at creep setpoint 0
...
[7]: Enable bypassing of ramp-function generator at creep setpoint 7

p50443[0...n] CI: Creep signal source for default setpoint / Cr def set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52207[0]

Description: Sets the signal source for the default setpoint when creep is not selected.

p50444[0...n] BI: Creep signal source for shutdown / Cr shutdn sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for shutting down/resetting the injection of the creep setpoint.

p50445 Creep setpoint level/edge / Cr set lev/ed

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 3130
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets whether the ON command is triggered by a logic 1 level or a 0/1 edge.

Value:
0: 1 level
1: 0/1 edge

p50460[0...n] Motorized potentiometer activate ramp-function generator / Mot pot act RFG

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	1

Description: Setting to activate/de-activate the ramp-function generator on the motorized potentiometer.

Value:
0: RFG de-activated in automatic mode
1: RFG activated in automatic and manual modes

p50461[0...n] CI: Motorized potentiometer signal source for automatic setpoint / MotP aut s sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for the ramp-function generator's setpoint in automatic mode on the motorized potentiometer.

p50462[0...n] Motorized potentiometer ramp-up time / MotP t_r-up

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [s]	300.00 [s]	10.00 [s]

Description: Sets the ramp-up time on the motorized potentiometer.

p50463[0...n] Motorized potentiometer ramp-down time / MotP t_r-dn

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [s]	300.00 [s]	10.00 [s]

Description: Sets the ramp-down time on the motorized potentiometer.

p50464[0...n] Motorized potentiometer time difference for dy/dt / MotP t_dif dy/dt

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.01 [s]	300.00 [s]	10.00 [s]

Description: Sets the time difference for the ramp-function generator dy/dt on the motorized potentiometer.

p50465[0...n] Motorized potentiometer expansion factor / MotP exp fact

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the expansion factor on the motorized potentiometer.

Value:
0: Factor 1
1: Factor 60

Dependency: See also: p50462, p50463, p50464

Note: The expansion factor affects the following parameters:
- p50462 (ramp-up time)
- p50463 (ramp-down time)
- p50464 (time difference for dy/dt)

p50466[0...n] CI: Motor potentiometer setting value signal source / MotP s val sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the setting value for the motorized potentiometer.

Dependency: See also: p50472

Note: The setting value (CI: p50466) becomes effective on a 0/1 edge of the setting command (BI: p50472).

p50467[0...n] Motorized potentiometer starting value / MotP start value

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the starting value on the motorized potentiometer.

Dependency: See also: p50473

Note: The value is only effective when saving of the output value is de-activated (p50473 = 0).

p50468[0...n] Motorized potentiometer maximum speed / MotP n_max

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-200.00 [%] | 200.00 [%] | 100.00 [%]

Description: Sets the maximum speed on the motorized potentiometer.
Dependency: See also: p50471
Note: This parameter is only effective in manual mode (p50471 = 0).
The setpoint output from the motorized potentiometer is limited to this value.

p50469[0...n] Motorized potentiometer minimum speed / MotP n_min

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-200.00 [%] | 200.00 [%] | -100.00 [%]

Description: Sets the minimum speed on the motorized potentiometer.
Dependency: See also: p50471
Note: This parameter is only effective in manual mode (p50471 = 0).
The setpoint output from the motorized potentiometer is limited to this value.

p50470[0...n] BI: Motorized potentiometer signal source for CW/CCW / MotP CW/CCW sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** CDS, p0170 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Sets the signal source for changing over between clockwise/counter-clockwise rotation on the motorized potentiometer.

p50471[0...n] BI: Motorized potentiometer signal source for manual/automatic / MotP man/aut sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** CDS, p0170 | **Function diagram:** 3110
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Sets the signal source for changing between manual and automatic modes.
Dependency: See also: p50461, p50673, p50674
Note: If p50471 = 0 signal (manual mode):
In manual mode, the setpoint is increased and reduced using binector inputs p50673 and p50674 respectively.
If p50471 = 1 signal (automatic mode):
In automatic mode, the setpoint is specified using connector input p50461.

p50472[0...n] BI: Motorized potentiometer accept setting value / MotP acc set val

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source to accept the setting value for the motorized potentiometer.
Dependency: See also: p50466
Note: The setting value (CI: p50466) becomes effective on a 0/1 edge of the setting command (BI: p50472).

p50473[0...n] Motorized potentiometer save output value / MotP save outp val

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 3110
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets how the output value is saved on the motorized potentiometer.
Value:
0: Save de-activated
1: Save activated
Dependency: See also: p50467, r52240
Note:
If p50473 = 0:
The output value (CI: r52240) is not saved. The starting value specified in p50467 is applied after ON.
If p50473 = 1:
The output value (CI: r52240) is saved to non-volatile memory after OFF. The saved value is applied after ON.

p50480[0...n] Oscillation setpoint 1 / Oscillation set 1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.0 [%]	200.0 [%]	0.5 [%]

Description: Sets setpoint 1 for the square-wave generator.
Dependency: See also: p50481, p50482, p50483
Note: This setpoint is applied for the time set in p50481.

p50481[0...n] Oscillation setpoint 1 time / Oscill set 1 t

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.1 [s]	300.0 [s]	0.1 [s]

Description: Sets the time during which setpoint 1 should be applied for the square-wave generator.
Dependency: See also: p50480, p50482, p50483

p50482[0...n] Oscillation setpoint 2 / Oscillation set 2

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.0 [%]	200.0 [%]	-0.4 [%]

Description: Sets setpoint 2 for the square-wave generator.
Dependency: See also: p50480, p50481, p50483
Note: This setpoint is applied for the time set in p50483.

p50483[0...n] Oscillation setpoint 2 time / Oscill set 2 t

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.1 [s]	300.0 [s]	0.1 [s]

Description: Sets the time during which setpoint 2 should be applied for the square-wave generator.
Dependency: See also: p50480, p50481, p50482

p50484[0...n] CI: Oscillation signal source for default setpoint / Oscill def set

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52209[0]

Description: Sets the signal source for the default setpoint for oscillation.
This setpoint is injected when the "Oscillate" function is not selected.
Dependency: See also: p50485

p50485[0...n] BI: Oscillation selection of signal source / Oscill sel sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3120
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the selection of the "Oscillate" function.
Dependency: See also: p50480, p50481, p50482, p50483, p50484
Note: BI: p50485 = 0 signal
Oscillation is not selected. The default setpoint is applied (CI: p50484).
BI: p50485 = 1 signal
Oscillation is selected. The square-wave generator is active (p50480, p50481, p50482, p50483).

p50486 BI: Motor interface signal source for brush length / Mot br l sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8035
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for triggering fault F60025 "Brush length".

Dependency: See also: r53120
See also: F60025

Note: The fault is triggered with a delay.
The signal is available via binector output r53210.0 for further interconnection.

p50487 BI: Motor interface signal source for bearing condition / Mot brg cond sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8035
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for triggering fault F60026 "Bearing condition".

Dependency: See also: r53120
See also: F60026

Note: The fault is triggered with a delay.
The signal is available via binector output r53120.1 for further interconnection.

p50488 BI: Motor interface signal source for motor fan / Mot mot fan sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8035
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for triggering fault F60027 "Motor fan".

Dependency: See also: r53120
See also: F60027

Note: The fault is triggered with a delay.
The signal is available via binector output r53210.0 for further interconnection.

p50489 BI: Motor interface signal source for motor temperature / Mot mot temp s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8035
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for triggering fault F60028 "Motor temperature".

Dependency: See also: r53120
See also: F60028

Note: The fault is triggered with a delay.
The signal is available via binector output r53210.3 for further interconnection.

p50490 Motor interface temperature sensor / Mot temp sensor

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 8030
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	8	0

Description: Sets the temperature sensor for monitoring the motor temperature.

Value:
0: No sensor
1: KTY84
2: PTC thermistor R_rated 600
3: PTC thermistor R_rated 1200
4: PTC thermistor R_rated 1330
5: PTC thermistor R_rated 2660
6: PT100
7: NTC thermistor K227
8: PT1000

Dependency: See also: r50012, r52051
See also: F60029, A60032

Note: Comments regarding PTC thermistors:
- PTC thermistors according to DIN 44081 / 44082 with the specified R for the rated response temperature.
- For Siemens motors, PTC thermistors with 1330 Ohm are used.
- Parameters p50491 and p50492 (alarm and switch-off temperature) are ineffective. The alarm and switch-off temperatures are defined by the PTC thermistor type being used.

Comments on NTC thermistor K227:
The evaluation electronics on the CUD only allow resistance values of less than approx. 2 kOhm to be measured. As a consequence, only temperatures greater than approx. 90 °C can be measured when using these temperature sensors. For lower temperatures, the lowest possible value (approx. 90 °C) is displayed.

p50491[0...n] Motor interface alarm threshold for temperature monitoring / Mot_temp al thr

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8030
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [°C]	200 [°C]	0 [°C]

Description: Sets the alarm threshold for monitoring the motor temperature.

Dependency: The parameter is only valid for the following temperature sensors with a continuous characteristic:
- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)

See also: p50490, p50492, r52051
See also: A60032

p50492[0...n] Motor interface fault threshold for temperature monitoring / Mot_temp flt thr

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 8030
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [°C]	200 [°C]	0 [°C]

Description: Sets the fault threshold for monitoring the motor temperature.

Dependency: The parameter is only valid for the following temperature sensors with a continuous characteristic:
- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)

See also: p50490, p50491, r52051
See also: F60029

p50500[0...n] CI: Torque limiting signal source for t_set in slave mode / T_set s mode sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6830
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52170[0]

Description: Sets the signal source for the torque setpoint in slave mode.
Dependency: See also: p50503

p50501[0...n] CI: Torque limiting signal source for torque additional setpoint / T_lim add s sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6830
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the torque additional setpoint in torque limiting.
The value is injected in addition to friction and moment of inertia compensation.

p50502 CI: Speed controller additional setpoint signal source / Add set sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the additional setpoint of the speed controller.
This value is added to the speed controller's output value.

p50503[0...n] Torque limiting t_set factor in slave mode / T_set fact sl mode

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6830
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-300.00 [%]	300.00 [%]	100.00 [%]

Description: Sets the factor for the torque setpoint in slave mode.
Dependency: See also: p50500

p50509 CI: Speed limiting controller signal source for speed actual value / n_lim n_act sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the speed actual value (n_act) on the speed limiting controller.

p50510 CI: Speed limiting controller signal source for pos torque limit / T lim pos sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52002[0]

Description: Sets the signal source for the positive torque limit on the speed limiting controller.
Dependency: See also: r52136
Note: This parameter specifies which parameter is to be injected as the limit value for torque limiting 1 (r52136).

p50511 CI: Speed limiting controller signal source for neg torque limit / T lim neg sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52004[0]

Description: Sets the signal source for the negative torque limit on the speed limiting controller.
Dependency: See also: r52137
Note: This parameter specifies which parameter is to be injected as the limit value for torque limiting 2 (r52137).

p50512[0...n] Speed limiting controller max speed pos direction of rotation / n_max pos dir rot

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [%]	200.0 [%]	105.0 [%]

Description: Sets the maximum speed for the positive direction of rotation on the speed limiting controller.

p50513[0...n] Speed limiting controller max speed neg direction of rotation / n_max neg dir

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.0 [%]	0.0 [%]	-105.0 [%]

Description: Sets the maximum speed for the negative direction of rotation on the speed limiting controller.

p50515[0...n] Speed limiting controller P gain / n_lim Kp

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6835
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.10	200.00	3.00

Description: Sets the P gain on the speed limiting controller.

p50519[0...1] CI: Input signal for friction compensation / Fric comp inp sig

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	[0] 52179[0] [1] 0

Description: Sets the signal sources for friction compensation.

Index: [0] = Signed
[1] = Absolute

Note: The signals in p50519[0] and p50519[1] are summed and applied to the friction compensation input.

p50520[0...n] Friction compensation 0% speed / Fric comp n 0%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 0% speed.

Recommendation: In the case of operation in both directions of rotation, this basic value should be set to 0% to prevent the armature current from oscillating.

Note: The basic values are based on the device rated direct current or the device rated torque.

The basic values for friction compensation (p50520 ... p50530) are set automatically during the optimization run for friction compensation (p50051 = 28).

There is linear interpolation between the basic values; here, the friction compensation value takes on the input signal's sign.

p50521[0...n] Friction compensation 10% speed / Fric comp n 10%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 10% speed.

p50522[0...n] Friction compensation 20% speed / Fric comp n 20%

DC_CTRL | **Can be changed:** U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets friction compensation at 20% speed.

p50523[0...n] Friction compensation 30% speed / Fric comp n 30%

DC_CTRL | **Can be changed:** U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets friction compensation at 30% speed.

p50524[0...n] Friction compensation 40% speed / Fric comp n 40%

DC_CTRL | **Can be changed:** U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets friction compensation at 40% speed.

p50525[0...n] Friction compensation 50% speed / Fric comp n 50%

DC_CTRL | **Can be changed:** U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets friction compensation at 50% speed.

p50526[0...n] Friction compensation 60% speed / Fric comp n 60%

DC_CTRL | **Can be changed:** U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.0 [%] | 100.0 [%] | 0.0 [%]

Description: Sets friction compensation at 60% speed.

p50527[0...n] Friction compensation 70% speed / Fric comp n 70%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 70% speed.

p50528[0...n] Friction compensation 80% speed / Fric comp n 80%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 80% speed.

p50529[0...n] Friction compensation 90% speed / Fric comp n 90%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 90% speed.

p50530[0...n] Friction compensation 100% speed / Fric comp n 100%

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.0 [%]	100.0 [%]	0.0 [%]

Description: Sets friction compensation at 100% speed.
Note: This basic value is also effective at speeds > 100%.

p50540[0...n] Speed controller acceleration time / n_ctr t_accel

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6820
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [s]	1000.00 [s]	0.01 [s]

Description: Sets the acceleration time on the speed controller.
Dependency: See also: r52150, r52174
Note: The acceleration time is the time which would be needed to accelerate the drive from 0 to 100% of the maximum speed at 100% device rated current (with no friction present). It is a measure of the moment of inertia at the motor shaft.

The acceleration time is set automatically during the optimization run for the speed controller (p50051 = 26).

p50541[0...3] Speed controller setpoint/actual value difference factor / Set/act dif fact

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00	650.00	0.00

Description: Sets the factor for the acceleration on the speed controller, which is dependent upon the difference between the setpoint and the actual value.

In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through.

Dependency: See also: p50543

p50542[0...n] RFG dy/dt time difference / RFG dy/dt t_dif

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 3152
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [s]	1000.00 [s]	0.01 [s]

Description: Sets the dt for the output of dy/dt in r52191.

The change in the ramp-function generator's output variable (p52190) in relation to the time set in p50542 is output in r52191.

Dependency: See also: p50330, r52191

Note: Example:

A ramp-up time of 5 s is set on the ramp-function generator; in other words, a complete ramp-up from y = 0% to 100% will take 5 s.

A time difference dt of 2 s is set in p50542. This results in a dy/dt of 40% at r52191, since the set dt of 2s produces a dy of (2 s / 5 s) * 100% = 40%.

p50543[0...n] Speed controller setpoint/actual value difference threshold / Set/act dif thresh

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the threshold for acceleration dependent upon the setpoint/actual value difference.

In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through.

Dependency: See also: p50541

p50546[0...n] Smoothing time constant for inertia compensation / Comp inert T

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6820
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the smoothing time constant for the acceleration value for moment of inertia compensation.

Dependency: See also: p50619

p50550[0...n] Speed controller adaptation Kp y coordinate 1 / Adapt Kp y1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.01	2000.00	3.00

Description: Sets the y coordinate for pair of values 1 for adaptation of the P gain (Kp).

Note: This P gain (Kp) is effective up to x coordinate 1 (p50556).
The adaptation of the P gain (Kp) is defined using 2 pairs of values.
Pair of values 1:
p50556/p50550 (x/y coordinate)
Pair of values 2:
p50559/p50225 (x/y coordinate)

p50551[0...n] Speed controller adaptation Tn y coordinate 1 / Adapt Tn y1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.010 [s]	10.000 [s]	0.650 [s]

Description: Sets the y coordinate for pair of values 1 for adaptation of the integral time (Tn).

Note: This integral time (Tn) is effective up to x coordinate 1 (p50557).
The adaptation of the integral time (Tn) is defined using 2 pairs of values.
Pair of values 1:
p50557/p50551 (x/y coordinate)
Pair of values 2:
p50560/p50226 (x/y coordinate)

p50552[0...n] Speed controller adaptation droop y coordinate 1 / Adapt droop y1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.000	10.000	0.000

Description: Sets the y coordinate for pair of values 1 for adaptation of the droop.

Notice: - For the droop, generally values up to 10 % are practical (p50552 = 0.000 ... 0.100). Under certain circumstances, higher values can result in an unstable response of the speed controller.
- The droop is entered as absolute factor without any dimensions and it is especially important to note that it is not a percentage.
Example:
Set droop = 5 % --> p50552 = 0.05

Note: This droop is effective up to x coordinate 1 (p50558).
The adaptation of the droop is defined using 2 pairs of values.
Pair of values 1:
p50558/p50552 (x/y coordinate)
Pair of values 2:
p50561/p50227 (x/y coordinate)

p50553[0...n] CI: Speed controller adaptation Kp signal source / Adapt Kp sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the P gain (Kp) on the speed controller.

p50554[0...n] CI: Speed controller adaptation Tn signal source / Adapt Tn sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the integral time (Tn) on the speed controller.

p50555[0...n] CI: Speed controller adaptation droop signal source / Adapt droop sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the droop on the speed controller.

Note: A setting of 10% droop means that at 100% controller output (100% torque or current setpoint), the speed will deviate from the setpoint by 10% ("softening" of closed-loop control).

p50556[0...n] Speed controller adaptation Kp x coordinate 1 / Adapt Kp x1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the x coordinate for pair of values 1 for adaptation of the P gain (Kp).

Notice: The following condition applies for x coordinate 1/2:
p50556 < p50559

Note: The adaptation of the P gain (Kp) is defined using 2 pairs of values.
Pair of values 1:
p50556/p50550 (x/y coordinate)
Pair of values 2:
p50559/p50225 (x/y coordinate)

p50557[0...n] Speed controller adaptation Tn x coordinate 1 / Adapt Tn x1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the x coordinate for pair of values 1 for adaptation of the integral time (Tn).

Notice: The following condition applies for x coordinate 1/2:
p50557 < p50560

Note: The adaptation of the integral time (Tn) is defined using 2 pairs of values.
Pair of values 1:
p50557/p50551 (x/y coordinate)
Pair of values 2:
p50560/p50226 (x/y coordinate)

p50558[0...3] Speed controller adaptation droop x coordinate 1 / Adapt droop x1

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the x coordinate for pair of values 1 for adaptation of the droop.

Notice: The following condition applies for x coordinate 1/2:
p50558 < p50561

Note: The adaptation of the droop is defined using 2 pairs of values.
Pair of values 1:
p50558/p50552 (x/y coordinate)
Pair of values 2:
p50561/p50227 (x/y coordinate)

p50559[0...n] Speed controller adaptation Kp x coordinate 2 / Adapt Kp x2

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6805
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the x coordinate for pair of values 2 for adaptation of the P gain (Kp).

Notice: The following condition applies for x coordinate 1/2:
p50556 < p50559

Note: The adaptation of the P gain (Kp) is defined using 2 pairs of values.
Pair of values 1:
p50556/p50550 (x/y coordinate)
Pair of values 2:
p50559/p50225 (x/y coordinate)

p50560[0...n] Speed controller adaptation Tn x coordinate 2 / Adapt Tn x2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6805
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [%] | 100.00 [%] | 0.00 [%]

Description: Sets the x coordinate for pair of values 2 for adaptation of the integral time (Tn).
Notice: The following condition applies for x coordinate 1/2:
p50557 < p50560
Note: The adaptation of the integral time (Tn) is defined using 2 pairs of values.
Pair of values 1:
p50557/p50551 (x/y coordinate)
Pair of values 2:
p50560/p50226 (x/y coordinate)

p50561[0...n] Speed controller adaptation droop x coordinate 2 / Adapt droop x2

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6805
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [%] | 100.00 [%] | 0.00 [%]

Description: Sets the x coordinate for pair of values 2 for adaptation of the droop.
Notice: The following condition applies for x coordinate 1/2:
p50558 < p50561
Note: The adaptation of the droop is defined using 2 pairs of values.
Pair of values 1:
p50558/p50552 (x/y coordinate)
Pair of values 2:
p50561/p50227 (x/y coordinate)

p50562[0...n] Speed controller droop positive limiting / Droop pos lim

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6805
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0.00 [%] | 200.00 [%] | 100.00 [%]

Description: Sets positive limiting for the droop on the speed controller.
Dependency: See also: p50563

p50563[0...n] Speed controller droop negative limiting / Droop neg lim

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6805
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-200.00 [%] | 0.00 [%] | -100.00 [%]

Description: Sets negative limiting for the droop on the speed controller.
Dependency: See also: p50562

p50565 Speed controller optimization frequency response plot base speed / f_plot n_base

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2660
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
1.0 [%]	30.0 [%]	20.0 [%]

Description: Sets the base speed for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29).

Dependency: See also: p50566, p50567

p50566 Speed controller optimization frequency response plot amplitude / f_plot amplitude

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2660
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.01 [%]	5.00 [%]	1.00 [%]

Description: Sets the amplitude for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29).

p50567 Speed controller optimization frequency response plot time / f_plot time

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2660
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.30 [s]	3.00 [s]	1.00 [s]

Description: Sets the time for the frequency response plot for the optimization run "Speed control optimization for drives that are capable of oscillation" (p50051 = 29).
In this case, an average is generated over the time set here per measuring frequency.

Note: High values improve the result, however they slow down the measuring time.
For the 3.0 s setting, it takes approximately 9 minutes to plot the frequency response.

p50570[0...n] Adaptation armature current controller changeover input / Adapt Ia chgov inp

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** DDS, p0180 | **Function diagram:** 6853
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the input quantity for armature current controller adaptation.

Value:
0: Ia_act r52117
1: Ia_set r52119

Dependency: See also: p50571, p50572

p50571[0...n] Adaptation armature current controller non-linear L activation / Adapt N_lin L act

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6853
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate the adaptation of non-linear inductances for the armature current controller.

Value:
0: Adaptation non-linear L active
1: Fixed value 100 % effective

Dependency: See also: p50570, p50572, r52350

p50572[0...n] Adapt arm curr controller intermittent adapt activation / Adapt Interm Act

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6853
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate the intermittent adaptation for the armature current controller.

Value:
0: Intermittent adaptation effective
1: Fixed value 100 %

Dependency: See also: p50570, p50571, r52350

p50573[0...n] Adaptation armature current controller limiting / Adapt Ia_ctrl lim

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6853
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1.0 [%]	200.0 [%]	200.0 [%]

Description: Setting to limit the armature current controller adaptation.

Dependency: See also: p50571, p50572, r52350

p50574[0...n] Adapt arm curr controller intermittent adapt Kp increase / Ad Interm Kp incr

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6853
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0	10.0	1.0

Description: Sets the Kp increase for the intermittent adaptation for the armature current controller.

Dependency: See also: p50572

p50575[0...n] Adaptation field current controller changeover input / Adapt If chgov inp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the input variable for the field current controller adaptation.

Value: 0: If_act r52265
1: If_set r52268
Dependency: See also: p50576, p50577

p50576[0...n] Adaptation field current controller non-linear L activation / Adapt n_lin act

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate the adaptation of non-linear inductances for the field current controller.
Value: 0: Adaptation non-linear L active
1: Fixed value 100 % effective
Dependency: See also: p50575, p50577, r52355

p50577[0...n] Adapt field curr controller non-linear gating unit activation / Adapt n_lin GU act

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Activates the adaptation to the non-linearity of the gating unit for the field current controller.
Value: 0: Adaptation gating unit effective
1: Fixed value 100 % effective
Dependency: See also: p50575, p50576, r52355

p50578[0...n] Adaptation field current controller limiting / Adapt If_ctrl lim

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6908
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1.0 [%]	200.0 [%]	200.0 [%]

Description: Setting to limit the field current controller adaptation.
Dependency: See also: p50576, p50577, r52355

p50580[0...n] BI: Field reversal direction of rotation signal source / Field rev sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6920
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the direction of rotation for the "field reversal" function.
0 signal:
Positive field direction is selected (r53195.0 = 1, r53195.1 = 0).
The speed actual value is not inverted.
1 signal:
Negative field direction is selected (r53195.0 = 0, r53195.1 = 1).
The speed actual value is inverted.
Dependency: See also: p50092, p50581, p50583, r53195

p50581[0...n] BI: Field reversal braking signal source / Field rev br sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6920
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the "field reversal braking" function.
0/1 signal:
Reversal of the field direction (this has a braking effect).
At n < n_min, the original field direction is selected again. The drive goes into operating state o7.2.

Dependency: See also: p50092, p50580, p50583, r53195

p50583[0...n] CI: Field reversal speed actual value signal source / FldRev n_act sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6920
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52167[0]

Description: Sets the signal source for the speed actual value when reversing the field.

Dependency: See also: p50092, p50580, p50581, r53195

p50590 CI: Messages for set/act val dev 1 signal source for speed setpoint / Msg dev1 set sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52165[0]

Description: Sets the signal source for the speed setpoint for the "Setpoint/actual value deviation 1" message.

Dependency: See also: p50591, r53025
See also: F60031

p50591 CI: Messages for set/act val dev 1 signal source for speed act val / Msg dev1 act sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the speed actual value for the "Setpoint/actual value deviation 1" message.

Dependency: See also: p50590, r53025
See also: F60031

p50592 CI: Messages for ref speed signal source for speed actual value / Msg ref act sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the speed actual value for the "Reference speed reached" message.
Dependency: See also: r53025

p50593 CI: Messages for speed less than min speed signal source for act val / Msg n<n_min sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the "Speed less then minimum speed" message.
Dependency: See also: r53025

p50594[0...n] CI: Messages polarity speed setpoint signal source / MsgPol n_set S_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52170[0]

Description: Sets the signal source for the "Speed setpoint polarity" message.
Dependency: See also: p50372, r53025

p50595 CI: Signal source for overspeed messages / Msg n_over sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the speed actual value for the overspeed message.
Dependency: See also: p50380, p50381, r53025
See also: F60038

p50596 CI: Messages for setp-actual value deviation 2 s_src speed setpoint / Msg dev2 set s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52174[0]

Description: Sets the signal source for the speed setpoint for the "Setpoint/actual value deviation 2" signal.

Dependency: See also: p50597, r53025

p50597 CI: Messages for setp-actual value deviation 2 s_src speed act value / Msg dev2 act s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8020
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the speed actual value for the "Setpoint/actual value deviation 2" message.
Dependency: See also: p50596, r53025

p50598[0...n] CI: Messages polarity speed actual value signal source / MsgPol n_act S_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 8025
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52179[0]

Description: Sets the signal source for the "Speed actual value polarity" message.
Dependency: See also: p50372, r53025

p50600[0...4] CI: Signal source for armature gating unit input / A g unit in sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6858, 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52102[0] [1...4] 0

Description: Sets the signal source for the gating unit input on the armature circuit.

p50601[0...5] CI: Signal source for speed limiting controller setpoint / n_lim set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835, 6840, 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52141[0] [1] 0 [2] 52134[0] [3] 0 [4] 52125[0] [5] 0

Description: Sets the signal source for the setpoint on the armature current controller.
Notice: For index [5]:
When entering a supplementary current setpoint via p50601[5] it is not permissible to use the current setpoint integrator or the reduced gearbox load function. p50158 must be set = 0.000 s.
Possible effect if this is not observed:
Torque direction change will not be able to be completed. The drive remains in one torque direction.

Note: For index [0...1]:
Speed limiting controller
Sets the signal sources for the setpoint on the speed limiting controller. The two values are added together.
For index [2...3]:
Current limiting
Sets the signal sources for the setpoint on the current controller (before current limitation). The two values are added together.
For index [4...5]:
Current control
Sets the signal sources for the setpoint on the current controller (before the current controller). The two values are added together. The absolute value is generated from the value in index 5.

p50602 CI: CI-loop arm current control sig source for arm current act val / Ia ctr Ia ac sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52117[0]

Description: Sets the signal source for the armature current actual value for closed-loop armature current control.

p50603[0...6] CI: Current limitation current limit torque direction I / I_lim I_lim t d I

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6840
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0...4] 1 [5] 52002[0] [6] 52002[0]

Description: Sets the signal source for the variable current limit in torque direction I.

Note: About [0 to 3]:
Selects which parameter is injected as the variable current limit in torque direction I.
Scaling: +100% corresponding to p50100 * p50171.
About [4]:
Selects which parameter is injected as the current limit in torque direction I for quick stop or shutdown.
Scaling: +100% corresponding to p50100 * p50171.
For [5]:
Selects which parameter is injected as the variable current limit in torque direction I.
Scaling: +100% corresponding to r50072[1].
For [6]:
Selects which parameter is injected as the current limit in torque direction I for quick stop or shutdown.
Scaling: +100% corresponding to r50072[1].

p50604[0...6] CI: Current limitation current limit torque direction II / I_lim I_lim t d II

DC_CTRL

Can be changed: T
Data type: Unsigned32 / FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
-

Access level: 3
Function diagram: 6840
Unit selection: -
Expert list: 1
Factory setting:
[0] 52135[0]
[1] 52135[1]
[2] 52135[2]
[3] 52135[3]
[4] 52135[4]
[5] 52135[5]
[6] 52135[6]

Description: Sets the signal source for the variable current limit in torque direction II.

Note:
About [0 to 3]:
Selects which parameter is injected as the variable current limit in torque direction II.
Scaling: +100% corresponding to p50100 * p50171.
About [4]:
Selects which parameter is injected as the current limit in torque direction II for quick stop or shutdown.
Scaling: +100% corresponding to p50100 * p50171.
For [5]:
Selects which parameter is injected as the variable current limit in torque direction II.
Scaling: +100% corresponding to r50072[1].
For [6]:
Selects which parameter is injected as the current limit in torque direction II for quick stop or shutdown.
Scaling: +100% corresponding to r50072[1].

p50605[0...4] CI: Torque limiting signal source for positive torque limit / T lim pos sig s

DC_CTRL

Can be changed: T
Data type: Unsigned32 / FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
-

Access level: 3
Function diagram: 6825
Unit selection: -
Expert list: 1
Factory setting:
52002[0]

Description: Sets the signal source for the variable positive torque limit.

Note:
Scaling:
[0 to 3] = 100% of the parameter value corresponds to the positive system torque limit according to Ia = p50171.
[4] = 100% of the parameter value corresponds to the positive torque limit according to Ia =r50072[1].

p50606[0...4] CI: Torque limiting signal source for negative torque limit / T lim neg sig s

DC_CTRL

Can be changed: T
Data type: Unsigned32 / FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
-

Access level: 3
Function diagram: 6825
Unit selection: -
Expert list: 1
Factory setting:
[0] 52138[0]
[1] 52138[1]
[2] 52138[2]
[3] 52138[3]
[4] 52138[4]

Description: Sets the signal source for the variable negative torque limit.

Note: Scaling:
[0 to 3] = 100% of the parameter value corresponds to the negative system torque limit according to Ia = p50171.
[4] = 100% of the parameter value corresponds to the negative torque limit according to Ia =r50072[1].

p50607[0...n] CI: Torque limiting signal source for master drive t_set / Mst tq set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52148[0]

Description: Sets the signal source for the master drive's torque setpoint.

p50608 CI: Auto-reversing stage signal source for torque direction setpoint / Tqe dir set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52119[0]

Description: Sets the signal source for the torque direction setpoint for the auto-reversing stage.

p50609[0...n] CI: Signal source for speed controller actual value / n_ctr act sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the actual value on the speed controller.
Dependency: See also: p50083

p50610 CI: Signal source for field gating unit input value / Field g unit sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6915
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52252[0]

Description: Sets the signal source for the input value on the field gating unit.

p50611[0...3] CI: Field curr setp limiting setpoint sig source / If_lim set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6905
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52277[0] [1] 0 [2] 0 [3] 0

Description: Sets the signal sources for generating the field current setpoint (CO: r52275).

Dependency: See also: r52275

p50612[0...1] CI: CI-loop field current ctrl sig source for field current act val / If_ctr If_ac sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6910
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | [0] 52266[0]
[1] 0

Description: Sets the signal source for the field current actual value for closed-loop field current control.

p50613[0...4] CI: Field current setpoint limiting sig source for var upper limit / If_li up li sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6905
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 1

Description: Sets the signal sources for generating the upper limit of the field current setpoint (CO: r52273).
Dependency: See also: r50073, p50102, r52273

p50614[0...4] CI: Field current setpoint limiting sig source for var lower limit / If_lim l lim sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6905
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | [0...3] 1
[4] 0

Description: Sets the signal sources for generating the lower limit of the field current setpoint (CO: r52274).
Dependency: See also: p50103, r52274

p50615[0...3] CI: EMF controller setpoint signal source / EMF ctr set sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6900
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | [0] 52289[0]
[1] 0
[2] 0
[3] 0

Description: Sets the signal source for the setpoints on the EMF controller.
Index: [0] = Setpoint 0
[1] = Setpoint 1
[2] = Setpoint 2
[3] = Setpoint 3
Dependency: See also: r52288
Note: The overall setpoint is available via connector output r52288 for further interconnection.

p50616 CI: EMF controller actual value signal source / EMF ctr act sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52286[0]

Description: Sets the signal source for the actual value on the EMF controller.
Dependency: See also: r52285
Note: The actual value is available via connector output r52285 for further interconnection.

p50618 CI: Field gating unit signal source for field direction / Field g unit dir

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6915
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52268[0]

Description: Sets the signal source for the field direction on the field gating unit.

p50619 CI: Acceleration value for inertia compensation / Comp inert acc val

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6820
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52191[0]

Description: Sets the signal source for the acceleration value for inertia compensation.

p50620 CI: Speed controller setpoint/actual value difference signal source / n_ctr set/ac sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52165[0]

Description: Sets the signal source for the setpoint/actual value difference on the speed controller.
Dependency: See also: r52164
Note: The setpoint/actual value difference for the speed controller is available in r52164 for further interconnection.

p50621 CI: Speed controller setpoint 1 signal source / n_ctr set 1 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52176[0]

Description: Sets the signal source for setpoint 1 on the speed controller.
Dependency: See also: p50622, p50623, p50624, r52165
Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50622 CI: Speed controller setpoint 2 signal source / n_ctr set 2 s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52174[0]

Description: Sets the signal source for setpoint 2 on the speed controller.

Dependency: See also: p50621, p50623, p50624, r52165

Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50623 CI: Signal source for speed controller actual value 1 / n_ctr act 1 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52179[0]

Description: Sets the signal source for actual value 1 on the speed controller.

Dependency: See also: p50621, p50622, p50624, r52165

Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50624 CI: Signal source for speed controller actual value 2 / n_ctr act 2 s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for actual value 2 on the speed controller.

Dependency: See also: p50621, p50622, p50623, r52165

Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

p50625[0...n] CI: Signal source for speed controller setpoint / n_ctr set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52170[0]

Description: Sets the signal source for the setpoint on the speed controller.
This signal can be smoothed using p50228.

Dependency: See also: p50228

p50626[0...n] CI: Signal source for speed controller actual value smoothing / Act v smoo sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** CDS, p0170 | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52167[0]

Description: Sets the signal source to enable smoothing of the actual value on the speed controller.

p50627 CI: Derivative-action element signal source / D elem sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52178[0]

Description: Sets the signal source for the derivative-action element.
Dependency: See also: p50205, p50206, r52168, r52169

p50628 CI: Band-stop 1 signal source / Band-st 1 sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52179[0]

Description: Sets the signal source for band-stop 1.
Dependency: See also: p50201, p50202, r52177

p50629 CI: Band-stop 2 signal source / Band-st 2 sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6810
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52177[0]

Description: Sets the signal source for band-stop 2.
Dependency: See also: p50203, p50204, r52178

p50630 CI: Speed controller droop signal source / Droop sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned32 / FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6805
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 52162[0]

Description: Sets the signal source for the droop on the speed controller.
Dependency: See also: p50697

p50631 CI: Speed controller integral component setting value signal source / I_co set v sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the setting value of the integral component for the speed controller.
Dependency: See also: p50230, p50695

p50632[0...3] CI: RFG signal source for positive limiting after RFG / RFG pos lim sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal sources for positive limiting after the ramp-function generator (setpoint limiting).
Note: The minimum of the signals is forwarded to the limiter via connector input p50632[0 to 3].

p50633[0...3] CI: RFG signal source for negative limiting after RFG / RFG neg lim sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52210[0] [1] 52210[1] [2] 52210[2] [3] 52210[3]

Description: Sets the signal sources for negative limiting after the ramp-function generator (setpoint limiting).
Note: The maximum of the signals is forwarded to the limiter via connector input p50633[0 to 3].

p50634[0...1] CI: RFG input signal for limiting after RFG / RFG lim inp sig

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52190[0] [1] 0

Description: Sets the signal sources for the input signals in the case of limiting after the ramp-function generator (setpoint limiting).
Note: The signals via connector input p50634[0 to 1] are added to the input and forwarded to "Limiting after ramp-function generator".

p50635[0...n] CI: Setpoint processing signal source for RFG setpoint / RFG set sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	52194[0]

Description: Sets the signal source for the ramp-function generator's setpoint.

p50636[0...5] CI: RFG signal source for valuation factor 1 / RFG val_f 1 sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal sources for the valuation factors for ramp-function generator parameter set 1.

Index:
[0] = Ramp-up time and ramp-down time
[1] = Initial rounding and final rounding
[2] = Ramp-up time
[3] = Ramp-down time
[4] = Initial rounding
[5] = Final rounding

Dependency: See also: p50303, p50304, p50305, p50306

Note: The valuation factors affect the set values of the following parameters:
- p50303: Ramp-up time 1
- p50304: Ramp-down time 1
- p50305: Initial rounding 1
- p50306: Final rounding 1

p50637[0...n] BI: RFG parameter set 2 selection signal source / RFG par s 2 sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3150
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the selection of "ramp-function generator parameter set 2".
1 signal:
RFG parameter set 2 is effective (p50307, p50308, p50309, p50310).

Dependency: See also: p50307, p50308, p50309, p50310, p50638
See also: F60041

Note: The following applies as regards selection of ramp-function generator parameter set 2:
- This selection has a higher priority than selection by means of the ramp-up integrator.
- This selection has a lower priority than quick stop (OFF3); in other words, in the event of a quick stop (OFF3) the values set in p50296, p50297, and p50298 become effective.
- A corresponding message is output if ramp-function generator parameter sets 2 and 3 are selected at the same time.

p50638[0...n] BI: Ramp-function generator parameter set 3 select signal source / RFG par set 3 s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3150
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the selection of "ramp-function generator parameter set 3".
1 signal:
RFG parameter set 3 is effective (p50311, p50312, p50313, p50314).

Dependency: See also: p50311, p50312, p50313, p50314, p50637
See also: F60041

Note: The following applies regarding selection of ramp-function generator parameter set 3:
- This selection has a higher priority than selection by means of the ramp-up integrator.
- This selection has a lower priority than quick stop (OFF3); in other words, in the event of a quick stop (OFF3) the values set in p50296, p50297, and p50298 become effective.
- A corresponding message is output if ramp-function generator parameter sets 2 and 3 are selected at the same time.

p50639[0...1] CI: RFG signal source for setting value / RFG set val sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52167[0]

Description: Sets the signal source for the ramp-function generator's setting values.

Index: [0] = Setting value
[1] = Setting value if machine is not running

Dependency: The setting value for the ramp-function generator output is selected via binector input p50640.
p50640 = 0 signal:
If the machine is not running, the value supplied via connector input p50639[1] is accepted.
p50640 = 1 signal:
The value supplied via connector input p50639[0] is accepted as the setting value.
See also: p50640

p50640[0...n] BI: RFG signal source for accepting setting value / RFG accept set v

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for accepting the setting value of the ramp-function generator.

Dependency: See also: p50639

p50641[0...n] BI: Bypass ramp-function generator signal source / Bypass RFG sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for "Bypass ramp-function generator".
Note: The "Bypass ramp-function generator" signal can also be set via binector input p50649[0 to 2].

p50642[0...3] CI: Setpoint processing sig source for pos limiting of main setpoint / M set lim p sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52002[0]

Description: Sets the signal source for variable positive limiting of the main setpoint.
Notice: Negative values at the selected parameters generate a negative maximum value at the limiting output.
Note: The minimum of the values set via index 0 to 3 is applied as the limit.

p50643[0...3] CI: Setpoint processing sig source for neg limiting of main setpoint / M set lim n sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52184[0] [1] 52185[0] [2] 52186[0] [3] 52187[0]

Description: Sets the signal source for variable positive limiting of the main setpoint.
Notice: Positive values at the selected parameters generate a positive minimum value at the limiting output.
Note: The maximum of the values set via index 0 to 3 is applied as the limit.

p50644[0...n] CI: Setpoint processing signal source for main setpoint / M set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52206[0]

Description: Sets the signal source for the main setpoint in the context of setpoint processing.
Dependency: See also: p50320, p50322

p50645[0...n] CI: Setpoint processing signal source for additional setpoint / A set sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the additional setpoint in the context of setpoint processing.
Dependency: See also: p50321, p50323

p50646[0...n] BI: RFG signal source for ramp-up integrator enable / R-up int ena sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3150
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for enabling the ramp-up integrator on the ramp-function generator.

p50647[0...n] BI: RFG tracking activation signal source / RFG trck act sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for activating/de-activating ramp-function generator tracking.
Dependency: The enable for ramp-function generator tracking must be available (p50317 = 1).
See also: p50317

p50648 CI: RFG signal source for input signal / RFG inp sig s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3151
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52193[0]

Description: Sets the signal source for the ramp-function generator's input signal.

p50649[0...2] BI: Bypass ramp-function generator signal source / Bypass RFG sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 53170.10 [1] 53170.11 [2] 53170.12

Description: Sets the signal sources for "Bypass ramp-function generator".
Dependency: See also: p50641

Note: The "Bypass ramp-function generator" signal can also be set via binector input p50641.
For index [0, 1, 2]:
Information about their factory setting.
The "Bypass ramp-function generator" signal comes from the "Fixed setpoint", "Jog setpoint", "Creep setpoint" function.

p50650[0...1] CI: RFG signal source for setting value with OFF1 / RFG s v OFF1 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52167[0] [1] 52179[0]

Description: Sets the signal sources for the ramp-function generator's setting value with OFF1.
The ramp-function generator is set to this value once.

Index: [0] = Setting value 1
[1] = Setting value 2

Dependency: The selection of the signal source for the setting value is set via p50318.
p50318 = 0: Do not set ramp-function generator output
p50318 = 1: Set ramp-function generator output to the value supplied via connector input p50650[0].
p50318 = 2: Set ramp-function generator output to the value supplied via connector input p50650[1].
See also: p50318

p50651[0...6] CI: RFG tracking signal sources / RFG track sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	[0] 52290[0] [1] 52167[0] [2] 52143[0] [3] 52144[0] [4] 52131[0] [5] 52132[0] [6] 50219[0]

Description: Sets the signal sources for the effective limits for ramp-function generator tracking.

Index: [0] = Scaled motor flux
[1] = Actual speed
[2] = Effective positive torque limit
[3] = Effective negative torque limit
[4] = Effective positive current limit
[5] = Effective negative current limit
[6] = Effective speed controller proportional gain

p50671[0...n] BI: Setpoint processing sig source to enable neg dir of rotation / Ena n dir r sig s

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to enable the negative direction of rotation.

Dependency: See also: p50672

Note: 1 signal: Negative direction of rotation enabled
0 signal: Negative direction of rotation disabled

p50672[0...n] BI: Setpoint processing signal source to enable pos dir of rotation / Ena p dir r sig s

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to enable the positive direction of rotation.
Dependency: See also: p50671
Note: 1 signal: Positive direction of rotation enabled
0 signal: Positive direction of rotation disabled

p50673[0...n] BI: Motorized potentiometer signal source to increase setpoint / MotP incr sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3110
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to increase the setpoint for the motorized potentiometer.
Dependency: See also: p50471
Note: This parameter is only effective in manual mode (p50471 = 0).

p50674[0...n] BI: Motorized potentiometer signal source to lower setpoint / MotP lower sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3110
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to lower the setpoint for the motorized potentiometer.
Dependency: See also: p50471
Note: This parameter is only effective in manual mode (p50471 = 0).

p50680[0...n] BI: Fixed setpoint signal source for connector selection 0 / Fix set con0 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3115
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the selection of connector 0 (p50431[0]).
Dependency: See also: p50430, p50431

p50681[0...n] BI: Fixed setpoint signal source for connector selection 1 / Fix set con1 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3115
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the selection of connector 1 (p50431[1]).
Dependency: See also: p50430, p50431

p50684[0...n] BI: Speed controller droop enable / Droop enable

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6805
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to enable droop on the speed controller.
Note: The following values are multiplied by the droop output dependent upon the signal state:
1 signal: Enable (r50630)
0 signal: No enable (0%)

p50687[0...n] BI: Speed controller signal source for master/slave drive / Mast/sl sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6810, 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the master or slave drive on the speed controller.
Note: 1 signal:
Torque control is active on the slave drive.
0 signal:
Speed control is active on the master drive.

p50688[0...n] BI: Hold speed controller I component direction pos. signal source / I comp HoldPos s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for holding the integral component in the positive direction on the speed controller.
Note: Dependent upon the signal state, the following applies:
0 signal:
The I component is not held.
1 signal:
The I component is held.

p50689[0...n] BI: Hold speed controller I component direction neg. signal source / I comp HoldNeg s_s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6815
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for holding the integral component in the negative direction on the speed controller.

Note: Dependent upon the signal state, the following applies:
0 signal:
The I component is not held.
1 signal:
The I component is held.

p50691[0...n] BI: Sequence control line contactor feedback / Line cont feedb

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2651
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source for feedback from the line contactor.
The feedback signal is checked and fault F60104 is triggered in the following cases:
- If, following power up, a 1 signal is not detected within the time set in p50095 (in other words, if the line contactor has not closed).
- If a 0 signal is detected during operation.

Note: Feedback from the line contactor can be achieved by integrating one of the line contactor's auxiliary contacts into the device control.

p50692[0...n] BI: CI-loop field curr ctrl sig source for inject of standst field / If_ctr stst sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6910
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the selection of standstill field injection.

Dependency: See also: F60045

p50693[0...n] BI: EMF controller enable signal source / EMF ctr ena sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6900
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source to enable the EMF controller.

p50694[0...n] BI: Torque limiting signal source to enable changeover / T lim ch ena sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6825
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to enable the torque limits to be changed over.

Dependency: See also: p50180, p50181, p50182, p50183

Note: 1 signal: Changeover enabled

0 signal: Changeover disabled

p50695[0...n] BI: Signal source for setting speed controller integral component / Set I_co sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for setting the integral component on the speed controller.

The value supplied via connector input p50631 is used as the setting value.

With a 0/1 signal from p50695, the integral component of the speed controller is tracked continuously to the value of the signal present at connector input p50631 for the time that has been set in p50230.

Dependency: See also: p50230, p50631

Note: For the same signal source for the speed controller enable and integral component, the time in p50230 must be set greater than 0 ms.

p50696[0...n] BI: Signal source for stop speed controller integral component / Stop I_co sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for stopping the integral component on the speed controller.

Note: Dependent upon the signal state, the following applies:

0 signal: Integral component is not stopped

1 signal: Integral component is stopped

p50697[0...n] BI: Enable for inertia compensation / Inert comp ena

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6820
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for enabling moment of inertia compensation.

Note: Dependent upon the signal state, the following values are added to the output for friction and moment of inertia compensation:

1 signal: Enable (r52173)

0 signal: No enable (0%)

p50698[0...n] BI: Signal source for speed controller PI/P controller changeover / n_ctr PI/P sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for the speed-dependent changeover between PI and P controller on the speed controller.

Dependency: See also: p50221, p50222, r52166

p50700 CUD analog input 0 type / CUD AI 0 type

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the type for analog input 0 (X177.25/26) on the CUD.

Value:
0: Bipolar voltage input (-10 V ... +10 V)
1: Bipolar current input (-20 mA to +20 mA)
2: Unipolar current input monitored (+4 mA to +20 mA)

Note: AI: Analog Input

p50701[0...n] CUD analog input 0 scaling / CUD AI 0 scal

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1000.0 [%]	1000.0 [%]	100.0 [%]

Description: Sets the scaling for analog input 0 (X177.25/26) on the CUD.
The value indicates the percentage value for the mapping of an input voltage of 10 V or an input current of 20 mA at the analog input.
Example:
p50701 = 90%
--> 10 V or 20 mA is scaled to 90%
--> 5 V or 10 mA is equivalent to 45%

p50702 CUD analog input 0 offset / CUD AI 0 offs

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the offset for analog input 0 (X177.25/26) on the CUD.

p50703 CUD analog input 0 signal processing / CUD AI 0 sig proc

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	3	0

Description: Sets the signal processing mode for analog input 0 (X177.25/26) on the CUD.

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50704 BI: CUD analog input 0 inversion / CUD AI 0 inv

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for inverting the signal from analog input 0 (X177.25/26) on the CUD.
1 signal: Inversion
0 signal: No inversion

p50705 CUD analog input 0 smoothing time constant / CUD AI 0 T

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from analog input 0 (X177.25/26) on the CUD.

p50706 BI: CUD analog input 0 signal source for enable / CUD AI 0 ena sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	1

Description: Sets the signal source for enabling analog input 0 (X177.25/26) on the CUD.

Note:
1 signal: Analog input enabled
0 signal: Analog input not enabled (r52011 = 0%)

p50707 CUD analog input 0 simulation setpoint / CUD AI 0 sim setp

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
-130.0 [%]	130.0 [%]	0.0 [%]

Description: Sets the setpoint for the simulation of analog input 0 (X177.25/26) on the CUD.

Dependency: See also: p50709
Note: Simulation is selected using p50709 = 1.

p50708 Activation of analog input synchronization / AI sync act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	0	0

Description: Reserved

p50709 CUD analog input 0 simulation selection / CUD AI 0 sim sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to select the simulation of analog input 0 (X177.25/26) on the CUD.
Value:
0: Simulation deactivated
1: Simulation activated
Dependency: See also: p50707
Note: The setpoint for the simulation is set in p50707.

p50710 CUD analog input 1 type / CUD AI 1 type

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the type for analog input 1 (X177.27/28) on the CUD.
Value:
0: Bipolar voltage input (-10 V ... +10 V)
1: Bipolar current input (-20 mA to +20 mA)
2: Unipolar current input monitored (+4 mA to +20 mA)
Note: AI: Analog Input

p50711[0...n] CUD analog input 1 scaling / CUD AI 1 scal

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1000.0 [%]	1000.0 [%]	100.0 [%]

Description: Sets the scaling for analog input 1 (X177.27/28) on the CUD.
The value indicates the percentage value for the mapping of an input voltage of 10 V or an input current of 20 mA at the analog input.
Example:
p50711 = 90%
--> 10 V or 20 mA is scaled to 90%
--> 5 V or 10 mA is equivalent to 45%

p50712 CUD analog input 1 offset / CUD AI 1 offs

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the offset for analog input 1 (X177.27/28) on the CUD.

p50713 CUD analog input 1 signal processing / CUD AI 1 sig proc

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the signal processing mode for analog input 1 (X177.27/28) on the CUD.

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50714 BI: CUD analog input 1 inversion / CUD AI 1 inv

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for inverting the signal from analog input 1 (X177.27/28) on the CUD.
1 signal: Inversion
0 signal: No inversion

p50715 CUD analog input 1 smoothing time constant / CUD AI 1 T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from analog input 1 (X177.27/28) on the CUD.

p50716 BI: CUD analog input 1 signal source for enable / CUD AI 1 ena s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for enabling analog input 1 (X177.27/28) on the CUD.

Note: 1 signal:
Analog input is enabled
0 signal:
Analog input is disabled (value = 0%)

p50717 CUD analog input 1 simulation setpoint / CUD AI 1 sim setp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-130.0 [%]	130.0 [%]	0.0 [%]

Description: Sets the setpoint for the simulation of analog input 1 (X177.27/28) on the CUD.
Dependency: See also: p50719
Note: Simulation is selected using p50719 = 1.

p50719 CUD analog input 1 simulation selection / CUD AI 1 sim sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to select the simulation of analog input 1 (X177.27/28) on the CUD.
Value:
0: Simulation deactivated
1: Simulation activated
Dependency: See also: p50717
Note: The setpoint for the simulation is set in p50717.

p50721[0...n] CUD analog input 2 scaling / CUD AI 2 scal

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-1000.0 [%]	1000.0 [%]	100.0 [%]

Description: Sets the scaling for analog input 2 (X177.29/30) on the CUD.
The value indicates the percentage value for the mapping of an input voltage of 10 V at the analog input.
Example:
p50721 = 90%
--> 10 V is scaled to 90%
--> 5 V corresponds to 45%
Note: AI: Analog Input

p50722 CUD analog input 2 offset / CUD AI 2 offs

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the offset for analog input 2 (X177.29/30) on the CUD.

p50723 CUD analog input 2 signal processing / CUD AI 2 sig proc

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the signal processing mode for analog input 2 (X177.29/30) on the CUD.

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50724 BI: CUD analog input 2 inversion / CUD AI 2 inv

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for inverting the signal from analog input 2 (X177.29/30) on the CUD.
1 signal: Inversion
0 signal: No inversion

p50725 CUD analog input 2 smoothing time constant / CUD AI 2 T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from analog input 2 (X177.29/30) on the CUD.

p50726 BI: CUD analog input 2 signal source for enable / CUD AI 2 ena s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2080
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for enabling analog input 2 (X177.29/30) on the CUD.

Note:
1 signal:
Analog input is enabled
0 signal:
Analog input is disabled (value = 0%)

p50727 CUD analog input 2 simulation setpoint / CUD AI 2 sim setp

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2080
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-130.0 [%]	130.0 [%]	0.0 [%]

Description: Sets the setpoint for the simulation of analog input 2 (X177.29/30) on the CUD.
Dependency: See also: p50729
Note: Simulation is selected using p50729 = 1.

p50729 CUD analog input 2 simulation selection / CUD AI 2 sim sel

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2080
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to select the simulation of analog input 2 (X177.29/30) on the CUD.
Value:
0: Simulation deactivated
1: Simulation activated
Dependency: See also: p50727
Note: The setpoint for the simulation is set in p50727.

p50731[0...3] Fast analog inputs scaling / Fast AI scal

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085, 2090
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-1000.0 [%]	1000.0 [%]	100.0 [%]

Description: Sets the scaling for fast analog inputs "Select input 3 to 6".
The value indicates the percentage value for the mapping of an input voltage of 10 V at the analog input.
Example:
p50731[2] = 90%
--> 10 V is scaled to 90% for select input 5
--> 5 V corresponds to 45% for select input 5
Index:
[0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)
Note: AI: Analog Input

p50732[0...3] Fast analog inputs offset / Fast AI offs

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085, 2090
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [%]	200.00 [%]	0.00 [%]

Description: Sets the offset for fast analog inputs "Select input 3 ... 6".

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

p50733[0...3] Fast analog inputs signal processing / Fast AI sig

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2085, 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the signal processing for fast analog inputs "Select input 3 to 6".

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

p50734[0...3] BI: Fast analog inputs inversion / Fast AI inv

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2085, 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for inverting the signals for fast analog inputs "Select input 3 to 6".
1 signal: Inversion
0 signal: No inversion

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

p50735[0...3] Fast analog inputs smoothing time constant / Fast AI T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085, 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signals for fast analog inputs "Select input 3 to 6".

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

p50736[0...3] BI: Signal source to enable fast analog inputs / Fast AI ena sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2085, 2090
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source for enabling fast analog inputs "Select input 3 to 6".

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

Note: 1 signal:
Analog input is enabled
0 signal:
Analog input is disabled (value = 0%)

p50737[0...3] Fast analog inputs setpoint simulation / Fast AI sim setp

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085, 2090
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-130.0 [%]	130.0 [%]	0.0 [%]

Description: Sets the setpoint for the simulation of the fast analog inputs (select input 3 ... 6).

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

Dependency: See also: p50739

Note: Simulation is selected using p50739[0...3] = 1.

p50739[0...3] Fast analog inputs simulation selection / Fast AI sim sel

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2085, 2090
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to select the simulation of the fast analog inputs (select input 3 ... 6).

Value: 0: Simulation deactivated
1: Simulation activated

Index: [0] = Select input 3 (X177.1/2)
[1] = Select input 4 (X177.3/4)
[2] = Select input 5 (X177.5/6)
[3] = Select input 6 (X177.7/8)

Dependency: See also: p50737

Note: The setpoint for the simulation is set in p50737[0...3].

p50741[0...n] Analog input main actual value scaling / AI m act scal

DC_CTRL

Can be changed: C2(1), U, T | **Calculated:** - | **Access level:** 1
Data type: FloatingPoint32 | **Dyn. index:** DDS, p0180 | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-270.00 [V] | 270.00 [V] | 60.00 [V]

Description: Sets the input voltage (8 - 270 V) for scaling to 100%.
Rated value of the input voltage at n_max (= tachometer voltage at maximum speed).
This parameter specifies the maximum speed at p50083 = 1.

Note: AI: Analog Input
Example:
p50741 = 60
--> 30 V is scaled to 50% for analog input main actual value scaled
--> 60 V is scaled to 100% for analog input main actual value scaled

p50742 Analog input main actual value offset / AI m act offs

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
-200.00 [%] | 200.00 [%] | 0.00 [%]

Description: Sets the offset for the "main actual value" (XT1.103/104).

p50743 Analog input main actual value signal processing / AI m act sig

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
0 | 3 | 0

Description: Sets the mode for signal processing for the "main actual value" analog input (XT1.103/104).

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50744 BI: Analog input main actual value inversion / AI m act inv

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 2075
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- | - | 0

Description: Sets the signal source for inverting the signal from the "main actual value" analog input (XT1.103/104).
0 signal: No inversion
1 signal: Inversion

p50745 Analog input main actual value smoothing time constant / AI m act T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from the "main actual value" analog input (XT1.103/104).

p50746 BI: Signal source to enable analog input main actual value / AI m act ena sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source for enabling the analog input for the "main actual value" (XT1.103/104).
Note: 1 signal: Analog input enabled
0 signal: Analog input not enabled (r52013 = 0%).

p50747 Analog input main actual value setpoint simulation / AI m_actV sim setp

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-130.0 [%]	130.0 [%]	0.0 [%]

Description: Sets the setpoint for the simulation of the "main actual value" analog input (XT1.103/104).
Dependency: See also: p50749
Note: Simulation is selected using p50749 = 1.

p50749 Analog input main actual value simulation selection / AI m_actV sim sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2075
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to select the simulation of the "main actual value" analog input (XT1.103/104).
Value:
0: Simulation deactivated
1: Simulation activated
Dependency: See also: p50747
Note: The setpoint for the simulation is set in p50747.

p50750 CI: CUD analog output 0 signal source / CUD AO 0 sig s

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the output value at analog output 0 (X177.49/50).

Note: AO: Analog Output

p50751 CUD analog output 0 signal processing / CUD AO 0 sig proc

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the mode for signal processing at analog output 0 (X177.49/50).

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50752 CUD analog output 0 smoothing time constant / CUD AO 0 T

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from analog output 0 (X177.49/50).

p50753 CUD analog output 0 scaling / CUD AO 0 scal

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-200.00 [V]	200.00 [V]	10.00 [V]

Description: Sets the scaling for analog output 0 (X177.49/50).
The value indicates the output value for the mapping of an input value of 100% at the analog output.

Note: Example:
p50753 = 5 V
--> 100% is scaled to 5 V
--> 50% corresponds to 2.5 V

p50754 CUD analog output 0 offset / CUD AO 0 offs

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-10.00 [V]	10.00 [V]	0.00 [V]

Description: Sets the offset for analog output 0 (X177.49/50).

p50755 CI: CUD analog output 1 signal source / CUD AO 1 sig s

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the output value at analog output 1 (X177.51/52).

Note: AO: Analog Output

p50756 CUD analog output 1 signal processing / CUD AO 1 sig proc

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2095
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	3	0

Description: Sets the mode for signal processing at analog output 1 (X177.51/52).

Value:
0: Signal not controlled
1: Signal absolute value generation
2: Signal inverted
3: Signal absolute value generation inverted

p50757 CUD analog output 1 smoothing time constant / CUD AO 1 T

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	0 [ms]

Description: Sets the time constant for smoothing the signal from analog output 1 (X177.51/52).

p50758 CUD analog output 1 scaling / CUD AO 1 scal

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-200.00 [V]	200.00 [V]	10.00 [V]

Description: Sets the scaling for analog output 1 (X177.51/52).
The value indicates the output value for the mapping of an input value of 100% at the analog output.

Note: Example:
p50758 = 5 V
--> 100% is scaled to 5 V
--> 50% corresponds to 2.5 V

p50759 CUD analog output 1 offset / CUD AO 1 offs

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2095
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-10.00 [V]	10.00 [V]	0.00 [V]

Description: Sets the offset for analog output 1 (X177.51/52).

p50765 CUD digital inputs simulation selection / CUD DI sim sel

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 2050, 2060, 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0000 0000 bin

Description: Setting to select the simulation of the digital inputs on the CUD.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X177.11)	High	Low	2050
01	DI 1 (X177.12)	High	Low	2050
02	DI 2 (X177.13)	High	Low	2050
03	DI 3 (X177.14)	High	Low	2050
04	DI 4 (X177.15)	High	Low	2060
05	DI 5 (X177.16)	High	Low	2060
06	DI 6 (X177.17)	High	Low	2065
07	DI 7 (X177.18)	High	Low	2065

Dependency: See also: p50766
Note: The setpoint for the simulation is set in p50766.0...7.

p50766 CUD digital inputs simulation setpoint / CUD DI simul setp

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 2050, 2060, 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0000 0000 bin

Description: Sets the setpoint for the simulation of the digital inputs on the CUD.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X177.11)	High	Low	2050
01	DI 1 (X177.12)	High	Low	2050
02	DI 2 (X177.13)	High	Low	2050
03	DI 3 (X177.14)	High	Low	2050
04	DI 4 (X177.15)	High	Low	2060
05	DI 5 (X177.16)	High	Low	2060
06	DI 6 (X177.17)	High	Low	2065
07	DI 7 (X177.18)	High	Low	2065

Dependency: See also: p50765
Note: Simulation is selected using p50765.0...7 = 1.

p50770[0...3] CUD digital outputs inversion / CUD DO inv

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2055
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Setting to invert the signals at the CUD's digital outputs.

Value:
0: Not inverted
1: Inverted

Index:
[0] = DO 0 (X177.19)
[1] = DO 1 (X177.20)
[2] = DO 2 (X177.21)
[3] = DO 3 (X177.22)

Note: DO: Digital Output

p50771 BI: CUD digital output 0 signal source / CUD DO 0 sig s

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2055
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital output 0 (X177.19) on the CUD.

p50772 BI: CUD digital output 1 signal source / CUD DO 1 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2055
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital output 1 (X177.20) on the CUD.

p50773 BI: CUD digital output 2 signal source / CUD DO 2 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2055
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital output 2 (X177.21) on the CUD.

p50774 BI: CUD digital output 3 signal source / CUD DO 3 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2055
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital output 3 (X177.22) on the CUD.

Note: If p50774 is linked with (2)r51579.0, then this setting only becomes active after the device has restarted!

p50775 CUD digital output 0 delay time / CUD DO 0 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2055
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital output 0 (X177.19) on the CUD.

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50776 CUD digital output 1 delay time / CUD DO 1 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2055
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital output 1 (X177.20) on the CUD.

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50777 CUD digital output 2 delay time / CUD DO 2 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2055
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital output 2 (X177.21) on the CUD.

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50778 CUD digital output 3 delay time / CUD DO 3 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2055
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital output 3 (X177.22) on the CUD.

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50780[0...3] CUD digital inputs/outputs inversion / CUD DI/DO inv

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 2060, 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Setting to invert the signals at the CUD's digital outputs.

Value: 0: Not inverted
1: Inverted

Index: [0] = DI/DO 4 (X177.15)
[1] = DI/DO 5 (X177.16)
[2] = DI/DO 6 (X177.17)
[3] = DI/DO 7 (X177.18)

Dependency: The terminal must be set as an output (p50789[0...3]).
See also: p50789

Note: DI/DO: Bidirectional Digital Input/Output

p50781 BI: CUD digital input/output 4 signal source / CUD DI/DO 4 sig s

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2060
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital input/output 4 (X177.15) on the CUD.

Dependency: The terminal must be set as an output (p50789[0] = 1).
See also: p50789

p50782 BI: CUD digital input/output 5 signal source / CUD DI/DO 5 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2060
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital input/output 5 (X177.16) on the CUD.

Dependency: The terminal must be set as an output (p50789[1] = 1).
See also: p50789

p50783 BI: CUD digital input/output 6 signal source / CUD DI/DO 6 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2065
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital input/output 6 (X177.17) on the CUD.

Dependency: The terminal must be set as an output (p50789[2] = 1).
See also: p50789

p50784 BI: CUD digital input/output 7 signal source / CUD DI/DO 7 s_src

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 2065
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for digital input/output 7 (X177.18) on the CUD.

Dependency: The terminal must be set as an output (p50789[3] = 1).
See also: p50789

p50785 CUD digital input/output 4 delay time / CUD DI/DO 4 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2060
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital input/output 4 (X177.15) on the CUD.

Dependency: The terminal must be set as an output (p50789[0] = 1).
See also: p50789

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50786 CUD digital input/output 5 delay time / CUD DI/DO 5 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2060
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital input/output 5 (X177.16) on the CUD.

Dependency: The terminal must be set as an output (p50789[1] = 1).
See also: p50789

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50787 CUD digital input/output 6 delay time / CUD DI/DO 6 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital input/output 6 (X177.17) on the CUD.

Dependency: The terminal must be set as an output (p50789[2] = 1).
See also: p50789

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50788 CUD digital input/output 7 delay time / CUD DI/DO 7 t_del

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	0 [ms]

Description: Sets the delay time for digital input/output 7 (X177.18) on the CUD.

Dependency: The terminal must be set as an output (p50789[3] = 1).
See also: p50789

Note: The level at the digital output can only change if the changed internal level remains constant for longer than the set delay time.

p50789[0...3] CUD digital inputs/outputs type / CUD DI/DO typ

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 2060, 2065
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Sets the type for the digital inputs/outputs on the CUD.

Value:
0: Input
1: Output

Index:
[0] = DI/DO 4 (X177.15)
[1] = DI/DO 5 (X177.16)
[2] = DI/DO 6 (X177.17)
[3] = DI/DO 7 (X177.18)

Note: DI/DO: Bidirectional Digital Input/Output

p50790 P2P IF operating mode / P2P op mode

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	6	0

Description: Sets the operating mode for the peer-to-peer interface (P2P IF).

Value:
0: No function
5: Peer-to-peer communication
6: Communication with SIMOREG CCP

Note: P2P IF: Peer-to-peer interface
CCP: Converter Commutation Protector

p50791 P2P IF number of data words / P2P num words

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	5	5

Description: Sets the number of words to be transmitted for the peer-to-peer interface (P2P IF) in "Peer-to-peer communication" mode (p50790 = 5).

Dependency: See also: p50790

p50793 P2P IF baud rate / P2P baud rate

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	13	13

Description: Sets the baud rate for the peer-to-peer interface (P2P IF).

Value:
1: 300 baud
2: 600 baud
3: 1200 baud
4: 2400 baud
5: 4800 baud
6: 9600 baud
7: 19200 baud
8: 38400 baud
9: 56700 baud
11: 93750 baud
13: 187500 baud

p50794[0...4] CI: P2P IF transmit data signal source / P2P tr data sig s

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the data to be transmitted on the peer-to-peer interface (P2P IF).
The transmit data is displayed in r50813[0 to 4].

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5

Dependency: See also: r50813

p50795 P2P/CCP bus terminator / P2P/CCP bus term

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6970, 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the bus terminator for the peer-to-peer interface and the interface to the SIMOREG CCP.

Value:
0: OFF
1: ON

Note:
CCP: Converter Commutation Protector
P2P: Peer-to-Peer interface

p50797 P2P IF telegram monitoring time / P2P t_telegr mon

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	65.000 [s]	0.000 [s]

Description: Sets the telegram monitoring time for the peer-to-peer interface (P2P IF).
The time set is only effective in "Peer-to-peer interface" operating mode (p50790 = 5).
p50797 = 0:
Monitoring is deactivated.
p50797 > 0:
Monitoring is activated.
As well as one valid telegram being received, the next valid telegram must be received within the set time. Otherwise, fault F60012 is triggered.

Dependency: See also: F60012

Note: Telegram monitoring is activated in the following cases:

- From receipt of the first error-free telegram
- After switching on of the electronics power supply
- From receipt of the first error-free telegram after telegram monitoring has responded (i.e. telegram monitoring timeout).

The telegram monitoring time (p50797) depends on the baud rate set (p50793) The following minimum setting values are recommended for safe operation:

- 300 baud --> p50797 = 0.520 s (recommended minimum value)
- 600 baud --> p50797 = 0.260 s (recommended minimum value)
- 1200 baud --> p50797 = 0.140 s (recommended minimum value)
- 2400 baud --> p50797 = 0.080 s (recommended minimum value)
- 4800 baud --> p50797 = 0.040 s (recommended minimum value)

If the "Automatic restart" function (p50086 > 0) has been selected on the peer-to-peer communication partner, only a parameter setting p50797 > p50086 (on the communication partner) will be meaningful.

p50798 BI: P2P IF signal source for triggering F60012 / P2P F60012 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	53300.0

Description: Sets the signal source for triggering fault F60012 "Telegram monitoring timeout".

Dependency: See also: F60012

r50799[0...8] P2P/CCP diagnostics / P2P/CCP diag

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 6970, 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the diagnostic information for the peer-to-peer interface and the interface to SIMOREG CCP.

Index:
[0] = Number of error-free telegrams
[1] = Number of erroneous telegrams
[2] = Number of byte frame errors
[3] = Number of overrun errors
[4] = Number of parity errors
[5] = Number of STX errors
[6] = Number of block check errors
[7] = Number of break errors
[8] = Number of timeout errors

Note: The fault frequency is recorded with free-running counters; when a counter reaches 65535 it is reset to 0.

The diagnostic information in indexes 5, 6 and 8 is irrelevant for communication with SIMOREG CCP (p50790 = 6).

Possible causes for STX errors:

- Non-observance of start interval before STX
- STX incorrect, i.e. not equal to 02

Possible causes for timeout errors:

- Telegram monitoring timeout (p50797)

r50813[0...4] P2P IF transmit data display / P2P tr data disp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the transmit data for the peer-to-peer interface (P2P IF).
The signal source for the data to be transmitted is set via connector input p50794[0 to 4].

Index: [0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5

Dependency: See also: p50794

p50816 BI: P2P IF receive enable signal source / P2P recv ena sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to enable data to be received on the peer-to-peer interface (P2P IF).
1 signal: Data receive enabled
0 signal: Data receive not enabled

p50817 BI: P2P IF transmit enable signal source / P2P tr ena sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to enable data to be transmitted on the peer-to-peer interface (P2P IF).
1 signal: Data transmission enabled
0 signal: Data transmission not enabled

p50820 PPI/USS bus terminator / PPI/USS bus term

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2410
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets the bus terminator for the RS485 interface (PPI/USS, X178).

Value: 0: OFF
1: ON

r50823[0...1] Electronic power supply voltage display / Electr supp V disp

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8048
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [V]	- [V]	- [V]

Description: Displays the voltages for the electronic power supply.

Index: [0] = P10 (+10 V)
[1] = N10 (-10 V)

Dependency: See also: r50824
See also: F60091, F60092

Note: For r50823[0]:
A voltage value outside the permissible limits will trigger fault F60091.
For r50823[1]:
A voltage value outside the permissible limits triggers fault F60092.

r50824 Electronic power supply failure duration / Electr supp t_fail

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8048
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [ms]	- [ms]	- [ms]

Description: Displays the failure duration for the electronic power supply.

Dependency: See also: r50823

r50825[0...29] Armature power unit compensation values / PU arm comp val

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8054
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the compensation values for the armature power unit.

r50826[0...15] Field power unit compensation values / PU field comp val

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8054
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the compensation values for the field power unit.

r50827 Internal diagnostics / Int diag

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8060
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the counter reading for internal errors.

r50829[0...55] CUD compensation values / CUD calib. val

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8054
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the compensation values for the analog inputs/outputs on the Control Unit DC MASTER (CUD).

Note:

Analog input 0 - X177.25/26 - voltage input
[0] = Compensation value at 0 V
[1] = Compensation value at +10 V
[2] = Compensation value at -10 V
[3] = Compensation value at reference value
Analog input 0 - X177.25/26 - current input
[4] = Compensation value at 0 mA
[5] = Compensation value at +20 mA
[6] = Compensation value at -+20 mA
[7] = Compensation value at reference value
Analog input 1 - X177.27/28 - voltage input
[8] = Compensation value at 0 V
[9] = Compensation value at +10 V
[10] = Compensation value at -10 V
[11] = Compensation value at reference value
Analog input 1 - X177.27/28 - current input
[12] = Compensation value at 0 mA
[13] = Compensation value at +20 mA
[14] = Compensation value at -+20 mA
[15] = Compensation value at reference value
Analog input 2 - X177.29/30
[16] = Compensation value at 0 V
[17] = Compensation value at +10 V
[18] = Compensation value at -10 V
[19] = Compensation value at reference value
Analog input XT1.103/104 - 25 V
[20] = Compensation value at 0 V
[21] = Compensation value at +25 V
[22] = Compensation value at -25 V
[23] = Compensation value at reference value
Analog input XT1.103/104 - 80 V
[24] = Compensation value at 0 V
[25] = Compensation value at +80 V
[26] = Compensation value at -80 V
[27] = Compensation value at reference value
Analog input XT1.103/104 - 270 V
[28] = Compensation value at 0 V
[29] = Compensation value at +270 V
[30] = Compensation value at -270 V
[31] = Compensation value at reference value
Analog input 3 - X177.1/2
[32] = Compensation value at 0 V
[33] = Compensation value at +10 V
[34] = Compensation value at -10 V
[35] = Compensation value at reference value
Analog input 4 - X177.3/4
[36] = Compensation value at 0 V
[37] = Compensation value at +10 V
[38] = Compensation value at -10 V
[39] = Compensation value at reference value
Analog input 5 - X177.5/6
[40] = Compensation value at 0 V
[41] = Compensation value at +10 V
[42] = Compensation value at -10 V
[43] = Compensation value at reference value

Analog input 6 - X177.7/8
[44] = Compensation value at 0 V
[45] = Compensation value at +10 V
[46] = Compensation value at -10 V
[47] = Compensation value at reference value
Analog output 0 - X177.49/50
[48] = Compensation value for 0 V
[49] = Compensation value for +10 V
[50] = Compensation value for -10 V
[51] = Compensation value for reference value
Analog output 1 - X177.51/52
[52] = Compensation value for 0 V
[53] = Compensation value for +10 V
[54] = Compensation value for -10 V
[55] = Compensation value for reference value
The compensation values for analog outputs 0 and 1, as well as for analog inputs 3 to 6, are calculated from the measurement result + an offset of 32768.

p50830 Thyristor diagnostics mode / Thyr_diag mode

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6865
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Sets the thyristor diagnostics mode.
Value = 0:
The thyristor test is de-activated.
Value = 1:
The thyristors are tested when first switching on or jogging after the electronics power supply has been switched on.
Value = 2:
The thyristors are tested at each switch-on or jogging.
Value = 3:
The thyristors are tested at the next switch-on or jogging. p50830 is set to 0 if the test was completed error-free.

Value:
0: Switched off
1: After the first ON command
2: After each ON command
3: After next ON command

Dependency: See also: F60061

Note: The thyristor test function cannot be used when supplying extremely high inductances (e.g. when supplying a field from armature terminals, supplying solenoids, etc.) and must be de-activated (p50830 = 0).

When SINAMICS DCM are connected in parallel (6 pulse or 12 pulse), thyristor diagnostics may only be selected at the master. The thyristor diagnostics is then first carried out at the master, and then automatically at all of the slaves one after the other. If a defective thyristor is detected at a SINAMICS DCM, then the corresponding fault message is initiated at this SINAMICS DCM and not at the master where thyristor diagnostics was started.

p50831 Diagnostics memory trace control word / Trace STW

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 8052
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	2	0

Description: Sets the trigger resolution for the trace.

Value:
0: No trigger for start
1: Start immediately
2: Start together with STARTER trace

Note: If p50831 = 2:
This setting is only active once, and before the next common
initiation must be set back to a value of 0 - and after that, back to a value of 2 again.

p50832 Diagnostics memory copy recording file to memory card / Copy diag file

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 8052
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	2	0

Description: Setting for starting the procedure to copy the diagnostics file to the memory card.

Value:
0: Inactive
1: Start copying procedure
2: Copy file into User\Data folder

Note: The value is reset automatically at the end of the copying procedure.
If a diagnostics file is empty, the file written to the memory card will also be empty.
This file will overwrite any existing file on the memory card.

p50833 Device fan test / Dev fan test

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 8047
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	1	0

Description: Setting to test the device fans.

Value:
0: Stop fan
1: Start fan

Dependency: See also: r53135
See also: F60167

Note: The status of the fans is displayed in binector outputs r53135.8 to 11.

r50836[0...3] Voltage sensing communication error counter / V_sens comm_err

DC_CTRL

Can be changed: - | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 | **Dyn. index:** - | **Function diagram:** 8054
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the communication error for armature and field voltage sensing.

Index: [0] = Number of CRC errors armature
[1] = Number of communication errors armature
[2] = Number of CRC errors field
[3] = Number of communication errors field

p50837[0...11] Reset thyristor load data / Thyr_load reset

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 4
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to reset the thyristor load data for a thyristor.

Value: 0: Do not reset data
1: Reset data

Index: [0] = Thyristor X11
[1] = Thyristor X12
[2] = Thyristor X13
[3] = Thyristor X14
[4] = Thyristor X15
[5] = Thyristor X16
[6] = Thyristor X21
[7] = Thyristor X22
[8] = Thyristor X23
[9] = Thyristor X24
[10] = Thyristor X25
[11] = Thyristor X26

Note: It is only permissible to reset the thyristor load data after a thyristor has been replaced.

p50838[0...2] Diagnostics memory message number / Diag_mem msg_no

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8052
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
60000	60999	60000

Description: Sets message numbers for the diagnostics memory.
A trace is saved in the diagnostics file if one of these messages occurs.

r50840[0...31] Gating module serial number / Gate_mod ser_no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the serial number of the gating module.
For the Control Module, the serial number of the voltage sensing module is displayed.
r50840[0]: Serial number character 1
...
r50840[31]: serial number character 32
For the commissioning software, the ASCII characters are displayed uncoded.

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50841[0...31] Gating module part number / Gat_mod part no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the part number of the gating module.
For the Control Module, the part number of the voltage sensing module is displayed.
r50841[0]: Part number character 1
...
r50841[31]: Part number character 32
For the commissioning software, the ASCII characters are displayed uncoded.

Note: An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50842[0...31] Field module serial number / Field mod ser no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the serial number of the field module.

Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r50843[0...31] Field module part number / Field mod part no.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the part number of the field module.

Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

p50899[0...6] Control blocks activation / Ctrl blocks act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 1721
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Setting to activate/de-activate control blocks.
For index [0] (FP3130):
The switch-on command and the intervention of r0807.0 and r53010.2 are always active.
For index [2] (FP6810):
The "speed actual value selection" is always active.

Value:
0: Control block de-activated
1: Control block activated

Index: [0] = Speed setpoint processing (FP3105 to FP3135)
[1] = RFG (FP3150 to FP3155)
[2] = Closed-loop speed control (FP6800 to FP6820)
[3] = Torque limiting/Current limitation (FP6825 to FP6845, FP8040)
[4] = Closed-loop armature current control (FP6852 to FP6855)
[5] = EMF setpoint processing and closed-loop control (FP6900)
[6] = Closed-loop field current control (FP6905 to FP6910)

Note: This parameter is only evaluated once while powering up, i.e. a change only becomes effective after a new start or after powering up with saved parameters (p0976 = 11).

The ability to de-activate control function blocks has been designed for users who set up their own control configurations using Drive Control Chart (DCC) (e.g. synchronous generator field winding instead of running a motor). De-activating control function blocks which are not needed frees up CPU time for the DCC blocks.

r50960[0...4] Device fan operating hours display / Dev_fan h disp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8045
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [h]	- [h]	- [h]

Description: Displays the operating hours for the device fan.

Index: [0] = Fan terminal XV1
[1] = Fan terminal XV2
[2] = Fan terminal XV3
[3] = Fan terminal XV4
[4] = Fan ON

Dependency: See also: p50961, p50962
See also: A60165

Note: The operating hours from "fan on" are only increased for the Control Module.

p50961[0...4] Device fan service life / Dev_fan serv life

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8045
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0 [h]	1000000 [h]	[0...3] 30000 [h] [4] 0 [h]

Description: Sets the service life for the device fan.

Index: [0] = Fan terminal XV1
[1] = Fan terminal XV2
[2] = Fan terminal XV3
[3] = Fan terminal XV4
[4] = Fan ON

Dependency: See also: r50960, p50962
See also: A60165

Note: An appropriate alarm is issued 500 hours before the set service life expires.

p50962[0...4] Device fan reset operating hours / Dev_fan reset h

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8045
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to reset the operating hours of the device fan that have accumulated.

Value: 0: Inactive
1: Reset

Index: [0] = Fan terminal XV1
[1] = Fan terminal XV2
[2] = Fan terminal XV3
[3] = Fan terminal XV4
[4] = Fan ON

Dependency: See also: r50960, p50961

Note: Procedure to reset the operating hours:
Set p50962[x] = 1
The parameter is automatically set to zero after this is done.

p50963 Response of the fan control / Resp fan ctrl

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8047
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Response of the fan control:
0: The fan control takes into account the temperature sensor.
1: The fan control does not take into account the temperature sensor.

Value: 0: The fan control takes into account the temperature sensor.
1: The fan control doesn't take into account the temperature sensor

Dependency: See also: r50960, p50961

Note: Setting 1:
The fan is only switched off after the parameterized fan run-on time, independent of the various temperature measurements and independent of the calculated thyristor temperature rise (=barrier layer temperature of the thyristors).
As a consequence, it is also possible to acknowledge a fan fault even at ambient temperatures > 35°.

p51117[0...15] BI: Binector-connector converter signal source / Bin/con sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for the binector inputs on the binector-connector converter.

Dependency: See also: r52620

p51118 Invert binector-connector converter signals / Bin/con sig inv

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9300
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0000 0000 0000 0000 bin

Description: Setting to invert the individual binector inputs of the binector-connector converter.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	BI p51117[0]	Inverted	Not inverted	-
	01	BI p51117[1]	Inverted	Not inverted	-
	02	BI p51117[2]	Inverted	Not inverted	-
	03	BI p51117[3]	Inverted	Not inverted	-
	04	BI p51117[4]	Inverted	Not inverted	-
	05	BI p51117[5]	Inverted	Not inverted	-
	06	BI p51117[6]	Inverted	Not inverted	-
	07	BI p51117[7]	Inverted	Not inverted	-
	08	BI p51117[8]	Inverted	Not inverted	-
	09	BI p51117[9]	Inverted	Not inverted	-
	10	BI p51117[10]	Inverted	Not inverted	-
	11	BI p51117[11]	Inverted	Not inverted	-
	12	BI p51117[12]	Inverted	Not inverted	-
	13	BI p51117[13]	Inverted	Not inverted	-
	14	BI p51117[14]	Inverted	Not inverted	-
	15	BI p51117[15]	Inverted	Not inverted	-

Dependency: See also: p51117, r52620
Note: BI: Binector Input

p51400 Three-phase AC power controller control type / AC_ctrl ctrl_type

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 1
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	3	0

Description: Selects the control mode when used as three-phase AC power controller.
Value:
0: No AC power controller
1: Three-phase AC power controller phase angle control
2: Three-phase AC power controller full wave control
3: Three-phase AC power controller half wave control
Dependency: See also: p51405, p51406, p51411

p51404 Line voltage sensing analog input scaling / U_line AI scale

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6870
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
10.000 [V]	2000.000 [V]	540.000 [V]

Description: Setting that line voltage (instantaneous value) that is to be emulated to +10 V at analog input 2 (X177.29/30).
Dependency: The parameter is only effective for p51405 = 1.

p51405 Three-phase AC power controller synchronizing voltage selection / AC_ctrl U_syn sel

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6870
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	1

Description: Sets the synchronizing voltage type when used as three-phase AC power controller.
Value:
0: Synchronization voltage internal
1: Synchronizing voltage external
Dependency: See also: p51400, p51406

Note:
- The parameter is only active, if p51400 is set > 0 (used as three-phase AC power controller).
- The phase-to-phase voltage U-V must always be sensed as synchronizing voltage.
- A clockwise phase sequence must always be used when connecting the power.
- For p51405 = 0, the internal synchronizing voltage is used. An external potential transformer is not required.
- A setting value of 0 is only permissible for DCM Control Modules or for devices with option L30.
- Siemens must always be contacted regarding the availability of devices with option L30 (DCM with three-phase controller power unit) before ordering.
- The parameter only becomes active the next time that the electronics power supply is switched-off/switched-on.

p51406 CI: Three-phase AC power controller duty cycle signal source / AC_ctr DutyCyc s_s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the duty cycle when used as three-phase AC power controller.
Dependency: See also: p51400, p51405
Note: For phase angle control, the following applies:
0 % to 100 % corresponds to 150 ° to 0 °.
For full and half-wave control, the following applies:
0 % to 100 % corresponds to 0 % to 100 % duty cycle (= switch-on time/cycle time).

p51410 AC power controller cycle time / AC_ctr cycle time

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
5	5000	50

Description: Sets the cycle time (in line periods) when used as three-phase AC power controller for full and half wave control.
Dependency: See also: p51400

p51411 Three-phase AC power controller full wave control distribution / AC_ctrl full distr

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	2	1

Description: Selects the distribution of the full waves when used as three-phase AC power controller.
Value:
1: Block distribution
2: Even distribution
Dependency: See also: p51400

p51415 Three-phase AC power controller starting firing angle / AC_ctrl strt_angle

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [°]	90.00 [°]	0.00 [°]

Description: Sets the starting firing angle when used as three-phase AC power controller for full and half wave control.

Dependency: See also: p51400

p51416 Three-phase AC power controller phase chop / AC_ctr ph chop

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the phase chop when used as three-phase AC power controller for full and half wave control.

Value:
0: No phase chop
1: Phase chop of the last half wave
2: Phase chop of the last two half waves

Dependency: See also: p51400

Note: Setting 2 is suitable for a transformer load.

p51420 Three-phase AC power controller soft start ramp duration / AC_ctrl soft t

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	500	0

Description: Sets the duration of the soft start ramp (in line periods) when used as three-phase AC power controller for full and half wave control.

The duration of the soft start ramp is defined as follows:

Number of line periods in which the firing angle is shifted from 180 ° to the final firing angle (p51421).

Dependency: See also: p51400

p51421 Three-phase AC power controller soft start final firing angle / AC_ctrl soft fin_a

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [°]	180.00 [°]	0.00 [°]

Description: Sets the final firing angle for a soft start when used as three-phase AC power controller for full and half wave control.

Dependency: See also: p51400

p51422 AC power controller max switch off duration w/out new soft start / AC_ctrl max off

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	100.0 [s]	0.0 [s]

Description: Sets the maximum off duration without a new soft start ramp when used as three-phase AC power controller for full and half wave control.

Dependency: See also: p51400

r51430 CO: Three-phase AC power controller cycle output not shifted / AC_ctrl cyc outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the unshifted cycle output when used as three-phase AC power controller.
Dependency: See also: p51400
Note: This output supplies a staircase-type signal (0% to 100%). This signal specifies how many line periods of the cycle period have already gone The offset of the cycle by the signal specified with p51437 is not taken into account.

r51431 CO: Three-phase AC power controller actual cycle output / AC_ctrl cyc act

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the actual cycle output when used as three-phase AC power controller.
Dependency: See also: p51400
Note: The same as r51430; however, the offset by the signal specified with p51437 is taken into account.

p51435 Three-phase AC power controller type of cycle generation / AC_ctrl cyc gen

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	2	1

Description: Sets the cycle generation type when used as three-phase AC power controller for full and half wave control.
Value:
1: Internal cycle generation
2: External cycle generation
Dependency: See also: p51400

p51436 CI: AC power controller cycle external signal source / AC_ctrl cyc s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the external cycle when used as three-phase AC power controller
Dependency: See also: p51400

p51437 CI: Three-phase AC power controller cycle offset signal source / AC_ctr cyc off s_s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** -
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the cycle offset when used as three-phase AC power controller
Dependency: See also: p51400
Note: This allows a higher-level control system to specify by how many percent (0 % to 100 %) the clock cycles of individual three-phase AC power controllers should be shifted.

r51560[0...1] CCP software version / CCP SW version

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6970
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the software version for the Converter Commutation Protector (CCP).
Index 0: CCP software version
Index 1: Version of the CCP boot sector software

r51569[0...15] CCP serial number / CCP ser no.

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 6970
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the serial number of the Converter Commutation Protector (CCP).
Note: The individual digits of the number are displayed in ASCII code in the indices.
An ASCII table (excerpt) can be found, for example, in the appendix to the List Manual.

r51570 CCP article number / CCP Article No.

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 3
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6970
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	254	-

Description: Displays the article number (MLFB) of the connected Converter Commutation Protector (CCP).
Value:
0: No CCP connected
250: 6RA7085-6FC00-0
251: 6RA7091-6FC00-0
252: 6RA7095-6FC00-0
253: 6RA7090-6KC00-0
254: 6RA7095-6KC00-0

r51571 CCP rated supply voltage / CCP V_rated

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6970
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
- [V]	- [V]	- [V]

Description: Displays the rated supply voltage according to the rating plate of the Converter Commutation Protector (CCP).

r51572 CCP rated current / CCP I_rated

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6970
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
- [A]	- [A]	- [A]

Description: Displays the rated current according to the rating plate of the Converter Commutation Protector (CCP).

r51574.0...12 CO/BO: CCP state / CCP state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6970
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and connector output for the state of the Converter Commutation Protector (CCP).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Voltage at U, V, W ok	Yes	No	6970
01	Voltage at C - D greater than +100 V	Yes	No	6970
02	Voltage at C - D less than -100 V	Yes	No	6970
03	Turn-off capacitors have reached the setpoint voltage	Yes	No	6970
04	Turn-off in progress	Yes	No	6970
05	Connection between parallel CCPs OK	Yes	No	6970
08	Connector X165_2 (at DCM) is connected with X165 (at CCP)	Yes	No	6970
09	I2t value voltage limiting chopper 1 too high	Yes	No	6970
10	I2t value voltage limiting chopper 2 too high	Yes	No	6970
11	Memory for technical data for CCP OK	Yes	No	6970
12	Chopper capacitors precharging completed	Yes	No	6970

r51575 CO: CCP I2t value voltage limiting chopper 1 / CCP I2t chopper 1

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6970
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1

Min:	Max:	Factory setting:
- [%]	- [%]	- [%]

Description: Displays the I2t value for the voltage limiting chopper 1 for Converter Commutation Protector (CCP).

r51576 CO: CCP I2t value voltage limiting chopper 2 / CCP I2t chopper 2

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6970
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the I2t value for voltage limiting chopper 2 for the Converter Commutation Protector (CCP).

p51577 CCP chopper voltage setpoint response threshold upper / CCP U_set thr up

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6970
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
850 [V]	2900 [V]	1600 [V]

Description: Sets the upper response threshold of the voltage limiter implemented in the CCP.
During the turn-off operation of the CCP when reducing the armature current, this limits the counter voltage that is created - and which is also necessary - to a non-hazardous value for the basic device and for the associated CCP.

Note: CCP: Converter Commutation Protector
The parameter is set automatically during the "optimization run for CCP" (p50051 = 30).
The correct setting of this parameter can be taken from the following reference:
SIMOREG CCP Operating Instructions

p51578 CCP turn-off capacitors precharging voltage setpoint / C prechrg U_set

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6970
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
145 [V]	830 [V]	145 [V]

Description: Sets the minimum charging voltage required for the turn-off capacitors used in the CCP to successfully turn off the thyristors.
This value is used as setpoint for the two-level controller, which precharges the turn-off capacitors from the line supply.
The maximum precharging voltage that can be reached is limited by the average rectified value of the line voltage that is actually connected.

Note: CCP: Converter Commutation Protector
The parameter is set automatically during the "optimization run for CCP" (p50051 = 30).
The correct setting of this parameter can be taken from the following reference:
SIMOREG CCP Operating Instructions

r51579.0...7 CO/BO: CCP command / CCP command

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 6970
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the command from the SINAMICS DCM to the SIMOREG CCP.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Firing the turn-off thyristors	Yes	No	-
01	Line voltage (armature) in the tolerance range	Yes	No	-
02	CCP connected to the parallel switching master	Yes	No	-
03	Line contactor ON	Yes	No	-
04	Torque direction I active	Yes	No	-
05	Torque direction II active	Yes	No	-
06	Reserved (always 1)	Yes	No	-
07	Reserved (always 1)	Yes	No	-

Note: CCP: Converter Commutation Protector

p51580 Commutation monitoring control word / Commut_monit STW

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Unsigned16 | **Dyn. index:** - | **Function diagram:** 6865
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0111 bin

Description: Sets the criterion to detect a commutation failure for the commutation monitoring.

3 decision criteria are available in order to identify commutation failure. For test purposes, these criteria can be individually set using these parameters.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Criterion 1 (signal from thyristor blocking voltage)	Yes	No	6865
01	Criterion 2 (curvature of the current cusp)	Yes	No	6865
02	Criterion 3 (amplitude of the current actual value)	Yes	No	6865

Dependency: See also: p50166

See also: F60300

Note: The converter commutation is continuously monitored.

If a commutation fault is detected, fault F60300 is initiated and thyristor turn-off is initiated by the CCP (if available).

For bit 00:

This criterion is only effective if the thyristor blocking voltage calculation has also been activated (p50166= 1).

For bit 01:

This criterion results in two checks being made:

1) After each firing pulse, the system checks as to whether the current has actually commutated in the fired thyristor pair.

This check is only performed if the natural firing sequence was previously maintained 6 times one after the other.

This check is not made for a 6 pulse parallel connection.

2) The curvature of the current cusps is checked.

This check is not made for a 12 pulse series connection.

p51583 CCP test turn-off command / CCP turn-off cmnd

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 3
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 6970
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	2	0

Description: Setting to issue a turn-off command to the Converter Commutation Protector (CCP) for test purposes.

Value:
0: No turn-off command
1: Issue in torque direction I
2: Issue in torque direction II

Notice: After a turn-off command is issued to the CCP, this parameter automatically returns to the value 0.

Note: If the test command is issued in operation (i.e. in operating state o0.1 or o0.2), then the turn-off operation of the SIMOREG CCP acts on the thyristor bridge that is presently enabled. This is independent of whether the turn-off command is issued in torque direction I or II.

p51590[0...n] CI: Armature current ctrl armature cct resistance adaptation s_src / Ia ctr Ra s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** CDS, p0170	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	1

Description: Sets the signal source to adapt the armature circuit resistance.

Dependency: See also: p50110

p51591[0...n] Armature inductance reduction factor / L_armat red fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
10 [%]	100 [%]	100 [%]

Description: Sets the reduction factor for the current-dependent armature inductance.
At 100% motor rated current (p50100), the armature inductance is lower than it is at armature current 0 by this factor.

Dependency: See also: p50111

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

p51592[0...n] Armature commutating inductance / Arm Lk

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [mH]	1000.0 [mH]	0.0 [mH]

Description: Sets the commutating inductance in the armature circuit.

p51594[0...n] Interphase inductance in 12-pulse operation / L_intph 12-pulse

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [mH]	1000000.00 [mH]	0.00 [mH]

Description: Sets the inductance of the interphase transformer in 12-pulse operation (two 6-pulse thyristor bridge circuits connected in parallel).

Dependency: See also: p51595

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

p51595[0...n] Interphase inductance reduction factor / L_intph red fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
10 [%]	100 [%]	100 [%]

Description: Sets the reduction factor for the current-dependent interphase inductance.
At 100% motor rated current (p50100), the interphase inductance is lower than it is at armature current 0 by this factor.

Dependency: See also: p51594

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

p51596[0...n] Interphase resistance in 12-pulse operation / R_intph 12-pulse

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [ohm]	1000.000 [ohm]	0.000 [ohm]

Description: Sets the resistance of an interphase transformer in 12-pulse operation.

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the armature converter" (p50051 = 25).

p51597[0...n] Field inductance reduction factor / L_field red fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
10 [%]	100 [%]	100 [%]

Description: Sets the reduction factor for the current-dependent field inductance.
At 100% motor rated current (p50102), the field inductance is lower than it is at field current 0 by this factor.

Dependency: See also: p50116

Note: The parameter is set automatically during the "optimization run for pre-control and the current controller for the field current controller" (p50051 = 24).

r51598 Short-circuit voltage Uk, per unit / V_sh-cct Uk p.u.

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the per unit short-circuit voltage of the line supply.
The value is calculated from the commutation inductance (p51592) and the rated converter data (In = r50072[1], Vn = p50078[0], fn = r50017).

p51607[0...n] BI: Setpoint processing reduction signal source / Red sig s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 3135
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source for activating/de-activating the reduction factor for the speed setpoint.

Dependency: See also: p51608, r52194, r52195

Note: Dependent upon binector input (p51607):
1 signal:
The reduction factor (p51608) is de-activated (r52194 = r52195).
0 signal:
The reduction factor (p51608) is activated (r52194 = r52195 x p51608).

p51608[0...n] Setpoint processing reduction factor / Red factor

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 3135
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	100.00 [%]	15.00 [%]

Description: Sets the reduction factor for the speed setpoint in the context of setpoint processing.

Dependency: Dependent upon binector input (p51607):
1 signal:
The reduction factor (p51608) is not applied (r52194 = r52195).
0 signal:
The reduction factor (p51608) is applied (r52194 = r52195 x p51608).
See also: p51607, r52194, r52195

p51615 Zero current signal maximum wait time / Ia=0 t_wait max

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6860
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0 [ms]	10000 [ms]	10000 [ms]

Description: Sets the maximum delay time for the zero current signal.
Here, the maximum wait time for the zero current signal for transitions into operating states greater than equal to o7.0 is parameterized.

Note: For value = 0, the associated function is deactivated.

p51616 E stop response / E stop response

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2070
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	1	0

Description: Sets the response of the control to the triggering of an E stop.

Value:
0: E stop has the same effect as OFF2
1: E stop triggers immediate pulse inhibit

Note: If value = 0:
E stop has the same effect as OFF2.
If value = 1:
E stop interrupts the firing pulse sequence immediately. The process does not wait for Ia = 0 and Alpha W pulses are not emitted.

p51618 LOCAL mode enable behavior / LOCAL enab behav

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 2580
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Sets the behavior for enable via terminal X177.13 in the LOCAL mode.

Value:
0: Terminal X177.13 is not effective in the LOCAL mode
1: Terminal X177.13 is effective in the LOCAL mode

p51619[0...n] BI: Signal source for switching on line contactor / Line cont ON sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 2070
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	53081.0

Description: Sets the signal source for the "Line contactor ON" relay output (XR1.109/110).

p51651[0...n] Speed controller start pulse positive setpoint / Start pul pos set

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-100.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the setpoint for the positive start pulse on the speed controller.

Recommendation: The value can also be used as an integrator setting value for the speed controller.

p51652[0...n] Speed controller start pulse negative factor / Start pul neg fact

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [%]	200.00 [%]	50.00 [%]

Description: Sets the factor for the start pulse when the setpoint is negative.

p51653[0...n] Speed controller start pulse negative setpoint / Start pul neg set

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-100.00 [%]	100.00 [%]	0.00 [%]

Description: Sets the setpoint for the negative start pulse on the speed controller.

p51655 CI: Speed controller start pulse positive signal source / Start p pos sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52451[0]

Description: Sets the signal source for the setpoint of the positive start pulse on the speed controller.

p51656 CI: Speed controller start pulse negative signal source / Start p neg sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	52452[0]

Description: Sets the signal source for the setpoint of the negative start pulse on the speed controller.

p51657[0...n] BI: Speed controller start pulse pos/neg changeover signal source / Start p ch sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** CDS, p0170	**Function diagram:** 6800
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for changing over the setpoint between positive and negative start pulses on the speed controller.

p51660 BI: Signal source for master switch travel command 1 / Trav comm 1 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3105
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for travel command 1 on the 4-step master switch.

p51661 BI: Signal source for master switch travel command 2 / Trav comm 2 s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 3105
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for travel command 2 on the 4-step master switch.

p51662 BI: Signal source for master switch setpoint step S2 / Set step S2 sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 3105
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for changing over to setpoint step S2 on the 4-step master switch.

p51663 BI: Signal source for master switch setpoint step S3 / Set step S3 sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 3105
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for changing over to setpoint step S3 on the 4-step master switch.

p51664 BI: Signal source for master switch setpoint step S4 / Set step S4 sig s

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Unsigned32 / Binary | **Dyn. index:** - | **Function diagram:** 3105
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
-	-	0

Description: Sets the signal source for changing over to setpoint step S4 on the 4-step master switch.

p51665 Master switch setpoint step S1 value / Set step S1 value

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3105
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	110.00 [%]	10.00 [%]

Description: Sets the setpoint for setpoint step S1 on the 4-step master switch.

p51666 Master switch setpoint step S2 value / Set step S2 value

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3105
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1

Min:	Max:	Factory setting:
0.00 [%]	110.00 [%]	25.00 [%]

Description: Sets the setpoint for setpoint step S2 on the 4-step master switch.

p51667 Master switch setpoint step S3 value / Set step S3 value

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3105
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	110.00 [%]	40.00 [%]

Description: Sets the setpoint for setpoint step S3 on the 4-step master switch.

p51668 Master switch setpoint step S4 value / Set step S4 value

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3105
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.00 [%]	110.00 [%]	100.00 [%]

Description: Sets the setpoint for setpoint step S4 on the 4-step master switch.

p51700[0...1] CI: Signal source for connector recorder function / Rec fct con sig s

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8050
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the connectors to be recorded by the recorder function.
Dependency: See also: p51701, p51702, p51703, p51704, p51705, p51706
Note: [0] = Signal source for the first connector to be recorded
[1] = Signal source for the second connector to be recorded

p51701[0...1] BI: Signal source for binector recorder function / Rec fct bin sig s

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 8050
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal source for the binectors to be recorded by the recorder function.
Dependency: See also: p51700, p51702, p51703, p51704, p51705, p51706
Note: [0] = Signal source for the first binector to be recorded
[1] = Signal source for the second binector to be recorded

p51702 Recorder function channel selection / Rec fct sel

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1111 bin

Description: Setting to select the channels to be recorded.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Channel 0	Active	Not active	-
	01	Channel 1	Active	Not active	-
	02	Channel 2	Active	Not active	-
	03	Channel 3	Active	Not active	-

Dependency: See also: p51700, p51701, p51703, p51704, p51705, p51706

p51703 Recorder function recording interval / Rec fct t_rec

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1 [s]	1000 [s]	1 [s]

Description: Sets the recording interval,
during which the signals selected with the channel selection parameters (p51702.0...3) are scanned and saved internally.

Dependency: See also: p51700, p51701, p51702, p51704, p51705, p51706

p51704 Recorder function save interval / Rec fct t_save

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	60	1

Description: Sets the save interval,
during which the signals recorded internally are saved to the following recording file:
\USER\SINAMICS\DATA\LOG\Track.csv

Dependency: See also: p51700, p51701, p51702, p51703, p51705, p51706

Notice: The value is set in minutes.

p51705 Start/stop recorder function / Rec fct StartStop

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8050
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Setting to start and stop the recorder function.
Value = 1:
Recording is started and stopped after reaching of the number of entries set in p51706. p51705 is set to 0.
Value = 2:
Recording is started: After reaching of the number of entries set in p51706, the file is overwritten from the beginning.
Recording runs until it is stopped by setting of p51705 = 0.

Value:
0: Stop
1: Start
2: Start with overwrite

Dependency: See also: p51700, p51701, p51702, p51703, p51704, p51706

Notice: Starting the recorder function overwrites any existing recording file.

p51706 Recorder function number of entries / Rec fct num ent

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 8050
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
10	100000	3600

Description: Sets the number of entries in the recorder function's recording file.

Dependent upon the start command (p51705 = 1 or 2), recording is stopped after this number of entries has been reached or the recording file is overwritten from the beginning.

Dependency: See also: p51700, p51701, p51702, p51703, p51704, p51705

p51780 Fault message response delay time / F delay_time

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	60.000 [s]	0.000 [s]

Description: All fault responses are not immediately initiated, but only after a parameterizable delay time.

For a description of the fault responses, see the parameter description for parameter p2101.

Danger: When using the parameter, the fault responses of ALL fault messages are involved. Take into account the behavior when considering the safety situation in your plant or system. If in any doubt, leave the parameter at 0.

Caution: If the cause of the fault message disappears during the delay time, the fault response is still realized after this time expires.

If the cause of the fault message disappears during the delay time, and is acknowledged before the delay time expires, the fault message disappears, and a fault response is not initiated.

Note: Active faults are signaled at r2139.3 and r3114.10.

p51790 BI: Topology switchover signal source / Top_switch s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9360
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source to select the required power unit topology.

p51791 BI: Topology switchover feedback signal source / Top_sw fdbk s_src

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9360
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal source for the feedback signal of the active power unit topology.

p51792 Topology switchover feedback signal stabilization time / Topo_sw t_stab

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9360
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	1000 [ms]	0 [ms]

Description: Sets the stabilization time for the feedback signal of the active power unit topology.

p51793 Topology switchover feedback signal duration / Topo_sw fdbk t_sig

DC_CTRL

Can be changed: U, T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9360
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [ms]	10000 [ms]	100 [ms]

Description: Sets the maximum duration of the power unit topology switchover.

p51794 Topology switchover armature converter mode of operation 2 / Topo_sw mode 2

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 3
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 9360
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	42	0

Description: Sets the mode of operation of the armature converter for power unit topology 2.

Value:
0: Standard mode of operation
1: Sole power unit 1-phase
3: Sole power unit 3-phase
21: 12-pulse parallel, firing angle from the master
22: 12-pulse parallel, firing angle master/slave
31: 6-pulse serial, firing angle from the master
32: 6-pulse serial with sequential phase control
41: 12-pulse serial, firing angle from the master
42: 12-pulse serial with sequential phase control

Dependency: See also: p51795

Note: Comments, the same as for p51799

p51795 Topology switchover power unit topology position 2 / Topo_sw pos 2

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 9360
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0	45	0

Description: Sets the position of the power unit in converter topology 2.

Value:
0: Parallel interface not active
1: Power unit independent/CUD right
11: 6-pulse parallel master
12: 6-pulse parallel slave
13: 6-pulse parallel slave/replacement master
21: 12-pulse parallel master
22: 12-pulse parallel slave
23: 12-pulse parallel, slave parallel to master
24: 12-pulse parallel, slave parallel to slave
31: 6-pulse serial master
32: 6-pulse serial slave
33: 6-pulse serial parallel to master
34: 6-pulse serial parallel to slave
35: 6-pulse serial master, slave is a diode bridge
41: 12-pulse serial master
42: 12-pulse serial slave
43: 12-pulse serial parallel to master
44: 12-pulse serial parallel to slave
45: 12-pulse serial master, slave is a diode bridge

Dependency: See also: p51799

Note: Comments, the same as for p51800

p51797[0...1] Sequential phase control switch-on threshold/hysteresis / Seq ph ctr on/hys

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
5 [%]	100 [%]	[0] 35 [%] [1] 30 [%]

Description: Sets the switch-on threshold and hysteresis for the phase sequence control.
The values are referred to the rated device current r50072[1].

Index: [0] = Switch-on threshold
[1] = Hysteresis

Dependency: See also: p51799

Note: The switch-off threshold is calculated as follows:
Switch-off threshold = switch-on threshold - hysteresis

p51798 Armature converter voltage diode bridge / Ia_convert U diode

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
50.00 [%]	100.00 [%]	85.00 [%]

Description: Sets the line voltage at the diode bridge for a 6-pulse/12-pulse series circuit of a SINAMICS DCM with an uncontrolled rectifier (diode bridge).

Note: The value set here is a percentage of the line voltage at the SINAMICS DCM.

p51799 Armature converter mode of operation / Ia_conv mode_op

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	42	0

Description: Sets the mode of operation of the armature converter

Value:
0: Standard mode of operation
1: Sole power unit 1-phase
3: Sole power unit 3-phase
21: 12-pulse parallel, firing angle from the master
22: 12-pulse parallel, firing angle master/slave
31: 6-pulse serial, firing angle from the master
32: 6-pulse serial with sequential phase control
41: 12-pulse serial, firing angle from the master
42: 12-pulse serial with sequential phase control

Dependency: See also: p51797, p51800

Note: If value = 0:

Standard for the corresponding topology (acc. to p51800).

If value = 1:

Sole power unit in 1-phase operation (line connection at inputs 1U and 1V).

If value = 3:

Sole power unit in 3-phase operation (= standard).

If value = 21:

12-pulse parallel connection with central firing angle generation in the master (= standard).

If value = 22:

12-pulse parallel connection with current setpoint interface, own closed-loop current control and firing angle generation in the master and in the slave.

If value = 31:

6-pulse series circuit with central firing pulse generation in the master (= standard).

If value = 32:

6-pulse series connection with sequential phase control.

If value = 41:

12-pulse series circuit with central firing pulse generation in the master (= standard).

If value = 42:

12-pulse series connection with sequential phase control.

p51800 Power unit topology position / PU topo pos

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	45	0

Description: Sets the position of the power unit in the converter topology.

Value:
0: Parallel interface not active
1: Power unit independent/CUD right
11: 6-pulse parallel master
12: 6-pulse parallel slave
13: 6-pulse parallel slave/replacement master
21: 12-pulse parallel master
22: 12-pulse parallel slave
23: 12-pulse parallel, slave parallel to master
24: 12-pulse parallel, slave parallel to slave
31: 6-pulse serial master
32: 6-pulse serial slave
33: 6-pulse serial parallel to master
34: 6-pulse serial parallel to slave
35: 6-pulse serial master, slave is a diode bridge
41: 12-pulse serial master
42: 12-pulse serial slave
43: 12-pulse serial parallel to master
44: 12-pulse serial parallel to slave
45: 12-pulse serial master, slave is a diode bridge

Dependency: See also: p51799

Note: If value = 0:
The parallel connection interface is inactive, the hardware does not have to be connected. The power unit operates alone.
If value = 1:
a) Several converters are connected with one another via the parallel interface. The power units operate independently of one another. Data exchange via the parallel interface is only used to exchange BICO signals.
b) At a CUD in the right-hand slot, a value of 1 must always be set.
For values > 1:
Several converters are connected with one another via the parallel interface. The power units are also connected with one another and operate together (series connection, parallel connection). Data exchange via the parallel interface allows the power units to operate together and is additionally used to exchange BICO signals.

p51801 Parallel interface number of transmit data / Par IF num tr data

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9355
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	16	0

Description: Sets the number of words to be transmitted on the parallel interface.

Value:
0: 0 words
4: 4 words
8: 8 words
12: 12 words
16: 16 words

Note: For a 12-pulse series connection, it is not permissible that the parallel interface is used
to transfer BICOs - i.e. p51801 must be set = 0.
Failure to comply with this note can result in sporadic current peaks.

p51802 Parallel interface number of power units / Par_IF PU qty

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	16	1

Description: Sets the number of converters whose power units operate together in the selected converter topology (p51800).
It is not permissible that "Independent power units" (i.e. SINAMICS DCM devices with p51800 = 0 or 1) are taken into account.

Note: For a 6-pulse parallel connection (p51800 = 11, 12 or 13) and activated redundant operation (p51803 = 1), then the power units may fail (e.g. go into a fault condition). In this operating mode, using this parameter, the minimum number of power units must be set which must be ready for operation. In this case, the total number of converters should be set at p51812.
In all other cases, the number of power units that operate together must be precisely set.

p51803 Parallel interface activation of redundancy mode / Par IF redund mod

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Setting to activate/de-activate redundancy mode for the parallel interface.

Value:
0: Deactivated
1: Activated armature
2: Activated armature + field

Note: When a SINAMICS DCM is operated together with a SIMOREG DC-MASTER Converter Commutation Protector (CCP), then the redundant mode must be deactivated.

p51804[0...15] CI: Parallel interface slave transmit data / PI slave tr data

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 9355
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	0

Description: Sets the signal sources for transmit data when operating the device as a slave on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

p51805 Parallel interface bus terminator / Par IF bus term

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate/de-activate the bus terminator on the parallel interface.

Value:
0: Bus terminator OFF
1: Bus terminator ON

Dependency: See also: p51806

p51806 Parallel interface station address / Par IF stat addr

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	16	1

Description: Sets the station address for connecting devices in parallel.

Dependency: See also: p51805

p51807 Parallel interface telegram monitoring failure time / Telegr mon t_fail

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000 [s]	65.000 [s]	0.100 [s]

Description: Sets the permissible telegram failure time for the parallel interface.

This setting means that every device connected to the parallel switching interface can monitor whether it is connected to the parallel switching interface.

If a telegram is not received from any other device connected to the parallel switching interface for longer than the set time, then BICO output r53310.0 is set to 1, and also fault F60014 is initiated in the factory setting.

Value = 0.0:

Telegram monitoring is de-activated.

Value = 0.001 ... 65.000:

Telegram monitoring is activated.

Dependency: See also: p50099, r53310

See also: F60014

Note: Telegram monitoring is active in the following cases:

- From the first error-free telegram received after the electronics power supply has been switched on The telegram can be received from any device.

- From the first telegram received error-free after the telegram monitoring has responded (as a result of the failure time expiring).

p51808 BI: Parallel interface signal source for F60014 / P IF F60014 sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	53310.0

Description: Sets the signal source for triggering fault F60014 "Telegram monitoring timeout".

The fault is triggered on a 1 signal.

Dependency: See also: r53310

See also: F60014

r51809[0...4] Parallel interface diagnostic information / Par IF diag info

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the diagnostic information for the parallel interface.

Index: [0] = Telegrams transmitted without errors
[1] = Telegrams received without errors
[2] = Transmission error
[3] = Receive error
[4] = Timeouts

Dependency: See also: p51807

Note: The counters are reset to 0 at POWER ON.

The counters restart at 0 after reaching a value of 65535.

r51810 Parallel interface activity display / Par IF act disp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9350
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the activities on the individual stations on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Station 1 transmitting data	Yes	No	-
01	Station 2 transmitting data	Yes	No	-
02	Station 3 transmitting data	Yes	No	-
03	Station 4 transmitting data	Yes	No	-
04	Station 5 transmitting data	Yes	No	-
05	Station 6 transmitting data	Yes	No	-
06	Station 7 transmitting data	Yes	No	-
07	Station 8 transmitting data	Yes	No	-
08	Station 9 transmitting data	Yes	No	-
09	Station 10 transmitting data	Yes	No	-
10	Station 11 transmitting data	Yes	No	-
11	Station 12 transmitting data	Yes	No	-
12	Station 13 transmitting data	Yes	No	-
13	Station 14 transmitting data	Yes	No	-
14	Station 15 transmitting data	Yes	No	-
15	Station 16 transmitting data	Yes	No	-

r51811 Parallel interface CAN diagnostic information / PI CAN diag info

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9350
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the CAN diagnostic information for the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Abort acknowledge flag			9350
01	Write denied flag			9350
02	Wake-up flag			9350
03	Received msg lost flag			9350
04	Bus-off condition flag			9350
05	Error passive mode flag			9350
06	Warning level flag			9350
07	Form error flag			9350
08	Bit error flag			9350
09	Stuck at dominant bit			9350
10	CRC error			9350
11	Stuff bit error			9350
12	ACK error			9350
13	Bus-off status			9350
14	Error passive state			9350
15	Warning status			9350

p51812 Parallel connection interface redundancy mode power units qty / Par_IF PU red qty

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 9350
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	1	16	1

Description: Sets the number of converters whose power units operate together in the selected converter topology (p51800).
It is not permissible that "Independent power units" (i.e. SINAMICS DCM devices with p51800 = 0 or 1) are taken into account.

Dependency: See also: p51803

Note: This parameter is only active if the following applies
- 6-pulse parallel circuit (i.e. p51800 = 11, 12, 13).
and
- The redundancy mode is activated (i.e. p51803 > 0).

r51813[0...15] Parallel interface transmit data display / PI trans data disp

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 1
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9355
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Displays the data selected for transmission.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

p51814[0...15] CI: Parallel interface master transmit data / PI master tr data

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 2
	Data type: Unsigned32 / Integer16	**Dyn. index:** -	**Function diagram:** 9355
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** 4000H	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	0

Description: Sets the signal sources for transmit data when operating the device as a master on the parallel interface.

Index: [0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Note: This parameter is used to define the transmit data and its position in the transmit telegram.
[0]: Word 1 in the telegram
...
[4]: Word 5 in the telegram
[5]: Word 1 in the telegram
...
[9]: Word 5 of the telegram
...

p51815 Parallel interface number of devices / Par_IF device qty

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 9350
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
1	16	1

Description: Sets the number of CUDs, which communicate with one another via the parallel switching interface.
This setting is intended so that every device connected to the parallel switching interface can monitor whether all devices are active and/or available.
Each of the devices connected to the parallel switching interface continually monitors whether all of the devices regularly send telegrams.
"Device connected to the parallel switching interface" is every CUD, at which p51800 > 0 .
"Regularly sending telegrams" means that the time between two send telegrams from the same device must be less than 100 ms.

Note: - If the number set here is less than the actual number of devices connected to the parallel switching interface, then failure of some of the devices is ignored until the number of devices set using this parameter is fallen below.
- A setting of 1 means that the monitoring is inactive.

p51819[0...1] External voltage transformer transformation ratio / V transf ext ratio

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950, 6965
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.000100	1.000000	1.000000

Description: Sets the ratio between output and input voltage on the external voltage transformer for line and armature voltage.

Index: [0] = Line voltage
[1] = Armature voltage

Note: The parameter is only effective on the Control Module.
Example:
Output voltage = 100 V
Input voltage = 2000 V
--> p51819 = 100 V / 2000 V = 0.050

p51820 Armature rated supply voltage / Arm V_rated

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6965
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
50 [Vrms]	5000 [Vrms]	1000 [Vrms]

Description: Sets the rated supply voltage (rms value) for which the power unit is suitable (electric strength of the thyristors).
Note: The parameter is only effective on the Control Module.
The set supply voltage is displayed in r50071.
Parameter p50078[0] (armature rated input voltage) is limited to this value.

p51821[0...1] Measurement cable connection / Meas cab conn

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6965
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1000	1000

Description: Sets the connections used to measure the line voltage and the armature voltage on the A7117 module.
Value:
0: No selection
6: XU6 / XV6 / XW6 or XC6 / XD6
50: XU5 / XV5 / XW5 or XC5 / XD5
125: XU4 / XV4 / XW4 or XC4 / XD4
250: XU3 / XV3 / XW3 or XC3 / XD3
575: XU2 / XV2 / XW2 or XC2 / XD2
1000: XU1 / XV1 / XW1 or XC1 / XD1
Index: [0] = Line voltage
[1] = Armature voltage
Note: The parameter is only effective on the Control Module.
The parameter value indicates the rated rms value of the maximum measurable line voltage.

p51822 Armature rated direct current / Arm I_rated

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6965
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.1 [A]	20000.0 [A]	0.1 [A]

Description: Sets the rated direct current for the armature.
The output direct current supported by the power unit in continuous operation should be set in this parameter.
Note: The parameter is only effective on the Control Module.

p51823 Load voltage at armature rated current / V_load Ia_rated

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6850, 6965
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0.1000 [V]	1.2000 [V]	1.0000 [V]

Description: Sets the load voltage resulting from the following calculation formula:
V_load = R_load * tr * Id
V_load: The load voltage to be set in this parameter
R_load: The load resistance (default 10 ohm)
r: Transformation ratio of the current transformer (I2 / I1)
Id: Output direct current according to parameter p51822

Note: The parameter is only effective on the Control Module.

p51824 Current transformer configuration / I_transf config

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 6850, 6965
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
1	5	2

Description: Sets the configuration for the current transformer for current actual value sensing.

Value:
1: Current transformer in phase U and V
2: Current transformer in phase U and W
3: Current transformer in phase V and W
4: External current transformer connected in V circuit
5: Bipolar current actual value signal (external shunt)

Note: The parameter is only effective on the Control Module.

p51825 Power unit type / PU typ

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: Integer16 | **Dyn. index:** - | **Function diagram:** 6965
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
2	4	2

Description: Sets the power unit type.

Value:
2: 2-quadrant power unit
4: 4-quadrant power unit

Note: The parameter is only effective on the Control Module.

p51826[0...2] Armature current converter firing pulse chopping times / Pulse chop t

DC_CTRL

Can be changed: T | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 6860, 6965
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** - | **Expert list:** 1

Min:	Max:	Factory setting:
0 [µs]	105 [µs]	[0] 50 [µs] [1] 35 [µs] [2] 70 [µs]

Description: Sets the times for firing pulse chopping on the armature current converter.

Index: [0] = Length of first pulse
[1] = Length additional pulses
[2] = Break length

Note: The parameter is only effective on the Control Module.
Block pulses are generated (i.e. firing pulses without pulse chopping) with the following setting:
- p51826[0] = 105 µs
- p51826[1] = 105 µs
- p51826[2] = 0 µs

p51829[0...2] Heat sink temperature threshold / Htsk temp thresh

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8048
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [°C]	200.0 [°C]	90.0 [°C]

Description: Sets the threshold for temperature monitoring on the Control Module.

Index: [0] = Temperature sensor 1 / XT5 / A7109
[1] = Temperature sensor 2 / XT6 / A7109
[2] = Temperature sensor 3 / XT7 / A7116

Dependency: See also: p51830
See also: F60067

Note: The parameter is only effective on the Control Module.

p51830[0...2] Heat sink temperature sensor type / Htsk temp type

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8048
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the sensor type for the temperature sensors on the Control Module.

Value:
0: No temperature sensor present
1: NTC with 6.8 kOhm
2: NTC with 10 kOhm

Index: [0] = Temperature sensor 1 / XT5 / A7109
[1] = Temperature sensor 2 / XT6 / A7109
[2] = Temperature sensor 3 / XT7 / A7116

Dependency: See also: p51829
See also: F60067

Note: The NTC temperature sensor should be connected at module A7109 or A7116 at terminal XT5, XT6 or XT7.
The parameter is only effective on the Control Module.

p51831[0...4] Fuse monitoring activation / Fuse mon act

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6957, 6965
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting to activate/de-activate fuse monitoring on the Control Module.

Value:
0: Deactivated
1: Activated

Index: [0] = Connector X23B
[1] = Connector X23C
[2] = Connector X23D
[3] = Connector X23E
[4] = Connector X23F

Dependency: See also: F60004, F60204

Note: The parameter is only effective on the Control Module.
Connector X23B is available on the power interface and on the expansion module (A7112 module). Monitoring at connectors X23C to X23F is only possible using the expansion module.
Only groups of up to 6 inputs can be activated and de-activated at the same time.
If an expansion module is connected to slot X23A, slot X23B cannot be used on the power interface.

p51832 Fan monitoring configuration / Fan mon config

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8049
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Sets the configuration for fan monitoring on the Control Module.

Value: 0: OFF
1: ON and Low active
2: ON and High active

Dependency: See also: r53140
See also: A60266, F60267

Note: The parameter is only effective on the Control Module.
Fan monitoring is wired via input terminal 122/123.

p51833 External fault mode / Ext F mode

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6965, 8049
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	1

Description: Sets the mode to trigger the external fault F60203 via input terminal 124/125 on the Control Module.

Value: 0: Switched off
1: Switched on and Low level triggers fault
2: Switched on and High level triggers fault

Dependency: See also: r53140
See also: F60203

Note: The parameter is only effective on the Control Module.
If value = 1:
The input signal is available via binector output r53140.4 for further interconnection.
If value = 2:
The input signal is available via binector output r53140.3 for further interconnection.

p51834 BI: Signal source for device fan relay output / Fan relay sig s

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Unsigned32 / Binary	**Dyn. index:** -	**Function diagram:** 6965, 8049
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	53135.0

Description: Sets the signal source for the "Fan On" relay output (terminal 120/121) on the power interface.

Note: The parameter is only effective on the Control Module.

p51835[0...2] Delay times for device fan monitoring / Fan mon t_del

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8049
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.0 [s]	60.0 [s]	[0] 15.0 [s] [1] 5.0 [s] [2] 2.0 [s]

Description: Sets the delay times for device fan monitoring on the Control Module.

Index: [0] = ON delay monitoring
[1] = ON delay fault
[2] = ON delay alarm

Dependency: See also: A60266, F60267

Note: The parameter is only effective on the Control Module.

p51837 Power unit external selection / Field_PU ext sel

DC_CTRL

Can be changed: C2(1), T	**Calculated:** -	**Access level:** 3
Data type: Integer16	**Dyn. index:** -	**Function diagram:** -
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	22	0

Description: Selects the external field power unit.

Value:
0: Field power unit according to MLFB
1: 10A 1Q field power unit
2: 10A 2Q field power unit
3: 30A 1Q field power unit
4: 30A 2Q field power unit
11: 40A 1Q field power unit
12: 40A 2Q field power unit
21: 85A 1Q field power unit
22: 85A 2Q field power unit

Dependency: See also: p50082

Note: External field power units are only available on request.
SINAMICS DCM devices with MLFB 6RA8013- and 6RA8018- cannot be equipped with an external field how unit.

p51838 Field device external rated direct current / I_rated ext

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6960, 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.00 [A]	600.00 [A]	0.00 [A]

Description: Sets the rated direct current of an external field device (if there is one).

Dependency: See also: p50082

Note: This parameter is only effective if p50082 >= 21.

p51839 External field monitoring / Ext field monit

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 8044
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	1	0

Description: Setting for activating/de-activating the monitoring for the external field.

Value:
0: Deactivated
1: Activated

Dependency: See also: p50082

p51840 Auto-reversing stage simulation mode / Auto-rev simul

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6865
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	26	0

Description: Setting to control simulation mode in the auto-reversing stage.

Value:
0: No simulation mode
11: Fire thyristor 11
12: Fire thyristor 12
13: Fire thyristor 13
14: Fire thyristor 14
15: Fire thyristor 15
16: Fire thyristor 16
21: Fire thyristor 21
22: Fire thyristor 22
23: Fire thyristor 23
24: Fire thyristor 24
25: Fire thyristor 25
26: Fire thyristor 26

Note: The simulation mode can only be activated in operating states >= o7.0.

p51845 Line zero crossings offset angle fixed / Line offset fixed

DC_CTRL

Can be changed: U, T	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-120.00 [°]	120.00 [°]	0.00 [°]

Description: Sets a fixed offset angle between the line zero crossings at the power unit and the synchronizing voltage.

Dependency: See also: p51846, p51847

Note: The parameter is only effective on the Control Module.

p51846[0...5] Line zero crossings offset angle thyristor pair-dependent / Line offset

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-10.00 [°]	10.00 [°]	0.00 [°]

Description: Sets an offset angle dependent on a thyristor pair between the line zero crossings at the power unit and the synchronizing voltage.

Index:
[0] = Thyristor pair 1-6 (UV+)
[1] = Thyristor pair 1-2 (WU-)
[2] = Thyristor pair 2-3 (VW+)
[3] = Thyristor pair 3-4 (UV-)
[4] = Thyristor pair 4-5 (WU+)
[5] = Thyristor pair 5-6 (VW-)

Dependency: See also: p51845, p51847

Note: The parameter is only effective on the Control Module.

p51847[0...5] CI: Line zero crossings offset angle thyr. pair-depend. fact. s_src / Line offs fact s_s

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Sets the signal source for a factor for the offset angle dependent on a thyristor pair between the line zero crossings at the power unit and the synchronizing voltage.

Index:
[0] = Thyristor pair 1-6 (UV+)
[1] = Thyristor pair 1-2 (WU-)
[2] = Thyristor pair 2-3 (VW+)
[3] = Thyristor pair 3-4 (UV-)
[4] = Thyristor pair 4-5 (WU+)
[5] = Thyristor pair 5-6 (VW-)

Dependency: See also: p51845, p51846

Note: The parameter is only effective on the Control Module.

p51852 Current actual value sensing analog input configuration / I_sens AI config

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6850
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0	4	0

Description: Sets the configuration for the armature current actual value sensing.
Value = 0:
The device-internal armature current actual value sensing is active.
Value > 0:
An external armature currrent actual value sensing is fed to the SINAMICS DC MASTER via an analog input. The device-internal armature current actual value sensing is not active.

Value:
0: Ia sensing internal
1: Sensing via analog input 3 (X177.1/2)
2: Sensing via analog input 4 (X177.3/4)
3: Sensing via analog input 5 (X177.5/6)
4: Sensing via analog input 6 (X177.7/8)

Dependency: See also: p51823, p51824

Danger: For value > 0, the following applies:

Incorrect setting of parameter p51853 leads to damaging or destruction of the power unit!

Note: For value > 0, the following applies:

This is to be used only in certain special cases, where the accuracy of the device-internal armature current actual value sensing is regarded as insufficient.

The following applies for the Control Module:

p51852 = 0: p51824 is active

p51852 > 0: p51824 is not active

p51853 Current actual value sensing analog input voltage at rated Ia / I_sen AI V at Ia

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0.100 [V]	10.000 [V]	5.000 [V]

Description: Sets the voltage for the external current actual value sensing.

This voltage is supplied via the input terminal X177:x/x at armature rated current.

Dependency: See also: p51823, p51824

Danger: The following applies for p51852 > 0:

Incorrect setting of parameter p51853 leads to damaging or destruction of the power unit!

Note: The following applies for the DC converter:

p51852 = 0: p51853 is not active

p51852 > 0: p51853 is active

The following applies for the Control Module:

p51852 = 0: p51823 is active

p51852 > 0: p51853 is active, p51823 is not active

p51854 Armature voltage sensing configuration / Va_sens config

DC_CTRL

Can be changed: T	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
0	2	0

Description: Sets the configuration for the armature voltage sensing.

Value = 0:

The device-internal armature voltage sensing is effective.

Value = 1:

An external armature voltage sensing is entered via analog input 2 (X177.29/30). The device-internal armature voltage sensing is not effective.

Value = 2: both

Value:
0: Va sensing internal
1: Va sensing via AI 2 (X177.29/30)
2: Va sensing internal & via AI 2 (X177.29/30)

Dependency: See also: p51823, p51824

Notice: The following applies for p51854 = 0 --> 1 or 2:

The device must be restarted. Only then does the armature voltage sensing operate correctly via analog input 2.

Note: AI: Analog Input

p51855 Armature voltage sensing analog input reference voltage / Va_sens AI V_ref

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	10.000 [V]	2000.000 [V]	10.000 [V]

Description: Sets the armature voltage, which corresponds to a +10 V voltage at analog input 2 (X177.29/30).
Dependency: See also: p51854
Note: The parameter is only effective for p51854 = 1.

p51861[0...n] Capacitance of the DC link capacitor / Capac_DClink

DC_CTRL	**Can be changed:** U, T	**Calculated:** -	**Access level:** 3
	Data type: FloatingPoint32	**Dyn. index:** DDS, p0180	**Function diagram:** 6902
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	0.000 [µF]	10000000.000 [µF]	1000.000 [µF]

Description: Load connection: capacitance of the DC link capacitor

p51862 CI: Capacitance of the DC link capacitor signal source / C_DC link s_src

DC_CTRL	**Can be changed:** T	**Calculated:** -	**Access level:** 3
	Data type: Unsigned32 / FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	1

Description: Load connection: signal source for varying the capacitance of the DC link capacitor

r52000 CO: Fixed value 0 % / Fix val 0%

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Connector output with constant fixed value 0%.

r52001 CO: Fixed value 100 % / Fix val 100%

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3100
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Connector output with constant fixed value 100%.

r52002 **CO: Fixed value 200 % / Fix val 200%**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output with constant fixed value 200%.

r52003 **CO: Fixed value -100 % / Fix val -100%**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output with constant fixed value -100%.

r52004 **CO: Fixed value -200 % / Fix val -200%**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output with constant fixed value -200%.

r52005 **CO: Fixed value 50 % / Fix val 50%**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output with constant fixed value 50%.

r52006 **CO: Fixed value 150 % / Fix val 150%**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output with constant fixed value 150%.

r52007 CO: Fixed value -50 % / Fix val -50%

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3100
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Connector output with constant fixed value -50%.

r52008 CO: Fixed value -150 % / Fix val -150%

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3100
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Connector output with constant fixed value -150%.

r52010 CO: CUD analog input main setpoint raw value / CUD AI m set raw

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2075
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the raw value at the "Main setpoint" analog input (X177.25/26).

r52011 CO: CUD analog input main setpoint / CUD AI m set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2075
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the "Main setpoint" analog input (X177.25/26).

r52012 CO: CUD analog input main actual value raw value / CUD AI m act raw

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2075
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the raw value at the "Main actual value" analog input (XT1.103/104).

r52013 CO: CUD analog input main actual value / CUD AI m act

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2075, 6810
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the "Main actual value" analog input (XT1.103/104).

r52014 CO: CUD analog input select input 1 raw value / CUD AI sel 1 raw

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2080
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the raw value at the analog "Select input 1" (X177.27/28).

r52015 CO: CUD analog input select input 1 / CUD AI sel 1

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2080
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the analog "Select input 1" (X177.27/28).

r52016 CO: CUD analog input select input 2 raw value / CUD AI sel 2 raw

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2080
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the raw value at the analog "Select input 2" (X177.29/30).

r52017 CO: CUD analog input select input 2 / CUD AI sel 2

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 2080
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the analog "Select input 2" (X177.29/30).

r52018 CO: CUD analog input 3 raw value / CUD AI 3 raw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the raw value at analog input 3 (X177.1/2) on the CUD.
Dependency: See also: r52019
Note: AI: Analog Input

r52019 CO: CUD analog input 3 result / CUD AI 3 res

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the conversion result at analog input 3 (X177.1/2) on the CUD.

r52020 CO: CUD analog input 4 raw value / CUD AI 4 raw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the raw value at analog input 4 (X177.3/4) on the CUD.
Dependency: See also: r52021

r52021 CO: CUD analog input 4 result / CUD AI 4 res

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2085
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the conversion result at analog input 4 (X177.3/4) on the CUD.

r52022 CO: CUD analog input 5 raw value / CUD AI 5 raw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the raw value at analog input 5 (X177.5/6) on the CUD.
Dependency: See also: r52023

r52023 **CO: CUD analog input 5 result / CUD AI 5 res**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the conversion result at analog input 5 (X177.5/6) on the CUD.

r52024 **CO: CUD analog input 6 raw value / CUD AI 6 raw**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the raw value at analog input 6 (X177.7/8) on the CUD.
Dependency: See also: r52025

r52025 **CO: CUD analog input 6 result / CUD AI 6 res**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2090
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the conversion result at analog input 6 (X177.7/8) on the CUD.

r52026 **CO: CUD analog output 0 value after smoothing / CUD AO 0 v aft sm**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for analog output 0 (X177.49/50) on the CUD.
Dependency: See also: p50750
Note: AO: Analog Output

r52027 **CO: CUD analog output 1 value after smoothing / CUD AO 1 v aft sm**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2095
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for analog output 1 (X177.51/52) on the CUD.
Dependency: See also: p50755
Note: AO: Analog Output

r52047 CO: Ramp-function generator braking distance (Unsigned32) / RFG brake dist U32

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the braking distance required as increments of the pulse encoder defined in p0400.
The pulse encoder to be used must be selected using p50331.
The required braking distance is calculated assuming that the speed setpoint at the ramp-function generator input has been set to 0 and the speed actual value is approaching 0, taking the set ramp-down time and roundings into consideration.

Note: For p0400[p50331] = 0, a braking distance of 0 is displayed.
The braking distance calculation is only correct if the ramp-down time and the roundings do not change during braking (p50302, r00899.5, p50637, p50638).

r52048 CO: Ramp-function generator braking distance (FloatingPoint32) / RFG br dist float

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the braking distance required as increments of the pulse encoder defined in p0400.
The pulse encoder to be used must be selected using p50331.
The required braking distance is calculated assuming that the speed setpoint at the ramp-function generator input has been set to 0 and the speed actual value is approaching 0, taking the set ramp-down time and roundings into consideration.

Note: For p0400[p50331] = 0, a braking distance of 0 is displayed.
The braking distance calculation is only correct if the ramp-down time and the roundings do not change during braking (p50302, r00899.5, p50637, p50638).

r52049 Temperature sensor available / Temp_sens avail

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 6960
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the integrated temperature sensors.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Temperature sensor XT5	Available	Not present	6960
01	Temperature sensor XT6	Available	Not present	6960
02	Temperature sensor XT7	Available	Not present	6960
03	Gating module temperature sensor	Available	Not present	6960

Note: The display is independent of the temperature sensor status and only indicates the desired state.

r52050[0...4] CO: Temperature sensor display / Temp sensor disp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8047, 8048
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the device's temperature outputs.

Index:
[0] = Temperature 1
[1] = Temperature 2
[2] = Temperature 3
[3] = Gating module temperature
[4] = CUD Control Unit temperature

Note: Temperature sensors which are not in use return a high negative value (approx. -200 °C).

r52051 CO: Motor temperature output / Mot temp outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8030
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the motor temperature.
Scaling:
0 % corresponds to 0 °C
100 % corresponds to 100 °C

Dependency: The parameter is only valid for the following temperature sensors with a continuous characteristic:
- KTY84 (p50490 = 1)
- PT100 (p50490 = 6)
- NTC thermistor K227 (p50490 = 7)
- PT1000 (p50490 = 8)
See also: p50490

Note: If p50490 = 0, 2 to 5, a value of 0 is displayed.

r52100 CO: Armature firing angle after limiting / Fir ang aft lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6870
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the armature firing angle after limiting by the auto-reversing stage.

r52101 CO: Armature firing angle before limiting / Fir ang bef lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6860, 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the armature firing angle before limiting by the auto-reversing stage.

r52102 CO: CI-loop arm curr ctrl prectr value + arm curr controller output / Ia ctr prec+outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the output to the armature gating module (pre-control value + armature current controller output).

r52103 CO: Armature current flow duration / Arm I_flow dur

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the armature current flow duration/time ratio between 2 consecutive firing pulses.

r52104 CO: Armature current increase / Arm I_incr

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the current increase in the armature (dIa/dt) in A/s.

r52106 Torque direction requested / Tqe dir requ

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Integer16	**Dyn. index:** -	**Function diagram:** 6860
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the requested torque direction.

Note: Value = 0: No torque direction requested
Value = 1: Torque direction 1 requested
Value = 2: Torque direction 2 requested

r52107 CO: Arm curr act val averaged over 6 cycles with reference to motor / Ia act 6 mot cyc

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851, 6854
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the signed armature current actual value.
The value is averaged over 6 firing cycles and referenced to the rated motor current.

r52108[0...2] CO: Phase currents rms value / I_phase rms

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the rms values of the phase currents.
The values are averaged over six firing cycles.
100 % corresponds to sqrt(2/3) * r50072[1] = 0.8165 * r50072[1]
The reference value is that rms value of the phase currents that is obtained if the rated DC current flows in the B6 bridge.

Index: [0] = Phase U
[1] = Phase V
[2] = Phase W

r52109 CO: Armature current actual value averaged over 6 cycles / Ia act 6 cyc

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851, 6902, 8038, 8042, 8046
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the signed armature current actual value.
The value is averaged over 6 firing cycles.

r52110 CO: CI-loop arm curr control curr controller output / Ia ctr outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the closed-loop armature current control output.

r52111 CO: CI-loop arm curr control curr controller outp proportional comp / Ia ctr outp P comp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the proportional component of closed-loop armature current control.

r52112 CO: CI-loop arm curr control curr controller outp integral comp / Ia ctr outp I comp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6855
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the integral component of closed-loop armature current control.

r52113 CO: CI-loop arm curr control curr setpoint/actual value difference / Ia ctr set/act

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6855
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the setpoint/actual value difference of closed-loop armature current control.

r52114 CO: Armature current actual value averaged over 1 cycle / Ia act 1 cyc

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6851
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output of the signed armature current actual value.
The value is averaged over 1 firing cycle.

r52115 CO: CI-loop arm curr control curr controller actual value abs value / Ia ctr I_act abs

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6855
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the absolute value of the current controller actual value for closed-loop armature current control.

r52116 CO: Armature current actual value internal absolute value / A I_act int abs

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6851
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the absolute value of the internal armature current actual value.
The value is averaged over one firing cycle.

r52117 CO: Armature current actual value internal signed / A I_act int sign

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the signed internal armature current actual value.
The value is averaged between the centers of the firing intervals.

r52118 CO: CI-loop arm curr control curr controller setpoint absolute value / Ia ctr I_set abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the absolute value of the current controller setpoint for closed-loop armature current control.

Dependency: See also: r50020

r52119 CO: CI-loop arm curr control curr controller setpoint / Ia ctr I_set

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the current controller setpoint prior to absolute value generation for closed-loop armature current control.

r52120 CO: Curr limitation arm curr setpoint before red gearbox stressing / Ia_set bef gear

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6845
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the current controller setpoint before reduced gearbox stressing.

r52121 CO: Closed-loop armature current control pre-control output / Ia ctr prec outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the armature current pre-control output.

r52122 CO: EMF actual value armature current pre-control / EMF act prec

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6852, 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the EMF actual value for armature current pre-control.

Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi.

r52123 CO: EMF actual value signed / EMF act sign

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6852, 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the signed unsmoothed EMF actual value.

Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi.

r52124 CO: Active power for a pure ohmic load / P_act ohm load

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the active power for a pure ohmic load (= r52126 * r52127).
The value is averaged over six firing cycles.

Note: This quantity is used for heating applications (rms value current control or rms value power control).

r52125 CO: Curr limitation arm curr setpoint aft reduced gearbox stressing / Ia set aft gear

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6845
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the current controller setpoint after reduced gearbox stressing.

r52126 CO: Armature current actual value rms value / Ia_act rms

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the rms value of the internal armature current actual value.
The value is averaged over six firing cycles, and referred to the rated device current (r50072[1]).

r52127 CO: Armature voltage rms value / Ua_act rms

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the rms value of the armature voltage.
The value is averaged over six firing cycles.
100 % corresponds to (3 * sqrt(2)) / Pi * p50078[0] = 1.35 * p50078[0] (= U_di0_rated)

r52128 CO: Firing angle linearized / Firing angle lin

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6858
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Displays the linearized firing angle.
Dependency: See also: p50600
Note: This parameter is calculated when Ua_set is fed into the gating unit.
-100% corresponds to 180 degrees
+100% corresponds to 0 degrees

r52129 CO: n-dependent current limitation armature current setpoint limit / I_lim Ia set lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8040
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the armature current setpoint after speed-dependent current limitation.
Dependency: See also: p50109

r52130 CO: I2t monitoring armature current setpoint after limitation / I2t Ia set n lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the armature current setpoint after limitation by means of I2t monitoring as a percentage of r50072[1].

r52131 CO: Current limitation minimum positive armature current limit / Ia lim pos min

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6840, 6845
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the minimum positive armature current limit.

r52132 CO: Current limitation maximum negative armature current limit / Ia lim neg max

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6840, 6845
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the maximum negative armature current limit.

r52133 CO: Current limitation setpoint before limitation (with add_s) / Set bef lim w add

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6840, 8042
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the armature current controller setpoint before limitation (with additional setpoint).

r52134 CO: Speed limiting controller curr controller setp before limitation / Ia set bef lim

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6835
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the current controller setpoint before current limitation.

r52135[0...6] CO: Current limitation default for torque direction II / Ia lim def t d II

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6840
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the variable torque limiting defaults in torque direction II.
Dependency: See also: p50603, p50604
Note: Connector output r52135[0 to 6] is the inverse of p50603[0 to 6] and interconnected by default via connector input p50604[0 to 6].

r52136 CO: Speed limiting controller upper torque limit effective / n_lim t lim up max

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6835
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the effective upper torque limit (maximum value) on the speed limiting controller.
Dependency: See also: r52137

r52137 CO: Speed limiting controller lower torque limit effective / n_lim t lim l min

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the effective lower torque limit (minimum value) on the speed limiting controller.

Dependency: See also: r52136

r52138[0...4] CO: Torque limiting negative default / Tqe lim neg def

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6825
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the defaults for variable negative torque limiting.

Dependency: See also: p50606

Note: Connector output r52138[0 to 4] is the inverse of p50605[0 to 4]; it is interconnected by default via connector input p50606[0 to 4].

r52140 CO: Torque limiting torque setpoint / Tqe lim set

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6835
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the torque setpoint.

r52141 CO: Torque limiting torque setpoint after limiting / T lim set aft lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6830
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the torque setpoint after limiting.

r52142 CO: Torque actual value referred / Tqe act ref

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the referred torque actual value.

Reference value:

This is the torque that the motor generates if the rated armature current of the DCM (r50072[1]) and the rated motor field current (p50102) flow.

r52143 CO: Torque limiting armature torque limit min pos / T lim arm min pos

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6830
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the minimum positive torque limit for the armature.

r52144 CO: Torque limiting armature torque limit max neg / T lim arm max neg

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6830
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the maximum negative torque limit for the armature.

r52145 CO: Torque limiting setpoint before limiting (with add_s) / Set bef lim w add

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6830
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the torque setpoint before limiting (with additional setpoint).

r52147 CO: Torque limiting setpoint before limiting (without add_s) / Set b lim w/o add

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6830, 6840
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the torque setpoint before limiting (without additional setpoint).

r52148 CO: Speed controller torque setpoint / n_ctr tq set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6815
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the speed controller's output value with friction and inertia compensation and additional torque setpoint.

r52149 CO: Torque actual value referred to the motor / Tqe act ref

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6851
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the torque actual value referred to the rated motor variables.
Reference value:
Rated motor torque
This is the torque that the motor generates if the rated motor armature current (p50100) and the rated motor field current (p50102) flow.
We recommend that this torque should be taken from the manufacturer's motor data and set in p2003.

r52150 CO: Speed controller setpoint change / n_ctr set chng

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6820
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the setpoint change on the speed controller.
Dependency: See also: p50540, r52174

r52152 CO: Speed controller setpoint/actual value difference output / Set/act dif outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6820
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for acceleration dependent upon setpoint/actual value difference.
In the case of the "Acceleration dependent upon setpoint/actual value difference" function, only the proportion of the speed controller's setpoint/actual value difference which has an absolute value in excess of the threshold (p50543) is switched through.
Dependency: See also: p50541, p50543

r52154 CO: Speed controller reference model output / n_ctrl ref outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the reference model for the speed controller.
Dependency: See also: p50237, p50238, p50239

r52155 CO: Speed controller reference model setpoint-actual val difference / n_ctr ref set-act

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the setpoint-actual value difference after the influence of the reference model for the speed controller.

Dependency: See also: p50621, p50622, p50623, p50624

r52156 CO: Lead/lag element output value / Lead/lag output

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the output value of the lead/lag element.

Dependency: See also: p50207, p50208, p50209

r52160 CO: Speed controller output value / n_ctr outp val

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the speed controller's output value.

r52161 CO: Speed controller proportional component output value / P comp outp val

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the output value of the proportional component on the speed controller.

r52162 CO: Speed controller integral component output value / I_comp outp val

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the integral component of the speed controller's output value.

r52164 CO: Speed controller setpoint/actual value difference / n_ctr set/act dif

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6815, 6820
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the speed setpoint/actual value difference used for the speed controller.
Dependency: See also: p50620

r52165 CO: Speed controller setpoint/actual value difference / n_ctr set/act dif

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6812
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the result of the setpoint/actual value difference on the speed controller.
Dependency: See also: p50621, p50622, p50623, p50624
Note: The setpoint/actual value difference (r52165) results from setpoint 1 and 2 (p50621, p50622) and actual value 1 and 2 (p50623, p50624).

r52166 CO: Speed controller actual value selection absolute value / Sel act abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810, 6815, 6825, 6900, 8040, 8046
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the selected speed actual value as an absolute value on the speed controller.

r52167 CO: Speed controller actual value selection / Act sel

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the selected speed actual value on the speed controller.

r52168 CO: Derivative-action element negative output value / D elem neg outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6810
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the negative output value of the derivative-action element.
Dependency: See also: p50205, p50206, p50627, r52169

r52169 CO: Derivative-action element output value / D elem outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6810
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the output value of the derivative-action element.
Dependency: See also: p50205, p50206, p50627, r52168

r52170 CO: RFG speed setpoint after limiting / RFG n_set aft lim

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 1720, 3155
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the speed setpoint after limiting.

r52171 CO: Friction/inertia compensation output value / Comp outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6815, 6820
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output of the compensation output value for friction and inertia.
Dependency: See also: p50223
Note: If p50223 = 1:
This value is added to the speed controller's output.

r52172 CO: Friction compensation output value / Fric comp outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6820
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the friction compensation output value.

r52173 CO: Inertia compensation output value / Inert comp outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6820
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the moment of inertia compensation output value.
Dependency: See also: p50697
Note: If p50697 = 1 signal:
This value is added to the friction and moment of inertia compensation output.

r52174 CO: Speed controller setpoint smoothed / n_ctr set smooth

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6810, 6820
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output of the smoothed setpoint on the speed controller.

r52176 CO: Speed controller droop output value / Droop outp val

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6805
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output for the droop output value on the speed controller.

r52177 CO: Band-stop 1 output value / Band-st 1 outp

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6810
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output for output value of band-stop 1.
Dependency: See also: p50201, p50202, p50628

r52178 CO: Band-stop 2 output value / Band-st 2 outp

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6810
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output for output value of band-stop 2.
Dependency: See also: p50203, p50204, p50629

r52179 CO: Speed controller actual value smoothed / n_ctr act sm

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6810
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output of the smoothed actual value on the speed controller.

r52181 CO: RFG effective positive setpoint limit / RFG set lim pos

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3155
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the effective positive setpoint limit with "Limiting after ramp-function generator".

r52182 CO: RFG effective negative setpoint limit / RFG set lim neg

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3155
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the effective negative setpoint limit with "Limiting after ramp-function generator".

r52183 CO: RFG speed setpoint before limiting / RFG n_set bef lim

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3155
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the speed setpoint with "Limiting after ramp-function generator".

r52184 CO: Setpoint processing main setpoint lim neg default 0 / M set neg def 0

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3135
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the default value of variable negative main setpoint limiting with index 0.
Dependency: See also: p50642
Note: The value represents the inversion of p50642[0].

r52185 CO: Setpoint processing main setpoint lim neg default 1 / M set neg def 1

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3135
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the default value of variable negative main setpoint limiting with index 1.
Dependency: See also: p50642
Note: The value represents the inversion of p50642[1].

r52186 CO: Setpoint processing main setpoint lim neg default 2 / M set neg def 2

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the default value of variable negative main setpoint limiting with index 2.
Dependency: See also: p50642
Note: The value represents the inversion of p50642[2].

r52187 CO: Setpoint processing main setpoint lim neg default 3 / M set neg def 3

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the default value of variable negative main setpoint limiting with index 3.
Dependency: See also: p50642
Note: The value represents the inversion of p50642[3].

r52190 CO: RFG speed setpoint output / RFG n_set outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3150, 3151, 3152, 3155
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the speed setpoint calculated by the ramp-function generator.

r52191 CO: RFG dy/dt rise in relation to p50542 / RFG dy/dt p50542

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the rise of the ramp-function generator output in relation to the time set in p50542.
Dependency: See also: p50542

r52192 CO: RFG setpoint before ramp-function generator / RFG set bef RFG

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3151, 3152
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the setpoint before the ramp-function generator.

r52193 CO: Setpoint processing output to ramp-function generator / Outp to RFG

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the setpoint to the ramp-function generator.
Dependency: See also: p50648

r52194 CO: Setpoint processing setpoint after reduction / Set after reduc

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the sum "main setpoint (limited) + additional setpoint" after setpoint reduction.
Dependency: See also: p51607, p51608, r52195
Note: Setpoint reduction is set via p51608 and activated/de-activated via binector input p51607.

r52195 CO: Setpoint processing setpoint before reduction / Set before reduc

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the sum "main setpoint (limited) + additional setpoint" before setpoint reduction.
Dependency: See also: p51607, p51608, r52194
Note: Setpoint reduction is set via p51608 and activated/de-activated via binector input p51607.

r52196 CO: Setpoint processing main setpoint upper limit effective / M set up lim eff

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the effective upper limit in the case of main setpoint limiting.

r52197 CO: Setpoint processing main setpoint lower limit effective / M set low lim eff

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the effective lower limit in the case of main setpoint limiting.

r52198 **CO: Setpoint processing main setpoint before limiting / M_setp bef lim**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3135
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the main setpoint before setpoint limiting.

r52201 **CO: Creep setpoint output / Creep set outp**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the sum of all creep setpoints (p504441[0 to 7]).
Dependency: See also: p50440, p50441

r52202 **CO: Jog setpoint output / Jog set outp**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the sum of all jog setpoints (p50436[0 to 7]).
Dependency: See also: p50435, p50436

r52203 **CO: Oscillation square-wave generator setpoint / Oscill sq-w gen**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3120
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the square-wave generator.
Dependency: See also: p50480, p50481, p50482, p50483

r52204 **CO: Fixed setpoint output / Fix set outp**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3115
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the sum of all fixed setpoints (p50431[0 to 7]).
Dependency: See also: p50430, p50431

r52206 CO: Creep setpoint output after selection / Cr set outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3130
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the setpoint dependent upon creep.

r52207 CO: Jog setpoint output after selection / Jog set outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3125
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the setpoint dependent upon jog.

r52208 CO: Oscillation output after selection / Oscil outp aft sel

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3120
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the setpoint dependent upon oscillation selection.

Note: If oscillation is selected (p50485 = 1 signal):
r52208 = r52203
If oscillation is de-selected (p50485 = 0 signal):
r52208 = p50484

r52209 CO: Fixed setpoint output after selection / Fix set outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3115
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the sum of all fixed setpoints following selection of at least one connector.

Dependency: See also: p50430, p50431

Note: If at least one connector has been selected via p50430[0 to 7]:
r52209 = r52204
If no connectors have been selected via p50430[0 to 7]:
r52209 = r52210

r52210[0...3] CO: RFG positive limiting inverted after RFG / RFG pos lim inv

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3155
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the signals interconnected and inverted via connector input p50632[0 to 3].

Index: [0] = Signal p50632[0] inverted
[1] = Signal p50632[1] inverted
[2] = Signal p50632[2] inverted
[3] = Signal p50632[3] inverted

r52211 CO: Fixed setpoint output after AOP30 / Fix set outp AOP

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3113
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the fixed setpoint after intervention from the Advanced Operator Panel 30 (AOP30).

Dependency: See also: p50433

r52240 CO: Motorized potentiometer output / MotP outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3110
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output on the motorized potentiometer.

r52241 CO: Motorized potentiometer output dy/dt / MotP outp dy/dt

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3110
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the dy/dt output on the motorized potentiometer.

r52242 CO: Motorized potentiometer setpoint / MotP set

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 3110
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the setpoint on the motorized potentiometer.

r52250 CO: Field firing angle after limiting / Fir ang aft lim

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6915
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the field firing angle after limiting by the auto-reversing stage.

r52251 CO: Field firing angle before limiting / Fir ang bef lim

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6915
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Displays the field firing angle before limiting by the auto-reversing stage.

r52252 CO: CI-loop field curr ctrl prectr and field curr controller output / If_ctr prec+ctrl

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output of the output value from pre-control and the field current controller.

r52260 CO: Closed-loop field current control current controller output / If_ctr I_ctr outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the output in the case of closed-loop field current control.

r52261 CO: CI-loop field curr control curr controller proportional comp / If_ctr I_ctr P com

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the proportional component in the case of closed-loop field current control.

r52262 CO: CI-loop field curr control curr controller integral comp / If_ctr I_ctr I com

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the integral component in the case of closed-loop field current control.

r52263 CO: CI-loop field curr ctrl current controller set/act val diff / If_ctr I_ctr dif

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the setpoint/actual value difference in the case of closed-loop field current control.

r52265 CO: CI-loop field curr ctrl current controller actual value / If_ctr act

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6905, 6910, 8025, 8044
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output of the field current controller's actual value.

r52266 CO: Field current actual value internal absolute value / If_act int abs

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6912
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Displays the absolute value of the internal field current actual value as a percentage of p50073.01.

r52268 CO: Closed-loop field current control current controller setpoint / If_ctr set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 1
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6910, 8025, 8044
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output of the field current controller's setpoint.

r52271 CO: Closed-loop field current control pre-control output / If_ctr prec outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of pre-control for closed-loop field current control.

r52273 CO: Field current setpoint limiting upper limit output / If lim up lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6905
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the upper limit of the field current setpoint.
Dependency: See also: r50073, p50102, p50613

r52274 CO: Field current setpoint limiting lower limit output / If lim low lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6905
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the lower limit of the field current setpoint.
Dependency: See also: p50103, p50614

r52275 CO: Field current setpoint limiting output after limiting / If lim outp lim

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6905, 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the field current setpoint after field current setpoint limiting.
Dependency: See also: p50611

r52276 CO: Field current setpoint limiting output before limiting / If lim outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6905
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the field current setpoint before field current setpoint limiting.
Dependency: See also: p50611

r52277 CO: EMF controller pre-control and controller output after selection / EMF prec+ctrl sel

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output from pre-control and EMF controller after selection.
If p50081 = 0:
--> r52277 = 100%
For p50081 = 1, the following applies:
--> r52277 = Sum of EMF controller and EMF pre-control outputs

Dependency: See also: p50081

r52278 CO: EMF controller pre-control and controller output / EMF prec+ctrl outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the sum of the outputs from EMF pre-control and the EMF controller.

r52280 CO: EMF controller output / EMF ctr outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output on the EMF controller.

r52281 CO: EMF controller proportional component output / EMF ctr P com outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the proportional component on the EMF controller.

r52282 CO: EMF controller integral component output / EMF ctr I com outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the integral component on the EMF controller.

r52283 CO: EMF controller setpoint/actual value difference / EMF ctr dif

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6900
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output of the setpoint/actual value difference on the EMF controller.

r52284 CO: EMF controller setpoint/actual value difference after droop / EMF ctr dif droop

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6900
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output of the setpoint/actual value difference after droop on the EMF controller.

r52285 CO: EMF controller actual value / EMF ctr act

DC_CTRL

Can be changed: -
Calculated: -
Access level: 1
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6900
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Display and connector output for the absolute value of the actual value on the EMF controller.
Dependency: See also: p50616
Note: A value of 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi.

r52286 CO: Average absolute value of EMF actual value / EMF act abs avg

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6902
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Displays the absolute value of the EMF actual value averaged over the last 3 firing periods (r52287).
Dependency: See also: r52287
Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi

r52287 CO: Average EMF actual value / EMF act avg

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: FloatingPoint32
Dyn. index: -
Function diagram: 6810, 6902, 8046
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: PERCENT
Expert list: 1
Min:
Max:
Factory setting:
- [%]
- [%]
- [%]

Description: Displays the signed EMF actual value averaged over the last 3 firing periods.
Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi

r52288 CO: EMF controller setpoint / EMF ctr set

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the absolute value of the setpoint on the EMF controller.
Dependency: See also: p50615
Note: A value of 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi.

r52289 CO: EMF controller setpoint absolute value / EMF ctr set abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the absolute value of the setpoint on the EMF controller.
Dependency: See also: r50039, p50100, p50101, p50110
Note: A value of 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi.

r52290 CO: Closed-loop field current control motor flux output / If ctr motor flux

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6830, 6835, 6851, 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the motor flux in the case of closed-loop field current control.
The value is a percentage of p50102.

r52291 CO: Armature voltage actual value absolute value / Ua act abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the actual value of the armature voltage as an absolute value.
Dependency: See also: r52292
Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi

r52292 CO: Armature voltage signed actual value / Ua act signed

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the signed actual value of the armature voltage.

Dependency: See also: r52291
Note: 100% corresponds to p50078[0] * (3 * sqrt(2)) / Pi

r52293 CO: EMF controller pre-control output / EMF ctr prec outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 1
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6900, 6910
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for pre-control on the EMF controller.
Dependency: See also: p50273

r52294 CO: EMF setpoint reduction output / EMF setp_red outp

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6895
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the EMF setpoint reduction.
Dependency: See also: p50287, p50288

r52295 CO: Field voltage actual value absolute value / Uf act abs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the actual value of the field voltage as an absolute value.
Dependency: See also: r52296
Note: 100% corresponds to p50078[1] * (3 * sqrt(2)) / Pi.
The parameter assumes (as a result of the B2HZ bridge) a maximum value of approximately 0.9 * p50078[1].

r52296 CO: Field voltage actual value signed / Uf act val sign

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the signed actual value of the field voltage.
Dependency: See also: r52295
Note: 100% corresponds to p50078[1] * (3 * sqrt(2)) / Pi.
The parameter assumes (as a result of the B2HZ bridge) a maximum value of approximately 0.9 * p50078[1].

r52297 CO: Output voltage of the thyristor bridge (1C/1D) / U_out 1C/1D

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Output voltage of the thyristor bridge (1C/1D) as percentage
(average value between 2 firing pulses)

Note: 100% corresponds to p50078[1] * (3 * sqrt(2)) / Pi.

r52298 CO: Load connection supplementary current setpoint output / Suppl Ia_set off

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Load connection:
Display and connector output for the supplementary current setpoint.

Note: This is used to increase the dynamic response of the voltage control regarding disturbing variable changes when using the SINAMICS DCM as I/R unit or supplying a DC busbar.
A supplementary current setpoint is input, which is calculated according to the following formula:
I_(set,suppl)=I_d-C*(dU_d)/dt

100 % corresponds to p50072[1]

r52301 CO: Armature line voltage U-V / Arm V_line U-V

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the line voltage U-V in the armature circuit.

r52302 CO: Armature line voltage V-W / Arm V_line V-W

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the line voltage V-W in the armature circuit.

r52303 CO: Armature line voltage W-U / Arm V_line W-U

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the line voltage W-U in the armature circuit.

r52304 CO: Field line voltage / Field V_line

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6910, 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the line voltage in the field circuit.

r52305 CO: Average armature line voltage / Arm V_line avg

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950, 6855
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the average line voltage over the 3 phases in the armature circuit.
Note: The smoothing time for a 50 Hz main frequency is 132 ms.
The smoothing time for a 60 Hz main frequency is 100 ms.

r52306 CO: Armature line frequency / Arm f_line

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6855, 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the line frequency in the armature circuit.
The value is a percentage of 50 Hz.

r52307 CO: Average motor power supplied / Mot P supp avg

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the average motor power supplied.
Dependency: See also: r52109, r52287

r52309 CO: Calculated motor temperature rise / Calc mot temp rise

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8038
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the calculated motor temperature rise.

Dependency: See also: p50114
See also: A60037, F60137

r52310 CO: I2t monitoring thyristor temperature rise / I2t thyr temp rise

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the calculated thyristor temperature rise as a percentage of the maximum temperature.

r52311[0...1] CO: Current actual value of the parallel power units / Ia par_power_unit

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the current actual values of the cabinet devices with power units connected in parallel.

Only active for 6RM80 with options Z04, Z05, Z07, Z13 and Z15

Index: [0] = Power unit 1
[1] = Power unit 2

r52312[0...1] CO: I2T thyristor temperature rise of the parallel power units / I2T par_power unit

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 8042
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output for the thyristor temperature rise of the cabinet devices with power units connected in parallel.

Index: [0] = Power unit 1
[1] = Power unit 2

Note: This parameter is only active for 6RM80 devices with options Z04, Z05, Z07, Z13 and Z15.

r52316 CO: Field line frequency / Field f_line

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
- [%]

Access level: 2
Function diagram: 6952
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Display and connector output for the field line frequency.
The value is a percentage of 50 Hz.

r52320 CO: Armature current control counter EMF ratio / V_counter_ratio

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
-

Calculated: -
Dyn. index: -
Unit group: -
Scaling: -
Max:
-

Access level: 2
Function diagram: 6855
Unit selection: -
Expert list: 1
Factory setting:
-

Description: Display and connector output of the counter EMF ratio EMF/V_line.
Dependency: See also: r52122, r52305

r52350 CO: Adaptation armature current control output / Adapt Ia_ctrl outp

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
- [%]

Access level: 2
Function diagram: 6853
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Display and connector output for the armature current controller adaptation.
Dependency: See also: p50572, p50573, p50574

r52355 CO: Adaptation field current control output / Adapt If_ctrl outp

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
- [%]

Access level: 2
Function diagram: 6908
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Display and connector output for the field current controller adaptation.
Dependency: See also: p50577, p50578

r52401 CO: Fixed value 1 / Fix val 1

DC_CTRL

Can be changed: -
Data type: FloatingPoint32
P group: -
Not for motor type: -
Min:
- [%]

Calculated: -
Dyn. index: -
Unit group: -
Scaling: PERCENT
Max:
- [%]

Access level: 2
Function diagram: 3100
Unit selection: -
Expert list: 1
Factory setting:
- [%]

Description: Connector output for fixed value 1 set in p50401.
Dependency: See also: p50401

r52402 **CO: Fixed value 2 / Fix val 2**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 2 set in p50402.
Dependency: See also: p50402

r52403 **CO: Fixed value 3 / Fix val 3**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 3 set in p50403.
Dependency: See also: p50403

r52404 **CO: Fixed value 4 / Fix val 4**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 4 set in p50404.
Dependency: See also: p50404

r52405 **CO: Fixed value 5 / Fix val 5**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 5 set in p50405.
Dependency: See also: p50405

r52406 **CO: Fixed value 6 / Fix val 6**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 6 set in p50406.
Dependency: See also: p50406

r52407 **CO: Fixed value 7 / Fix val 7**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 7 set in p50407.
Dependency: See also: p50407

r52408 **CO: Fixed value 8 / Fix val 8**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 8 set in p50408.
Dependency: See also: p50408

r52409 **CO: Fixed value 9 / Fix val 9**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 9 set in p50409.
Dependency: See also: p50409

r52410 **CO: Fixed value 10 / Fix val 10**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 10 set in p50410.
Dependency: See also: p50410

r52411 **CO: Fixed value 11 / Fix val 11**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 11 set in p50411.
Dependency: See also: p50411

r52412 **CO: Fixed value 12 / Fix val 12**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 12 set in p50412.
Dependency: See also: p50412

r52413 **CO: Fixed value 13 / Fix val 13**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 13 set in p50413.
Dependency: See also: p50413

r52414 **CO: Fixed value 14 / Fix val 14**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 14 set in p50414.
Dependency: See also: p50414

r52415 **CO: Fixed value 15 / Fix val 15**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 15 set in p50415.
Dependency: See also: p50415

r52416 **CO: Fixed value 16 / Fix val 16**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 3100
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Connector output for fixed value 16 set in p50416.
Dependency: See also: p50416

r52451 CO: Speed controller start pulse positive setpoint / Start pul pos set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6800
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the positive setpoint of the start pulse on the speed controller.

r52452 CO: Speed controller start pulse negative setpoint evaluated / Start pul neg set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6800
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the negative setpoint of the start pulse on the speed controller.
The setpoint is evaluated via p51652.

Dependency: See also: p51652

r52453 CO: Speed controller start pulse negative setpoint / Start pul neg set

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6800
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the negative setpoint of the start pulse on the speed controller.

r52454 CO: Speed controller start pulse output value / Start pul outp val

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 6800
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the output value of the start pulse on the speed controller.

r52510 CO: Master switch setpoint output / Set outp

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: FloatingPoint32 **Dyn. index:** - **Function diagram:** 3105
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** PERCENT **Expert list:** 1
Min: **Max:** **Factory setting:**
- [%] - [%] - [%]

Description: Display and connector output for the setpoint prevailing on the 4-step master switch.

r52601 **CO: P2P IF receive data word 1 / P2P recv 1**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Display and connector output for word 1 of the receive data on the peer-to-peer interface (P2P IF).
Dependency: See also: r52606

r52602 **CO: P2P IF receive data word 2 / P2P recv 2**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Display and connector output for word 2 of the receive data on the peer-to-peer interface (P2P IF).
Dependency: See also: r52607

r52603 **CO: P2P IF receive data word 3 / P2P recv 3**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Display and connector output for word 3 of the receive data on the peer-to-peer interface (P2P IF).
Dependency: See also: r52608

r52604 **CO: P2P IF receive data word 4 / P2P recv 4**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Display and connector output for word 4 of the receive data on the peer-to-peer interface (P2P IF).
Dependency: See also: r52609

r52605 **CO: P2P IF receive data word 5 / P2P recv 5**

DC_CTRL | **Can be changed:** - | **Calculated:** - | **Access level:** 2
Data type: FloatingPoint32 | **Dyn. index:** - | **Function diagram:** 9300
P group: - | **Unit group:** - | **Unit selection:** -
Not for motor type: - | **Scaling:** PERCENT | **Expert list:** 1
Min: | **Max:** | **Factory setting:**
- [%] | - [%] | - [%]

Description: Display and connector output for word 5 of the receive data on the peer-to-peer interface (P2P IF).
Dependency: See also: r52610

r52606.0...15 CO/BO: P2P IF receive data word 1 bit by bit / P2P recv 1 bbb

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for the bit-by-bit interconnection of word 1 of the receive data on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P IF receive data bit 0	1	0	9300
01	P2P IF receive data bit 1	1	0	9300
02	P2P IF receive data bit 2	1	0	9300
03	P2P IF receive data bit 3	1	0	9300
04	P2P IF receive data bit 4	1	0	9300
05	P2P IF receive data bit 5	1	0	9300
06	P2P IF receive data bit 6	1	0	9300
07	P2P IF receive data bit 7	1	0	9300
08	P2P IF receive data bit 8	1	0	9300
09	P2P IF receive data bit 9	1	0	9300
10	P2P IF receive data bit 10	1	0	9300
11	P2P IF receive data bit 11	1	0	9300
12	P2P IF receive data bit 12	1	0	9300
13	P2P IF receive data bit 13	1	0	9300
14	P2P IF receive data bit 14	1	0	9300
15	P2P IF receive data bit 15	1	0	9300

Dependency: See also: r52601

r52607.0...15 CO/BO: P2P IF receive data word 2 bit by bit / P2P recv 2 bbb

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for the bit-by-bit interconnection of word 2 of the receive data on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P IF receive data bit 0	1	0	9300
01	P2P IF receive data bit 1	1	0	9300
02	P2P IF receive data bit 2	1	0	9300
03	P2P IF receive data bit 3	1	0	9300
04	P2P IF receive data bit 4	1	0	9300
05	P2P IF receive data bit 5	1	0	9300
06	P2P IF receive data bit 6	1	0	9300
07	P2P IF receive data bit 7	1	0	9300
08	P2P IF receive data bit 8	1	0	9300
09	P2P IF receive data bit 9	1	0	9300
10	P2P IF receive data bit 10	1	0	9300
11	P2P IF receive data bit 11	1	0	9300
12	P2P IF receive data bit 12	1	0	9300
13	P2P IF receive data bit 13	1	0	9300
14	P2P IF receive data bit 14	1	0	9300
15	P2P IF receive data bit 15	1	0	9300

Dependency: See also: r52602

r52608.0...15 CO/BO: P2P IF receive data word 3 bit by bit / P2P recv 3 bbb

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for the bit-by-bit interconnection of word 3 of the receive data on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P IF receive data bit 0	1	0	9300
01	P2P IF receive data bit 1	1	0	9300
02	P2P IF receive data bit 2	1	0	9300
03	P2P IF receive data bit 3	1	0	9300
04	P2P IF receive data bit 4	1	0	9300
05	P2P IF receive data bit 5	1	0	9300
06	P2P IF receive data bit 6	1	0	9300
07	P2P IF receive data bit 7	1	0	9300
08	P2P IF receive data bit 8	1	0	9300
09	P2P IF receive data bit 9	1	0	9300
10	P2P IF receive data bit 10	1	0	9300
11	P2P IF receive data bit 11	1	0	9300
12	P2P IF receive data bit 12	1	0	9300
13	P2P IF receive data bit 13	1	0	9300
14	P2P IF receive data bit 14	1	0	9300
15	P2P IF receive data bit 15	1	0	9300

Dependency: See also: r52603

r52609.0...15 CO/BO: P2P IF receive data word 4 bit by bit / P2P recv 4 bbb

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for the bit-by-bit interconnection of word 4 of the receive data on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P IF receive data bit 0	1	0	9300
01	P2P IF receive data bit 1	1	0	9300
02	P2P IF receive data bit 2	1	0	9300
03	P2P IF receive data bit 3	1	0	9300
04	P2P IF receive data bit 4	1	0	9300
05	P2P IF receive data bit 5	1	0	9300
06	P2P IF receive data bit 6	1	0	9300
07	P2P IF receive data bit 7	1	0	9300
08	P2P IF receive data bit 8	1	0	9300
09	P2P IF receive data bit 9	1	0	9300
10	P2P IF receive data bit 10	1	0	9300
11	P2P IF receive data bit 11	1	0	9300
12	P2P IF receive data bit 12	1	0	9300
13	P2P IF receive data bit 13	1	0	9300
14	P2P IF receive data bit 14	1	0	9300
15	P2P IF receive data bit 15	1	0	9300

Dependency: See also: r52604

r52610.0...15 CO/BO: P2P IF receive data word 5 bit by bit / P2P recv 5 bbb

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Binector output for the bit-by-bit interconnection of word 5 of the receive data on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P IF receive data bit 0	1	0	9300
01	P2P IF receive data bit 1	1	0	9300
02	P2P IF receive data bit 2	1	0	9300
03	P2P IF receive data bit 3	1	0	9300
04	P2P IF receive data bit 4	1	0	9300
05	P2P IF receive data bit 5	1	0	9300
06	P2P IF receive data bit 6	1	0	9300
07	P2P IF receive data bit 7	1	0	9300
08	P2P IF receive data bit 8	1	0	9300
09	P2P IF receive data bit 9	1	0	9300
10	P2P IF receive data bit 10	1	0	9300
11	P2P IF receive data bit 11	1	0	9300
12	P2P IF receive data bit 12	1	0	9300
13	P2P IF receive data bit 13	1	0	9300
14	P2P IF receive data bit 14	1	0	9300
15	P2P IF receive data bit 15	1	0	9300

Dependency: See also: r52605

r52620.0...15 CO/BO: Binector-connector converter output / Bin/con outp

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 9300
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Display and connector output on the binector-connector converter.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	P2P binector-connector converter bit 0	1	0	9300
01	P2P binector-connector converter bit 1	1	0	9300
02	P2P binector-connector converter bit 2	1	0	9300
03	P2P binector-connector converter bit 3	1	0	9300
04	P2P binector-connector converter bit 4	1	0	9300
05	P2P binector-connector converter bit 5	1	0	9300
06	P2P binector-connector converter bit 6	1	0	9300
07	P2P binector-connector converter bit 7	1	0	9300
08	P2P binector-connector converter bit 8	1	0	9300
09	P2P binector-connector converter bit 9	1	0	9300
10	P2P binector-connector converter bit 10	1	0	9300
11	P2P binector-connector converter bit 11	1	0	9300
12	P2P binector-connector converter bit 12	1	0	9300
13	P2P binector-connector converter bit 13	1	0	9300
14	P2P binector-connector converter bit 14	1	0	9300
15	P2P binector-connector converter bit 15	1	0	9300

Dependency: See also: p51117

Note: The individual signals supplied via binector input p51117[0 to 15] are combined to form connector output r52620.

r52700[0...15] CO: Parallel interface master receive data word by word / Master recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from the master on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52720

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52701[0...15] CO: Parallel interface station 1 receive data word-by-word / Stat1 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 1 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52721

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52702[0...15] CO: Parallel interface station 2 receive data word by word / Stat2 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 2 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52722

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52703[0...15] CO: Parallel interface station 3 receive data word by word / Stat3 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 3 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52723

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52704[0...15] CO: Parallel interface station 4 receive data word by word / Stat4 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 4 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52724

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52705[0...15] CO: Parallel interface station 5 receive data word by word / Stat5 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 5 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52725

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52706[0...15] CO: Parallel interface station 6 receive data word by word / Stat6 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 6 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52726

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52707[0...15] CO: Parallel interface station 7 receive data word by word / Stat7 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 7 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52727

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52708[0...15] CO: Parallel interface station 8 receive data word by word / Stat8 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 8 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52728

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52709[0...15] CO: Parallel interface station 9 receive data word by word / Stat9 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 9 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52729

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52710[0...15] CO: Parallel interface station 10 receive data word by word / Stat10 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 10 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52730

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52711[0...15] CO: Parallel interface station 11 receive data word by word / Stat11 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 11 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52731

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52712[0...15] CO: Parallel interface station 12 receive data word by word / Stat12 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 12 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52732

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52713[0...15] CO: Parallel interface station 13 receive data word by word / Stat13 recv wbw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 13 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52733

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52714[0...15] CO: Parallel interface station 14 receive data word by word / Stat14 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 14 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52734

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52715[0...15] CO: Parallel interface station 15 receive data word by word / Stat15 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 15 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52735

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52716[0...15] CO: Parallel interface station 16 receive data word by word / Stat16 recv wbw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [%]	- [%]	- [%]

Description: Display and connector output of the word-by-word receive data from slave 16 on the parallel interface.

Index:
[0] = Word 1
[1] = Word 2
[2] = Word 3
[3] = Word 4
[4] = Word 5
[5] = Word 6
[6] = Word 7
[7] = Wort 8
[8] = Wort 9
[9] = Word 10
[10] = Word 11
[11] = Word 12
[12] = Word 13
[13] = Word 14
[14] = Word 15
[15] = Word 16

Dependency: See also: r52736

Note: The receive data in word 1 is also available in non-scaled format bit by bit and word by word for further interconnection.

r52720.0...15 CO/BO: Parallel interface master receive word 1 bit by bit / Master recv1 bbb

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector/connector output for receive word 1 from the master on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52700

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52721.0...15 CO/BO: Parallel interface station 1 receive word 1 bit by bit / Stat1 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 1 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52701
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52722.0...15 CO/BO: Parallel interface station 2 receive word 1 bit by bit / Stat2 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 2 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52702
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52723.0...15 CO/BO: Parallel interface station 3 receive word 1 bit by bit / Stat3 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 3 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52703
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52724.0...15 CO/BO: Parallel interface station 4 receive word 1 bit by bit / Stat4 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 4 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52704
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52725.0...15 CO/BO: Parallel interface station 5 receive word 1 bit by bit / Stat5 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 5 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52705
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52726.0...15 CO/BO: Parallel interface station 6 receive word 1 bit by bit / Stat6 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 6 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52706
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52727.0...15 CO/BO: Parallel interface station 7 receive word 1 bit by bit / Stat7 recv1 bbb

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector/connector output for receive word 1 from station 7 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52707

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52728.0...15 CO/BO: Parallel interface station 8 receive word 1 bit by bit / Stat8 recv1 bbb

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 9352
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and binector/connector output for receive word 1 from station 8 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52708

Note: Receive word 1 is also available scaled word by word for further interconnection.

r52729.0...15 CO/BO: Parallel interface station 9 receive word 1 bit by bit / Stat9 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 9 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52709
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52730.0...15 CO/BO: Parallel interface slave 10 receive word 1 bit by bit / Stat10 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 10 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52710
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52731.0...15 CO/BO: Parallel interface station 11 receive word 1 bit by bit / Stat11 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 11 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52711
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52732.0...15 CO/BO: Parallel interface station 12 receive word 1 bit by bit / Stat12 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 12 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52712
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52733.0...15 CO/BO: Parallel interface station 13 receive word 1 bit by bit / Stat12 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 13 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52713
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52734.0...15 CO/BO: Parallel interface station 14 receive word 1 bit by bit / Stat14 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and binector/connector output for receive word 1 from station 14 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52714
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52735.0...15 CO/BO: Parallel interface slave 15 receive word 1 bit by bit / Slave15 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and binector/connector output for receive word 1 from slave 15 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52715
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52736.0...15 CO/BO: Parallel interface station 16 receive word 1 bit by bit / Stat16 recv1 bbb

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9352
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and binector/connector output for receive word 1 from station 16 on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Bit 0	Yes	No	9352
01	Bit 1	Yes	No	9352
02	Bit 2	Yes	No	9352
03	Bit 3	Yes	No	9352
04	Bit 4	Yes	No	9352
05	Bit 5	Yes	No	9352
06	Bit 6	Yes	No	9352
07	Bit 7	Yes	No	9352
08	Bit 8	Yes	No	9352
09	Bit 9	Yes	No	9352
10	Bit 10	Yes	No	9352
11	Bit 11	Yes	No	9352
12	Bit 12	Yes	No	9352
13	Bit 13	Yes	No	9352
14	Bit 14	Yes	No	9352
15	Bit 15	Yes	No	9352

Dependency: See also: r52716
Note: Receive word 1 is also available scaled word by word for further interconnection.

r52800 CO: Sequence control operating state / S ctr op state

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2651
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Display and connector output for the sequence control operating state.
Note: The values correspond to the operating state of the drive (r0002 (DC_CTRL)).

r52900 CO: Optimization run output 0 / Opt run outp 0

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of output 0 during the optimization run.
Note: This parameter is used solely for internal diagnostics.

r52901 CO: Optimization run output 1 / Opt run outp 1

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of output 1 during the optimization run.
Note: This parameter is used solely for internal diagnostics.

r52902 CO: Optimization run output 2 / Opt run outp 2

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of output 2 during the optimization run.
Note: This parameter is used solely for internal diagnostics.

r52903 CO: Optimization run output 3 / Opt run outp 3

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of output 3 during the optimization run.
Note: This parameter is used solely for internal diagnostics.

r52904 CO: Optimization run output 4 / Opt run outp 4

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 2
	Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 2660
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** PERCENT	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	- [%]	- [%]	- [%]

Description: Display and connector output of output 4 during the optimization run.

Note: This parameter is used solely for internal diagnostics.

r52921[0...4] CO: Measurement results ASIC 1 raw values / Meas res ASIC1 raw

DC_CTRL	**Can be changed:** -	**Calculated:** -	**Access level:** 4
	Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8054
	P group: -	**Unit group:** -	**Unit selection:** -
	Not for motor type: -	**Scaling:** -	**Expert list:** 1
	Min:	**Max:**	**Factory setting:**
	-	-	-

Description: Display and connector output for the raw values from the measurements of Power Stack ASIC 1.
For devices with 480 V, the following applies:
- 0 corresponds to -825.0 V
- 32767 corresponds to 0 V
- 65535 corresponds to +825.0 V

For devices with 575 V, the following applies:
- 0 corresponds to -1036.2 V
- 32767 corresponds to 0 V
- 65535 corresponds to +1036.2 V

For devices with 1000 V:
- 0 corresponds to -1795.2 V
- 32767 corresponds to 0 V
- 65535 corresponds to +1795.2 V

Index: [0] = Phase VU
[1] = Phase VW
[2] = Voltage CV
[3] = Voltage CD
[4] = Voltage S13V

Dependency: See also: r52922, r52923

Note: This parameter is used solely for internal diagnostics.

r52922[0...2] CO: Measurement results ASIC 2 raw values / Meas res ASIC2 raw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8054
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the raw values from the measurements of Power Stack ASIC 2.
For voltage channels:
- 0 corresponds to -825.0 V
- 32767 corresponds to 0 V
- 65535 corresponds to +825.0 V
For the current channel:
- 49151 corresponds to 0 A
For devices with rated field current = 3A:
- 8218 corresponds to 3 A
For devices with rated field current = 5 A, the following applies:
- 9065 corresponds to 5 A
For devices with rated field current = 10 A, the following applies:
- 9065 corresponds to 10 A
For devices with rated field current = 15 A, the following applies:
- 29108 corresponds to 15 A
For devices with rated field current = 25 A, the following applies:
- 15746 corresponds to 25 A
For devices with rated field current = 30 A & A7115:
- 9065 corresponds to 30 A
For devices with rated field current = 30 A & A7116:
- 24608 corresponds to 30 A
For devices with rated field current = 40 A, the following applies:
- 16427 corresponds to 40 A
For devices with rated field current = 85 A, the following applies:
- 14382 corresponds to 85 A

Index: [0] = Raw value voltage 3U3W
[1] = Raw value voltage 3C3D
[2] = Raw value field current

Dependency: See also: r52921, r52923

Note: This parameter is used solely for internal diagnostics.

r52923[0...1] CO: Measurement results current actual values raw values / Meas res I_act raw

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 8054
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for raw values when measuring current actual values.
The following applies:
- 0 corresponds to approx. 3 x device rated current in negative direction
- 32767 corresponds to 0 A
- 65535 corresponds to approx. 3 x device rated current in positive direction

Index: [0] = Armature current 1
[1] = Armature current 2

Dependency: See also: r52921, r52922

Note: This parameter is used solely for internal diagnostics.

r52950[0...3] CO: Line voltages scan values / V_line sc values

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950, 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [V]	- [V]	- [V]

Description: Display and connector output for the scan values of line voltages UV, WV, WU.

Index:
[0] = Line voltage UV
[1] = Line voltage VW
[2] = Line voltage WU
[3] = Field line voltage

r52951[0...1] CO: Armature voltage/field voltage scan values / Ua/Uf scan_values

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6902, 6950, 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [V]	- [V]	- [V]

Description: Display and connector output for the armature voltage/field voltage scan values.

Index:
[0] = Scan values of Ua
[1] = Scan values of Uf

r52952[0...3] CO: Armature current/field current scan values / Ia/If sc_values

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6850, 6851, 6912
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2002	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [A]	- [A]	- [A]

Description: Display and connector output for the armature current and field current scan values.

Index:
[0] = Armature current Ia
[1] = Field current If
[2] = Armature current Ia current transformer I
[3] = Armature current Ia current transformer II

r52953[0...11] CO: Thyristor blocking voltages scan values / V_thyr scan_values

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 3
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** p2001	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [V]	- [V]	- [V]

Description: Display and connector output for the scan values of the thyristor blocking voltages.

Index: [0] = Blocking voltage thyristor X11
[1] = Blocking voltage thyristor X12
[2] = Blocking voltage thyristor X13
[3] = Blocking voltage thyristor X14
[4] = Blocking voltage thyristor X15
[5] = Blocking voltage thyristor X16
[6] = Blocking voltage thyristor X21
[7] = Blocking voltage thyristor X22
[8] = Blocking voltage thyristor X23
[9] = Blocking voltage thyristor X24
[10] = Blocking voltage thyristor X25
[11] = Blocking voltage thyristor X26

r52960 Armature line zero crossings deviation / Arm line zero dev

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the deviation of the last point in time on the averaged time grid from the last point in time on an original time grid (armature).

r52961 Field line zero crossings deviation / Field line zero dv

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [µs]	- [µs]	- [µs]

Description: Displays the deviation of the last point in time on the averaged time grid from the last point in time on an original time grid (field).

r52965[0...1] Line analysis armature line phase offset / Arm line ph offs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [V]	- [V]	- [V]

Description: Displays the DC offset (= direct-current component) of the armature line phases in volts.

Index: [0] = Armature phase UV
[1] = Armature phase VW

r52966 Line analysis field line phase offset / Field line ph offs

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: FloatingPoint32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
- [V]	- [V]	- [V]

Description: Displays the DC offset (= direct-current component) of the field line phases in volts.

r52970 **CO: Line analysis armature line zero crossing positive phase UV / Arm zero pos UV**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last positive zero crossing of armature phase UV.
Note: The value is displayed in [10 ns] unit.

r52971 **CO: Line analysis armature line zero crossing negative phase UV / Arm zero neg UV**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last negative zero crossing of armature phase UV.
Note: The value is displayed in [10 ns] unit.

r52972 **CO: Line analysis armature line zero crossing positive phase VW / Arm zero pos VW**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last positive zero crossing of armature phase VW.
Note: The value is displayed in [10 ns] unit.

r52973 **CO: Line analysis armature line zero crossing negative phase VW / Arm zero neg VW**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last negative zero crossing of armature phase UV.
Note: The value is displayed in [10 ns] unit.

r52974 **CO: Line analysis armature line zero crossing positive phase WU / Arm zero pos WU**

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last positive zero crossing of armature phase WU.
Note: The value is displayed in [10 ns] unit.

r52975 CO: Line analysis armature line zero crossing negative phase WU / Arm zero neg WU

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6950
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last negative zero crossing of armature phase WU.
Note: The value is displayed in [10 ns] unit.

r52976 CO: Line analysis field line zero crossing positive phase F / Field zero pos F

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last positive zero crossing of the field phase.
Note: The value is displayed in [10 ns] unit.

r52977 CO: Line analysis field line zero crossing negative phase F / Field zero neg F

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned32	**Dyn. index:** -	**Function diagram:** 6952
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the point in time (timer value) of the last negative zero crossing of the field phase.
Note: The value is displayed in [10 ns] unit.

r52980 Cause of the armature firing pulse / Cause arm fir plus

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8054
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the cause of the armature firing pulse.

1: firing angle = firing angle specified by the armature current control (after Alpha G/W limiting).

2: firing angle = Alpha-W (= p50151, as Ia <> 0 or Ia = 0 for less than 125 µs).

3: firing angle = Alpha-W (= 165 °, as Ia = 0 for more than 125 µs).

4: The firing angle received from the parallel switching master was issued.

5: The firing angle received from the parallel switching master was no longer able to be realized, as this point in time has already been passed.

6: For a 12-pulse series circuit, a firing pulse delayed by 30 ° was output.

7:The firing angle specified by the thyristor check function was realized.

8:The master firing angle specified by the sequential phase control was realized.

9:The slave firing angle specified by the sequential phase control was realized.

1x:

firing angle = next possible point in time: firing angle update was not able to be realized.

2x:

firing angle = next possible point in time: new firing angle was not able to be realized.

3x:

firing angle = next possible point in time: calculated firing angle was not able to be realized.

Note: This parameter is only for internal SIEMENS troubleshooting.

r52981 Cause of the torque direction / Cause M_dir

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 4
Data type: Unsigned8	**Dyn. index:** -	**Function diagram:** 8054
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the cause of the torque direction.

0: M0 no torque direction, as not in the operating mode.

1: M0 no torque direction as a firing angle > 165 ° was specified.

2: M0 no torque direction as the wait time according to p50160 is running.

3: M0 no torque direction as the signal selected with p50165 does not permit the required torque direction.

4: M0 no torque direction as the I=0 signal was 125 µs long but however was present for less than 625 µs. The torque-free interval is extended.

5: M0 no torque direction as the thyristor blocking voltage monitoring signals "thyristor conductive". The torque-free interval is extended.

6: M0 no torque direction as the immediate pulse inhibit according to p50177 has been selected.

7: M0 no torque direction, as an emergency stop is present.

8: M0 no torque direction, as the line supply is not OK.

9: M0 no torque direction, as a valid firing instant was not found (for example, this can occur in the slave connected in parallel if the master is lost).

10, 11, 12

M0, MI, MII torque direction = r52106.

15: M0 no torque direction as the selected thyristor pair is inhibited during the thyristor check.

16: M0 no torque direction, as the slave connected in parallel is not in the operating state.

17: M0 no torque direction, as an immediate pulse inhibit was executed, because either an emergency stop is present or the CCP was triggered.

21, 22:

MI, MII Alpha-W pulse with second pulse in the old torque direction.

Cause: Ia was still not 625 µs long = 0.

23, 24:

MI, MII Alpha-W pulse with second pulse in the old torque direction.

Cause: thyristor blocking voltage monitoring signals "Thyristor conductive"

31, 32:

MI, MII Alpha-W pulse without second pulse in the old torque direction.

Cause: Ia was still not 625 µs long = 0.

33, 34:

MI, MII Alpha-W pulse without second pulse in the old torque direction.

Cause: thyristor blocking voltage monitoring signals "Thyristor conductive"

41, 42:

MI, MII Alpha-W pulse with second pulse in the old torque direction.

Cause: additional Alpha-W pulses according to p50179.

51, 52:

MI, MII Alpha-W pulse without second pulse in the old torque direction.

Cause: additional Alpha-W pulses according to p50161.

60, 61, 62:

M0, MI, MII torque direction according to p51840 (simulation operation).

71: MI the command "simultaneously fire all thyristors" (according to p50176) was performed.

81: MI the torque direction specified by the thyristor check was realized.

82: MII the torque direction specified by the thyristor check was realized.

95, 96, 97:

M0, MI, MII the torque direction of the parallel switching master was realized.

Note: This parameter is only for internal SIEMENS troubleshooting.

r52982 Armature current zero current signal / Ia I=0 signal

DC_CTRL

Can be changed: -
Calculated: -
Access level: 4
Data type: Unsigned8
Dyn. index: -
Function diagram: 8054
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the number of zero current signals of the armature current.
For scan values below the threshold I = 0, the counter is incremented.
The counter is reset in the following cases:
- firing pulse.
- Sampling value above the threshold for I = 0.

Note: This parameter is only for internal SIEMENS troubleshooting.
The scan values are every 62.5 µs.
The threshold for I = 0 is 1 % of the rated unit current.

r52983 Thyristor code / Thyr_code

DC_CTRL

Can be changed: -
Calculated: -
Access level: 4
Data type: Unsigned8
Dyn. index: -
Function diagram: 8054
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Displays the thyristor code.
Bit 0 = 1: Thyristor 1 was fired
...
Bit 5 = 1: thyristor 6 was fired
Bit 6 = 1: thyristors were fired for torque direction 1
Bit 7 = 1: thyristors were fired for torque direction 2

Note: This parameter is only for internal SIEMENS troubleshooting.

r53010.0...15 CO/BO: CUD digital inputs, status / CUD DI status

DC_CTRL

Can be changed: -
Calculated: -
Access level: 2
Data type: Unsigned16
Dyn. index: -
Function diagram: 2050, 2060, 2065, 2580
P group: -
Unit group: -
Unit selection: -
Not for motor type: -
Scaling: -
Expert list: 1
Min:
Max:
Factory setting:
-
-
-

Description: Display and connector output for the CUD's digital inputs.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DI 0 (X177.11)	High	Low	2050
01	DI 0 inverted (X177.11)	High	Low	2050
02	DI 1 (X177.12)	High	Low	2050
03	DI 1 inverted (X177.12)	High	Low	2050
04	DI 2 (X177.13)	High	Low	2050
05	DI 2 inverted (X177.13)	High	Low	2050

06	DI 3 (X177.14)	High	Low	2050
07	DI 3 inverted (X177.14)	High	Low	2050
08	DI/DO 4 (X177.15)	High	Low	2060
09	DI/DO 4 inverted (X177.15)	High	Low	2060
10	DI/DO 5 (X177.16)	High	Low	2060
11	DI/DO 5 inverted (X177.16)	High	Low	2060
12	DI/DO 6 (X177.17)	High	Low	2065
13	DI/DO 6 inverted (X177.17)	High	Low	2065
14	DI/DO 7 (X177.18)	High	Low	2065
15	DI/DO 7 inverted (X177.18)	High	Low	2065

Dependency: For bits 08 ... 15:
The terminal must be set as an input (p50789[0...3] = 0).

Note: DI: Digital Input
DI/DO: Bidirectional Digital Input/Output

r53020.0...7 CO/BO: CUD digital outputs status / CUD DO status

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2055, 2060, 2065
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output for the CUD's digital outputs.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X177.19)	High	Low	2055
01	DO 1 (X177.20)	High	Low	2055
02	DO 2 (X177.21)	High	Low	2055
03	DO 3 (X177.22)	High	Low	2055
04	DI/DO 4 (X177.15)	High	Low	2060
05	DI/DO 5 (X177.16)	High	Low	2060
06	DI/DO 6 (X177.17)	High	Low	2065
07	DI/DO 7 (X177.18)	High	Low	2065

Dependency: For bits 04 to 07:
The terminal must be set as an output (p50789[0...3] = 1).

Note: DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

r53021.0...7 CO/BO: CUD digital outputs overload monitoring / CUD DO overload

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2055, 2060, 2065
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output for the overload monitoring of the digital outputs.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DO 0 (X177.19) overload present	Yes	No	2055
01	DO 1 (X177.20) overload present	Yes	No	2055
02	DO 2 (X177.21) overload present	Yes	No	2055
03	DO 3 (X177.22) overload present	Yes	No	2055
04	DI/DO 4 (X177.15) overload present	Yes	No	2060
05	DI/DO 5 (X177.16) overload present	Yes	No	2060
06	DI/DO 6 (X177.17) overload present	Yes	No	2065
07	DI/DO 7 (X177.18) overload present	Yes	No	2065

Dependency: For bits 04 to 07:
The terminal must be set as an output (p50789[0...3] = 1).

Note: DO: Digital Output
DI/DO: Bidirectional Digital Input/Output

r53025.0...13 CO/BO: Speed messages / n messages

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8020, 8025
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the messages for speed comparisons and limits.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Setpoint/actual value deviation 1 less than threshold	Yes	No	8020
01	Setpoint/actual value deviation 1 less than threshold inverted	Yes	No	8020
02	Setpoint-actual value deviation 2 less than threshold	Yes	No	8020
03	Setpoint-actual value deviation 2 less than threshold inverted	Yes	No	8020
04	Comparison setpoint reached	Yes	No	8020
05	Comparison setpoint reached inverted	Yes	No	8020
06	Deceleration speed reached	Yes	No	8020
07	Deceleration speed reached inverted	Yes	No	8020
08	Positive speed setpoint	Yes	No	8025
09	Positive speed setpoint inverted	Yes	No	8025
10	Overspeed	Yes	No	8025
11	Overspeed inverted	Yes	No	8025
12	Positive speed actual value	Yes	No	8025
13	Positive speed actual value inverted	Yes	No	8025

r53026.0...1 CO/BO: Field current messages / If messages

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8025
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Control word for field current thresholds.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Field current less than minimum field current threshold	Yes	No	-
01	Field current actual value less than field current setpoint x	Yes	No	-

r53030.0...1 CO/BO: CUD analog inputs wire break message / CUD AI wire brk

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2075, 2080
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output for the "Wire break" message in the case of the CUD analog inputs.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	AI "Main setpoint" wire-break monitoring responded	Yes	No	2075
	01	AI 1 (X177.27/28) Wire-break monitoring responded	Yes	No	2080

Dependency: See also: F60046, F60047

r53081.0...1 CO/BO: Sequence control line contactor control / Ctrl line cont

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2651
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the line contactor control.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Line contactor	ON	OFF	2651
	01	Line contactor inverted	ON	OFF	2651

r53082.0 CO/BO: Line contactor state / Line cont state

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2070
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Displays the status of the line contactor control.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Line contactor ON	Yes	No	2070

Dependency: See also: p51619

Note: For bit 00:
1 signal: The relay output for the line contactor is activated via binector input p51619.
0 signal: The relay output for the line contactor is de-activated via binector input p51619.

r53100.0...1 CO/BO: E stop status / E stop stat

DC_CTRL

Can be changed: -	**Calculated:** -	**Access level:** 2
Data type: Unsigned16	**Dyn. index:** -	**Function diagram:** 2070, 2580
P group: -	**Unit group:** -	**Unit selection:** -
Not for motor type: -	**Scaling:** -	**Expert list:** 1
Min:	**Max:**	**Factory setting:**
-	-	-

Description: Display and connector output for the status in the event of an E stop (emergency stop).

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	No E stop	Yes	No	2070, 2580
	01	E stop active	Yes	No	2070

r53120.0...3 CO/BO: Motor control checks / Mot mon state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8035
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the motor interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Brush length too short	Yes (fault)	No	-
01	Poor bearing condition	Yes (fault)	No	-
02	Motor fan fault	Yes (fault)	No	-
03	Motor temperature too high	Yes (fault)	No	-

Dependency: See also: p50486, p50487, p50488, p50489
See also: F60025, F60026, F60027, F60028

r53130.0...1 CO/BO: Motor interface temperature monitoring state / Mot temp_mon

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8030
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of temperature monitoring on the motor interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Motor temperature alarm	Yes	No	-
01	Motor temperature fault	Yes	No	-

Dependency: See also: p50490, p50491, p50492
See also: F60029, A60032

r53135.0...12 CO/BO: Device fan state / Dev fan state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** -
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the device fan.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Switch on fan	ON	OFF	8047
01	Switch on fan inverted	ON	OFF	8047
08	Fan 1 speed OK	Yes	No (too low)	8047
09	Fan 2 speed OK	Yes	No (too low)	8047
10	Fan 3 speed OK	Yes	No (too low)	8047
11	Fan 4 speed OK	Yes	No (too low)	8047
12	Control Module fan speed OK	Yes	No	8049

Dependency: See also: p50082, p50096
See also: F60167

Note: Dependent upon the article number (MLFB), the fan configuration may be as follows:
- No fans
- 2 DC fans
- 1 AC fan

For bits 8 ... 11:
These bits are not effective on the Control Module.
For bit 12:
This bit is only effective on the Control Module.

r53136 Device fan present / Device_fan pres

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6960
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the integrated device fan.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	DC fan 1	Available	Not present	6960
01	DC fan 2	Available	Not present	6960
02	AC fan 1	Available	Not present	6960
03	AC fan 2	Available	Not present	6960
04	Control Module fan	Available	Not present	6960

Note: For the Control Module, fan "available" is always displayed as the Control Module only has one output to control the fan.
The display is independent of the state of the fan and only indicates the desired state.

r53140.0...4 CO/BO: Fan and external fault / Fan ext F

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8049
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output of the state of the fan and external fault for the Control Module.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fan ON	ON	OFF	-
01	Fan ON inverted	ON	OFF	-
02	Fan relay status	Switched on	Switched off	-
03	External fault	Yes	No	-
04	External fault inverted	Yes	No	-

Dependency: See also: p51832, p51833, p51834, p51835
See also: A60266, F60267

r53145.0...13 CO/BO: Line state / Line state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6950, 6954
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the line for armature and field.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Armature supply system overvoltage	Yes	No	-
	01	Armature supply system undervoltage	Yes	No	-
	02	Armature supply system overfrequency	Yes	No	-
	03	Armature supply system underfrequency	Yes	No	-
	04	Armature supply system phase failure	Yes	No	-
	05	Field supply system overvoltage	Yes	No	-
	06	Field supply system undervoltage	Yes	No	-
	07	Field supply system overfrequency	Yes	No	-
	08	Field supply system underfrequency	Yes	No	-
	09	Field supply system phase failure	Yes	No	-
	10	Armature supply system OK	Yes	No	-
	11	Field supply system OK	Yes	No	-
	12	Phase rotating clockwise	Yes	No	-
	13	Line symmetry	Yes	No	-

Dependency: See also: p50351, p50352, p50361, p50362

Note: Bit 00 or bit 01 and bit 05 or bit 06 only indicate a line undervoltage condition or line overvoltage condition if the line voltage lies outside the limits (p50351, p50352) and delay times (p50361, p50362) have elapsed.

r53146.0...13 CO/BO: Thyristor state / Thyr state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6950

P group: - **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and connector output for the state of the thyristors.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Thyristor X11 conducting	Yes	No	-
	01	Thyristor X12 conducting	Yes	No	-
	02	Thyristor X13 conducting	Yes	No	-
	03	Thyristor X14 conducting	Yes	No	-
	04	Thyristor X15 conducting	Yes	No	-
	05	Thyristor X16 conducting	Yes	No	-
	08	Thyristor X21 conducting	Yes	No	-
	09	Thyristor X22 conducting	Yes	No	-
	10	Thyristor X23 conducting	Yes	No	-
	11	Thyristor X24 conducting	Yes	No	-
	12	Thyristor X25 conducting	Yes	No	-
	13	Thyristor X26 conducting	Yes	No	-

r53147.0...13 CO/BO: Thyristor blocking state / Thyr block state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3

Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6950

P group: - **Unit group:** - **Unit selection:** -

Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Displays the blocked state of the thyristors.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Thyristor X11	Blocking	Inhibited	-
	01	Thyristor X12	Blocking	Inhibited	-

02	Thyristor X13	Blocking	Inhibited	-
03	Thyristor X14	Blocking	Inhibited	-
04	Thyristor X15	Blocking	Inhibited	-
05	Thyristor X16	Blocking	Inhibited	-
08	Thyristor X21	Blocking	Inhibited	-
09	Thyristor X22	Blocking	Inhibited	-
10	Thyristor X23	Blocking	Inhibited	-
11	Thyristor X24	Blocking	Inhibited	-
12	Thyristor X25	Blocking	Inhibited	-
13	Thyristor X26	Blocking	Inhibited	-

Note: The blocked state is only relevant for the state "non-conducting" (r53146.x = 0).

r53148.0...1 CO/BO: Power unit I2t state / PU I2t state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 8042
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the I2t monitoring of the power unit.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	I2t power unit response threshold exceeded	Yes	No	8042
01	I2t power unit response threshold exceeded and saved	Yes	No	8042

r53149.0 CO/BO: Power unit properties / PU properties

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 3
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6840, 6960, 6965
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output for properties of the power unit.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	4Q power unit	Yes	No	6960

r53150.0...5 CO/BO: Speed limiting controller/torque limiting state / n_lim/T lim state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6830, 6835
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state on the speed limiting controller and with regard to torque limiting.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Positive speed limit reached	Yes	No	6835
01	Negative speed limit reached	Yes	No	6835
02	Limiting controller active	Yes	No	6835
03	Positive torque limit reached	Yes	No	6830
04	Negative torque limit reached	Yes	No	6830
05	Torque limiting active	Yes	No	6830

r53151.0...4 CO/BO: Current limitation state / Ia lim state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6845
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and connector output for the state of armature current limitation.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Positive armature current limit reached	Yes	No	6845
01	Negative armature current limit reached	Yes	No	6845
02	Armature current limitation active	Yes	No	6845
04	Torque limiting/Armature current limitation active	Yes	No	6845

r53160.0 CO/BO: Speed controller enable / n_ctr ena

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6815
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Display and BICO output to enable the speed controller.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Speed controller enable present	Yes	No	6815

r53170.4...15 CO/BO: Setpoint processing control word / Set proc STW

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2585
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1

Min:	Max:	Factory setting:
-	-	-

Description: Control word for setpoint processing.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
04	Direction of rotation enable	No enable	Enable	3135
08	Jog ON command	ON	OFF	3125
09	Creep ON command	ON	OFF	3130
10	Fixed setpoint bypass ramp-function generator	ON	OFF	3115
11	Jog setpoint bypass ramp-function generator	ON	OFF	3125
12	Creep setpoint bypass ramp-function generator	ON	OFF	3130
13	Fixed setpoint input active	Yes	No	3115
14	Setpoint from AOP/PC active	Yes	No	3113
15	Jogging setpoint enabled	Yes	No	3125

r53171.0...5 CO/BO: Ramp-function generator state / RFG state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 3150, 3151, 3152, 3155
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the ramp-function generator.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Limiting active after ramp-function generator	Yes	No	3155
01	RFG output equals zero	Yes	No	3152
02	RFG ramping up	Yes	No	3150, 3152
03	RFG ramping down	Yes	No	3150, 3152
04	RFG setpoint enable present	Yes	No	3151
05	RFG active	Yes	No	3150

r53190.0...12 CO/BO: Armature auto-reversing stage state / Arm stage state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6815, 6855, 6860, 6862, 8046
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the auto-reversing stage.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Torque direction enabled	M0 or MI	M0 or MII	-
01	Torque direction I active	Yes	No	-
02	Torque direction II active	Yes	No	-
03	Torque direction 0 requested	Yes	No	-
04	Torque direction I requested	Yes	No	-
05	Torque direction II requested	Yes	No	-
06	Torque direction change in progress	Yes	No	-
07	Alpha G limit reached	Yes	No	-
08	Alpha W limit reached	Yes	No	-
09	Alpha G limit or Alpha W limit reached	Yes	No	-
10	Positive limit of n, M, I, Alpha reached	Yes	No	-
11	Negative limit of n, M, I, Alpha reached	Yes	No	-
12	Alpha W shift active	Yes	No	-

r53191.0...2 CO/BO: Field auto-reversing stage state / Field stage state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6910, 6915
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the auto-reversing stage for field control.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Alpha G limit reached	Yes	No	6910, 6915
	01	Alpha W limit reached	Yes	No	6910, 6915
	02	Alpha G/Alpha W limit reached	Yes	No	6915

r53192.0 CO/BO: Armature current state / Ia state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6850
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the armature current.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Armature current not pulsating	Yes	No	6850

r53193.0...3 CO/BO: Field current setpoint limiting state / If lim state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6900, 6905
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Control word for field current setpoint limiting.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Positive field current setpoint limit reached	Yes	No	-
	01	Negative field current setpoint limit reached	Yes	No	-
	02	Standstill field switched in	Yes	No	-
	03	Field current setpoint withdrawn	Yes	No	-

r53195.0...2 CO/BO: Field reversal contactor signals / Field rev cont sig

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6920
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Control word to control the field contactors for field reversal.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Field direction positive	ON	OFF	-
	01	Field direction negative	ON	OFF	-
	02	Invert speed actual value	Yes	No	-

Dependency: See also: p50092, p50580, p50581, p50583

r53200.0...1 CO/BO: Motorized potentiometer state / MotP state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 3110
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state on the motorized potentiometer.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Output is zero (y = 0)	Yes	No	-
	01	Ramp-up/ramp-down complete (y = x)	Yes	No	-

r53210.0...5 CO/BO: Sequence control output signals / Seq_ctrl outp_sig

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 2585, 2651, 2750
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output for the sequence control output signals.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Close brake	Yes	No	2585, 2750
	01	Close brake inverted	Yes	No	2750
	02	Switch on auxiliaries	Yes	No	2651
	03	Switch on auxiliaries inverted	Yes	No	2651
	04	Automatic restart active	Yes	No	2651, 2750
	05	Automatic restart active inverted	Yes	No	2651, 2750

r53220.0...5 CO/BO: Fuses at X23B state / Fuses X23B

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6957
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the fuses at X23B.
The fuses are monitored via connection A7109:X23B or A7112:X23B.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Fuse XS1	Okay	Ruptured	-
	01	Fuse XS2	Okay	Ruptured	-
	02	Fuse XS3	Okay	Ruptured	-
	03	Fuse XS4	Okay	Ruptured	-
	04	Fuse XS5	Okay	Ruptured	-
	05	Fuse XS6	Okay	Ruptured	-

Dependency: See also: p51831
See also: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states.
The parameter is only relevant for the Control Module.

r53221.0...5 CO/BO: Fuses at X23C state / Fuses X23C

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6957
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the fuses at X23C.
The fuses are monitored via connection A7112:X23C.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Fuse XS1	Okay	Ruptured	-
	01	Fuse XS2	Okay	Ruptured	-
	02	Fuse XS3	Okay	Ruptured	-
	03	Fuse XS4	Okay	Ruptured	-
	04	Fuse XS5	Okay	Ruptured	-
	05	Fuse XS6	Okay	Ruptured	-

Dependency: See also: p51831
See also: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states.
The parameter is only relevant for the Control Module.

r53222.0...5 CO/BO: Fuses at X23D state / Fuses X23D

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6957
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the fuses at X23D.
The fuses are monitored via connection A7112:X23D.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Fuse XS1	Okay	Ruptured	-
	01	Fuse XS2	Okay	Ruptured	-
	02	Fuse XS3	Okay	Ruptured	-
	03	Fuse XS4	Okay	Ruptured	-
	04	Fuse XS5	Okay	Ruptured	-
	05	Fuse XS6	Okay	Ruptured	-

Dependency: See also: p51831
See also: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states.
The parameter is only relevant for the Control Module.

r53223.0...5 CO/BO: Fuses at X23E state / Fuses X23E

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6957
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the fuses at X23E.
The fuses are monitored via connection A7112:X23E.

Bit array:	Bit	Signal name	1 signal	0 signal	FP
	00	Fuse XS1	Okay	Ruptured	-
	01	Fuse XS2	Okay	Ruptured	-
	02	Fuse XS3	Okay	Ruptured	-
	03	Fuse XS4	Okay	Ruptured	-
	04	Fuse XS5	Okay	Ruptured	-
	05	Fuse XS6	Okay	Ruptured	-

Dependency: See also: p51831
See also: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states.
The parameter is only relevant for the Control Module.

r53224.0...5 CO/BO: Fuses at X23F state / Fuses X23F

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 6957
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and connector output/binector output for the state of the fuses at X23F.
The fuses are monitored via connection A7112:X23F.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fuse XS1	Okay	Ruptured	-
01	Fuse XS2	Okay	Ruptured	-
02	Fuse XS3	Okay	Ruptured	-
03	Fuse XS4	Okay	Ruptured	-
04	Fuse XS5	Okay	Ruptured	-
05	Fuse XS6	Okay	Ruptured	-

Dependency: See also: p51831
See also: F60204

Note: The fuses are only set to "OK" in operating state o7.0. The fuses are set to "ruptured" in all other operating states.
The parameter is only relevant for the Control Module.

r53230.0...7 CO/BO: Fixed bit 0 ... 7 / Fix bit 0...7

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 3100
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Connector/binector output for fixed bit 0 ... 7.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Fixed bit 0 (p50421)	High	Low	-
01	Fixed bit 1 (p50422)	High	Low	-
02	Fixed bit 2 (p50423)	High	Low	-
03	Fixed bit 3 (p50424)	High	Low	-
04	Fixed bit 4 (p50425)	High	Low	-
05	Fixed bit 5 (p50426)	High	Low	-
06	Fixed bit 6 (p50427)	High	Low	-
07	Fixed bit 7 (p50428)	High	Low	-

Dependency: See also: p50421, p50422, p50423, p50424, p50425, p50426, p50427, p50428

r53300.0...1 CO/BO: P2P IF telegram monitoring state / P2P telegr mon

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9300
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of telegram monitoring on the peer-to-peer interface (P2P IF).

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Telegram monitoring timeout	Yes	No	9300
01	Telegram monitoring timeout and 1 s pulse pending	Yes	No	9300

Note: The "Telegram monitoring timeout" signal is triggered:
- With binector output r53300.0 as a continuous signal
- With binector output r53300.1 as a one-off pulse with a duration of 1 s

r53310.0...1 CO/BO: Parallel interface telegram monitoring state / Par IF mon state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9350
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of telegram monitoring on the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Telegram monitoring timeout - continuous signal	Yes	No	9350
01	Telegram monitoring timeout - pulse	Yes	No	9350

Dependency: See also: p50099, p51807
See also: F60014

r53311.0 CO/BO: Parallel interface master/slave state / Par IF ma/sl state

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9350
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Displays the state of the parallel interface.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Active master	Master	Slave	9350

Dependency: See also: p51800

r53312.0...1 CO/BO: Topology switchover command / Top_sw command

DC_CTRL

Can be changed: - **Calculated:** - **Access level:** 2
Data type: Unsigned16 **Dyn. index:** - **Function diagram:** 9360
P group: - **Unit group:** - **Unit selection:** -
Not for motor type: - **Scaling:** - **Expert list:** 1
Min: **Max:** **Factory setting:**
- - -

Description: Display and BICO output to control the contactors to switch over the power unit topology.

Bit array:

Bit	Signal name	1 signal	0 signal	FP
00	Power unit topology 1	Requested	Not requested	9360
01	Power unit topology 2	Requested	Not requested	9360

Dependency: See also: p51790

2.3 Parameters for data sets

2.3.1 Parameters for command data sets (CDS)

Note:

References: SINAMICS DC MASTER operating instructions
"Data sets" Chapter

The following list contains the parameters that are dependent on the command data sets.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: CDS

p0700[0...n] Macro Binector Input (BI) / Macro BI
p0820[0...n] BI: Drive Data Set selection DDS bit 0 / DDS select., bit 0
p0821[0...n] BI: Drive Data Set selection DDS bit 1 / DDS select., bit 1
p0840[0...n] BI: ON / OFF (OFF1) / ON / OFF (OFF1)
p0844[0...n] BI: No coast-down / coast-down (OFF2) signal source 1 / OFF2 S_src 1
p0845[0...n] BI: No coast-down / coast-down (OFF2) signal source 2 / OFF2 S_src 2
p0848[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 1 / OFF3 S_src 1
p0849[0...n] BI: No Quick Stop / Quick Stop (OFF3) signal source 2 / OFF3 S_src 2
p0852[0...n] BI: Enable operation/inhibit operation / Enable operation
p0854[0...n] BI: Control by PLC/no control by PLC / Master ctrl by PLC
p0855[0...n] BI: Unconditionally release holding brake / Uncond open brake
p0856[0...n] BI: Enable speed controller / n_ctrl enable
p0858[0...n] BI: Unconditionally close holding brake / Uncond close brake
p1000[0...n] Macro Connector Inputs (CI) for speed setpoints / Macro CI n_set
p1035[0...n] BI: Motorized potentiometer setpoint raise / Mop raise
p1036[0...n] BI: Motorized potentiometer lower setpoint / Mop lower
p1055[0...n] BI: Jog bit 0 / Jog bit 0
p1056[0...n] BI: Jog bit 1 / Jog bit 1
p1070[0...n] CI: Main setpoint / Main setpoint
p1113[0...n] BI: Setpoint inversion / Setp inv
p1140[0...n] BI: Enable ramp-function generator/inhibit ramp-function generator / Enable RFG
p1141[0...n] BI: Continue ramp-function generator/freeze ramp-function generator / Continue RFG
p1142[0...n] BI: Enable setpoint/inhibit setpoint / Setpoint enable
p1500[0...n] Macro Connector Inputs (CI) for torque setpoints / Macro CI M_set
p2103[0...n] BI: 1st acknowledge faults / 1st acknowledge
p2104[0...n] BI: 2nd acknowledge faults / 2nd acknowledge
p2105[0...n] BI: 3rd acknowledge faults / 3rd acknowledge
p2106[0...n] BI: External fault 1 / External fault 1
p2107[0...n] BI: External fault 2 / External fault 2
p2108[0...n] BI: External fault 3 / External fault 3
p2112[0...n] BI: External alarm 1 / External alarm 1
p2116[0...n] BI: External alarm 2 / External alarm 2
p2117[0...n] BI: External alarm 3 / External alarm 3
p2200[0...n] BI: Technology controller enable / Tec_ctrl enable
p2253[0...n] CI: Technology controller setpoint 1 / Tec_ctrl setp 1
p2254[0...n] CI: Technology controller setpoint 2 / Tec_ctrl setp 2
p2264[0...n] CI: Technology controller actual value / Tec_ctrl act val
p2286[0...n] BI: Hold technology controller integrator / Tec_ctr integ hold
p2289[0...n] CI: Technology controller precontrol signal / Tec_ctr prectr_sig
p2296[0...n] CI: Technology controller output scaling / Tec_ctrl outp scal
p2297[0...n] CI: Technology controller maximum limit signal source / Tec_ctrMaxLimS_src

p2298[0...n] CI: Technology controller minimum limit signal source / Tec_ctrl min_l s_s
p2299[0...n] CI: Technology controller limit offset / Tech_ctrl lim offs
p3111[0...n] BI: External fault 3 enable / Ext fault 3 enab
p3112[0...n] BI: External fault 3 enable negated / Ext flt 3 enab neg

Product: SINAMICS DC MASTER OA, Version: 1503000, Language: eng, Type: CDS
p50165[0...n] BI: Signal source for change in torque direction enable / Torq dir en sig s
p50173[0...n] BI: Signal source for closed-loop current/torque control ctr type / Ctr I/tq ctr sig s
p50175[0...n] CI: Signal source for closed-loop armature current control P gain / Ia ctr Kp sig s
p50176[0...n] CI: Signal source for closed-loop armature current ctr integr time / Ia ctr Tn sig s
p50177[0...n] BI: Signal source for the "No immediate pulse inhibit" command / No pulse inh sig s
p50178[0...n] BI: Sig source for the "Fire all thyristors simultaneously" command / All thy fire sig s
p50265[0...n] BI: Signal source for field current monitoring / I_field mon sig s
p50266[0...n] CI: Field current controller Tn factor signal source / If_ctrTnFact sig s
p50267[0...n] CI: Field current controller Kp factor signal source / If_ctrKpFact sig s
p50289[0...n] BI: EMF setpoint reduction activation signal source / EMF set act sig s
p50322[0...n] CI: Setpoint processing signal source for main setpoint factor / M set factor sig s
p50323[0...n] CI: Setpoint processing signal source for additional setpoint factor / Add set fac sig s
p50433[0...n] CI: Signal source for default setpoint / Def set sig s
p50438[0...n] CI: Jog signal source for default setpoint / Jog def set sig s
p50443[0...n] CI: Creep signal source for default setpoint / Cr def set sig s
p50444[0...n] BI: Creep signal source for shutdown / Cr shutdn sig s
p50461[0...n] CI: Motorized potentiometer signal source for automatic setpoint / MotP aut s sig s
p50466[0...n] CI: Motor potentiometer setting value signal source / MotP s val sig s
p50470[0...n] BI: Motorized potentiometer signal source for CW/CCW / MotP CW/CCW sig s
p50471[0...n] BI: Motorized potentiometer signal source for manual/automatic / MotP man/aut sig s
p50472[0...n] BI: Motorized potentiometer accept setting value / MotP acc set val
p50484[0...n] CI: Oscillation signal source for default setpoint / Oscill def set
p50485[0...n] BI: Oscillation selection of signal source / Oscill sel sig s
p50500[0...n] CI: Torque limiting signal source for t_set in slave mode / T_set s mode sig s
p50501[0...n] CI: Torque limiting signal source for torque additional setpoint / T_lim add s sig s
p50553[0...n] CI: Speed controller adaptation Kp signal source / Adapt Kp sig s
p50554[0...n] CI: Speed controller adaptation Tn signal source / Adapt Tn sig s
p50555[0...n] CI: Speed controller adaptation droop signal source / Adapt droop sig s
p50580[0...n] BI: Field reversal direction of rotation signal source / Field rev sig s
p50581[0...n] BI: Field reversal braking signal source / Field rev br sig s
p50583[0...n] CI: Field reversal speed actual value signal source / FldRev n_act sig s
p50594[0...n] CI: Messages polarity speed setpoint signal source / MsgPol n_set S_src
p50598[0...n] CI: Messages polarity speed actual value signal source / MsgPol n_act S_src
p50607[0...n] CI: Torque limiting signal source for master drive t_set / Mst tq set sig s
p50609[0...n] CI: Signal source for speed controller actual value / n_ctr act sig s
p50625[0...n] CI: Signal source for speed controller setpoint / n_ctr set sig s
p50626[0...n] CI: Signal source for speed controller actual value smoothing / Act v smoo sig s
p50635[0...n] CI: Setpoint processing signal source for RFG setpoint / RFG set sig s
p50637[0...n] BI: RFG parameter set 2 selection signal source / RFG par s 2 sig s
p50638[0...n] BI: Ramp-function generator parameter set 3 select signal source / RFG par set 3 s_s
p50640[0...n] BI: RFG signal source for accepting setting value / RFG accept set v
p50641[0...n] BI: Bypass ramp-function generator signal source / Bypass RFG sig s
p50644[0...n] CI: Setpoint processing signal source for main setpoint / M set sig s
p50645[0...n] CI: Setpoint processing signal source for additional setpoint / A set sig s
p50646[0...n] BI: RFG signal source for ramp-up integrator enable / R-up int ena sig s
p50647[0...n] BI: RFG tracking activation signal source / RFG trck act sig s
p50671[0...n] BI: Setpoint processing sig source to enable neg dir of rotation / Ena n dir r sig s
p50672[0...n] BI: Setpoint processing signal source to enable pos dir of rotation / Ena p dir r sig s
p50673[0...n] BI: Motorized potentiometer signal source to increase setpoint / MotP incr sig s
p50674[0...n] BI: Motorized potentiometer signal source to lower setpoint / MotP lower sig s

p50680[0...n] BI: Fixed setpoint signal source for connector selection 0 / Fix set con0 sig s
p50681[0...n] BI: Fixed setpoint signal source for connector selection 1 / Fix set con1 sig s
p50684[0...n] BI: Speed controller droop enable / Droop enable
p50687[0...n] BI: Speed controller signal source for master/slave drive / Mast/sl sig s
p50688[0...n] BI: Hold speed controller I component direction pos. signal source / I comp HoldPos s_s
p50689[0...n] BI: Hold speed controller I component direction neg. signal source / I comp HoldNeg s_s
p50691[0...n] BI: Sequence control line contactor feedback / Line cont feedb
p50692[0...n] BI: Cl-loop field curr ctrl sig source for inject of standst field / If_ctr stst sig s
p50693[0...n] BI: EMF controller enable signal source / EMF ctr ena sig s
p50694[0...n] BI: Torque limiting signal source to enable changeover / T lim ch ena sig s
p50695[0...n] BI: Signal source for setting speed controller integral component / Set I_co sig s
p50696[0...n] BI: Signal source for stop speed controller integral component / Stop I_co sig s
p50697[0...n] BI: Enable for inertia compensation / Inert comp ena
p50698[0...n] BI: Signal source for speed controller PI/P controller changeover / n_ctr PI/P sig s
p51590[0...n] CI: Armature current ctrl armature cct resistance adaptation s_src / Ia ctr Ra s_src
p51607[0...n] BI: Setpoint processing reduction signal source / Red sig s
p51619[0...n] BI: Signal source for switching on line contactor / Line cont ON sig s
p51657[0...n] BI: Speed controller start pulse pos/neg changeover signal source / Start p ch sig s

2.3.2 Parameters for drive data sets (DDS)

Note:

References: SINAMICS DC MASTER operating instructions
“Data sets” Chapter

The following list contains the parameters that are dependent on the drive data sets.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: DDS
p0187[0...n] Encoder 1 encoder data set number / Enc 1 EDS number
p0188[0...n] Encoder 2 encoder data set number / Enc 2 EDS number
p0340[0...n] Automatic calculation motor/control parameters / Calc auto par
p1441[0...n] Actual speed smoothing time / n_act T_smooth
p1821[0...n] Direction of rotation / Dir of rot
p2504[0...n] LR motor/load motor revolutions / Mot/load motor rev
p2505[0...n] LR motor/load load revolutions / Mot/load load rev
p2720[0...n] Load gear configuration / Load gear config
p2721[0...n] Load gear rotary absolute encoder revolutions virtual / Abs rot rev
p2722[0...n] Load gear position tracking tolerance window / Pos track tol
r2723[0...n] CO: Load gear absolute value / Load gear abs_val
r2724[0...n] CO: Load gear position difference / Load gear pos diff
p2900[0...n] CO: Fixed value 1 [%] / Fixed value 1 [%]
p2901[0...n] CO: Fixed value 2 [%] / Fixed value 2 [%]
p2930[0...n] CO: Fixed value M [Nm] / Fixed value M [Nm]

Product: SINAMICS DC MASTER OA, Version: 1503000, Language: eng, Type: DDS
p50081[0...n] Field weakening activation / Field weak act
p50083[0...n] Speed controller actual value selection / n_ctr act sel
p50100[0...n] Motor rated armature current / Mot rated I_armat
p50101[0...n] Motor rated armature voltage / Mot rated V_armat
p50102[0...n] Motor rated excitation current / Mot rated I_exc
p50103[0...n] Minimum motor excitation current / Mot I_exc min
p50104[0...n] Speed-dependent current limitation speed n1 / I_lim n_dep n1
p50105[0...n] Speed-dependent current limitation armature current I1 / I_lim n_dep I1
p50106[0...n] Speed-dependent current limitation speed n2 / I_lim n_dep n2

p50107[0...n] Speed-dependent current limitation armature current I2 / I_lim n_dep I2
p50108[0...n] Speed-dependent current limitation maximum operating speed n3 / I_lim n_dep n3
p50109[0...n] Speed-dependent current limitation activation / I_lim n_dep act
p50110[0...n] Armature circuit resistance / Ra
p50111[0...n] Armature circuit inductance / La
p50112[0...n] Field circuit resistance / R_field circuit
p50113[0...n] Motor I2t monitoring continuous current factor / Mot I2t I_cont
p50114[0...n] Motor thermal time constant / Mot T therm
p50115[0...n] Speed controller EMF at maximum speed / EMF at n_max
p50116[0...n] Field circuit inductance / L_field circuit
p50117[0...n] Field characteristic status / Field char stat
p50118[0...n] EMF rated value / EMF rated
p50119[0...n] Rated speed / n_rated
p50120[0...n] Field current for motor flux 0% / I_field flux 0%
p50121[0...n] Field current for motor flux 5% / I_field flux 5%
p50122[0...n] Field current for motor flux 10% / I_field flux 10%
p50123[0...n] Field current for motor flux 15% / I_field flux 15%
p50124[0...n] Field current for motor flux 20% / I_field flux 20%
p50125[0...n] Field current for motor flux 25% / I_field flux 25%
p50126[0...n] Field current for motor flux 30% / I_field flux 30%
p50127[0...n] Field current for motor flux 35% / I_field flux 35%
p50128[0...n] Field current for motor flux 40% / I_field flux 40%
p50129[0...n] Field current for motor flux 45% / I_field flux 45%
p50130[0...n] Field current for motor flux 50% / I_field flux 50%
p50131[0...n] Field current for motor flux 55% / I_field flux 55%
p50132[0...n] Field current for motor flux 60% / I_field flux 60%
p50133[0...n] Field current for motor flux 65% / I_field flux 65%
p50134[0...n] Field current for motor flux 70% / I_field flux 70%
p50135[0...n] Field current for motor flux 75% / I_field flux 75%
p50136[0...n] Field current for motor flux 80% / I_field flux 80%
p50137[0...n] Field current for motor flux 85% / I_field flux 85%
p50138[0...n] Field current for motor flux 90% / I_field flux 90%
p50139[0...n] Field current for motor flux 95% / I_field flux 95%
p50148[0...n] Armature converter Alpha W limit (single-phase operation) / A Alpha W lim 1-ph
p50149[0...n] Armature converter correction angle Alpha W limit / Arm corr Alpha W
p50150[0...n] Armature converter Alpha G limit / Arm Alpha G lim
p50151[0...n] Armature converter Alpha W limit / Arm Alpha W lim
p50152[0...n] Armature average number of line periods / Arm line per no.
p50153[0...n] Control word for armature pre-control / A prec STW
p50154[0...n] Closed-loop armature current control integral comp activation / Ia ctr I comp act
p50155[0...n] Closed-loop armature current control P gain / Ia ctr Kp
p50156[0...n] Closed-loop armature current control integral time / Ia ctr Tn
p50157[0...n] Current limitation setpoint integrator selection / I_set integ sel
p50158[0...n] Current limitation setpoint integrator ramp-up time / Set integ t_r-up
p50159[0...n] Auto-reversing stage changeover threshold / Auto-rev thresh
p50160[0...n] Auto-reversing stage additional torque-free interval / Auto-rev interval
p50161[0...n] Auto-reversing stage Alpha W pulses second pulse inhibited / Auto-rev Alpha W1
p50162[0...n] EMF selection / EMF sel
p50163[0...n] EMF smoothing selection / EMF smoothing sel
p50164[0...n] Closed-loop armature current ctr proportional comp activation / Ia ctr Kp act
p50169[0...n] Torque limiting selection torque limiting/current limitation / T lim sel T/I_lim
p50170[0...n] Selection of control type for closed-loop current/torque control / Ctrl type I/tq sel
p50171[0...n] Current limitation armature current limit torque dir I factor / Ia lim t d I fact
p50172[0...n] Current limitation armature current limit torque dir II factor / Ia lim t d II fact
p50179[0...n] Auto-reversing stage Alpha W pluses second pulse enabled / Auto-rev Alpha W2

p50180[0...n] Torque limiting torque limit 1 positive / T lim 1 pos
p50181[0...n] Torque limiting torque limit 1 negative / T lim 1 neg
p50182[0...n] Torque limiting torque limit 2 positive / M_ lim 2 pos
p50183[0...n] Torque limiting torque limit 2 negative / M_lim 2 neg
p50184[0...n] Torque limiting changeover speed / T lim n_chng
p50190[0...n] Cl-loop arm current ctr prectr setpoint smoothing time constant / Ia prec set T
p50191[0...n] Cl-loop arm current ctr curr controller setp sm time constant / Ia ctr set T
p50192[0...n] Armature Alpha W limit control word / A Alpha W lim STW
p50200[0...n] Speed controller speed actual value smoothing time constant / n_ctr n_act T
p50201[0...n] Band-stop 1 resonant frequency / Band-st 1 f_n
p50202[0...n] Band-stop 1 quality / Band-st 1 quality
p50203[0...n] Band-stop 2 resonant frequency / Band-st 2 f_n
p50204[0...n] Band-stop 2 quality / Band-st 2 quality
p50205[0...n] Derivative-action element derivative-action time / D-act el t_d-act
p50206[0...n] Derivative-action element smoothing time / Der-act el t_DAE
p50208[0...n] Lead/lag element rate time / Lead/lag t_rate
p50209[0...n] Lead/lag element filter time / Lead/lag t_filter
p50220[0...n] Speed controller changeover PI/P speed setpoint threshold / PI/P n_set thresh
p50221[0...n] Speed controller changeover PI/P hysteresis / PI/P hyst
p50222[0...n] Speed controller changeover PI/P speed actual value threshold / PI/P n_act thresh
p50223[0...n] Speed controller pre-control enable / n_ctr prec ena
p50224[0...n] Speed controller integral component configuration / n_ctr I comp conf
p50225[0...n] Speed controller adaptation Kp y coordinate 2 / Adapt Kp y2
p50226[0...n] Speed controller adaptation Tn y coordinate 2 / Adapt Tn y2
p50227[0...n] Speed controller adaptation droop y coordinate 2 / Adapt droop y2
p50228[0...n] Speed controller speed setpoint smoothing time constant / n_ctr n_set T
p50229[0...n] Master/slave drive ctrl speed controller tracking I component / M/S drve ctr track
p50230[0...n] Set speed controller integral component duration / Set I_comp dur
p50231[0...n] Speed controller adaptation selection / n_ctrl Adapt sel
p50234[0...n] Speed controller proportional component enable / n_ctr P_comp ena
p50237[0...n] Speed controller reference model natural frequency / n_ctrl ref_m fn
p50238[0...n] Speed controller reference model damping / n_ctrl ref_m d
p50239[0...n] Speed controller reference model dead time / n_ctr ref_m t_dead
p50240[0...n] Speed controller reference model activation / n_ctrl ref_m act
p50250[0...n] Field converter Alpha G limit / Field Alpha G lim
p50251[0...n] Field converter Alpha W limit / Field Alpha W lim
p50252[0...n] Field average number of line periods / Field line per no.
p50253[0...n] Field pre-control activation / Field prec act
p50254[0...n] Field current controller integral component activation / I_field_ctr I comp
p50255[0...n] Field current controller P gain / I_field ctr Kp
p50256[0...n] Field current controller integral time / I_field ctr Tn
p50257[0...n] Closed-loop field current control standstill field / If_ctr stst_field
p50258[0...n] Cl-loop field current control field current reduction delay time / If_ctr I_red t_del
p50260[0...n] Field current pre-control setpoint smoothing time constant / Field_prec set T
p50261[0...n] Field current controller setpoint smoothing time constant / I_field_ctr set T
p50263[0...n] Selection of motor flux input variable / Mot fl input sel
p50264[0...n] Field current controller proportional component activation / I_field_ctr P comp
p50273[0...n] EMF controller pre-control activation / EMF ctr prec act
p50274[0...n] EMF controller integral component activation / EMF ctr I comp act
p50275[0...n] EMF controller P gain / EMF ctr Kp
p50276[0...n] EMF controller integral time / EMF ctr Tn
p50277[0...n] EMF controller droop / EMF ctr droop
p50280[0...n] EMF controller pre-control setpoint smoothing time constant / EMF prec set T
p50281[0...n] EMF controller setpoint smoothing time constant / EMF ctr set T
p50282[0...n] EMF controller actual value smoothing time constant / EMF ctr act T

p50283[0...n] EMF controller pre-control actual value smoothing time constant / EMF prec act T
p50284[0...n] EMF controller proportional component activation / EMF ctr P comp act
p50285[0...n] EMF setpoint reduction line voltage smoothing time / EMF set line t_sm
p50286[0...n] EMF setpoint reduction line voltage upper limit / EMF set line upper
p50287[0...n] EMF setpoint reduction line voltage lower limit / EMF set line lower
p50288[0...n] EMF setpoint reduction evaluation factor / EMF set eval_fact
p50295[0...n] Transition rounding operating mode / RFG rounding mode
p50296[0...n] RFG quick stop (OFF3) ramp-down time / RFG OFF3 t_ramp-dn
p50297[0...n] RFG quick stop (OFF3) initial rounding / RFG OFF3 init rndg
p50298[0...n] RFG quick stop (OFF3) final rounding / RFG OFF3 fin rndg
p50300[0...n] RFG positive setpoint limit after ramp-function generator / RFG pos after RFG
p50301[0...n] RFG negative setpoint limit after ramp-function generator / RFG neg after RFG
p50302[0...n] RFG ramp-up integrator operating mode / RFG integ op mode
p50303[0...n] RFG ramp-up time 1 / RFG t_ramp-up 1
p50304[0...n] RFG ramp-down time 1 / RFG t_ramp-dn 1
p50305[0...n] RFG initial rounding 1 / RFG init rndg 1
p50306[0...n] RFG final rounding 1 / RFG fin rndg 1
p50307[0...n] Ramp-function generator ramp-up time 2 / RFG t_ramp-up 2
p50308[0...n] Ramp-function generator ramp-down time 2 / RFG ramp-dn time 2
p50309[0...n] Ramp-function generator initial rounding 2 / RFG init rndg 2
p50310[0...n] Ramp-function generator final rounding 2 / RFG fin rndg 2
p50311[0...n] Ramp-function generator ramp-up time 3 / RFG t_ramp-up 3
p50312[0...n] Ramp-function generator ramp-down time 3 / RFG t_ramp-down 3
p50313[0...n] Ramp-function generator initial rounding 3 / RFG init rndg 3
p50314[0...n] Ramp-function generator final rounding 3 / RFG fin rndg 3
p50317[0...n] RFG tracking enable / RFG track ena
p50318[0...n] RFG setting value selection / RFG set val sel
p50319[0...n] RFG setpoint enable delay time / RFG set_ena i_del
p50320[0...n] Setpoint processing main setpoint factor / m_set_factor
p50321[0...n] Setpoint processing additional setpoint factor / Add_set_factor
p50330[0...n] RFG time unit / RFG time unit
p50351[0...n] Line undervoltage threshold / Line V_under thr
p50352[0...n] Line overvoltage threshold / Line V_over thresh
p50353[0...n] Line monitoring phase failure threshold / Ph_fail thresh
p50355[0...n] Stall protection monitoring time / Stall t_mon
p50356[0...n] Stall protection threshold / Stall prot thresh
p50357[0...n] Tachometer interruption monitoring threshold / Tacho_mon thresh
p50358[0...n] Blocking protection speed filter time / Block n t_filter
p50361[0...n] Line monitoring undervoltage delay time / V_under t_del
p50362[0...n] Line monitoring overvoltage delay time / Line V_over t_del
p50363[0...n] Line frequency minimum threshold / f_line min thresh
p50364[0...n] Line frequency maximum threshold / f_line max thresh
p50370[0...n] Messages for speed less than minimum speed threshold / n < n_min thresh
p50371[0...n] Messages for speed less than minimum speed hysteresis / n < n_min hyst
p50372[0...n] Messages speed positive hysteresis / Msg n > 0 hyst
p50373[0...n] Messages for reference speed threshold / Ref_speed thresh
p50374[0...n] Messages for reference speed hysteresis / Ref_speed hyst
p50375[0...n] Messages for reference speed OFF delay / Ref_speed t_OFF
p50376[0...n] Messages for setpoint/actual value deviation 2 threshold / Set/act 2 thresh
p50377[0...n] Messages for setpoint/actual value deviation 2 hysteresis / Set/act 2 hyst
p50378[0...n] Messages for setpoint/actual value deviation 2 OFF delay / Set/act 2 t_OFF
p50380[0...n] Messages for overspeed threshold positive direction of rotation / Msg n_over pos
p50381[0...n] Messages for overspeed threshold negative direction of rotation / Msg n_over neg
p50388[0...n] Messages for setpoint-actual value deviation 1 threshold / Set/act 1 thresh
p50389[0...n] Messages for setpoint-actual value deviation 1 hysteresis / Set/act 1 hyst

p50390[0...n] Messages for setpoint-actual value deviation 1 OFF delay / Set/act t_OFF
p50394[0...n] Messages for field current threshold minimum threshold / Msg If min thresh
p50395[0...n] Messages for field current threshold minimum hysteresis / Msg If min hyst
p50396[0...n] Field current monitoring setpoint factor / If_mon set_fact
p50397[0...n] Field current monitoring fault delay time / If_mon F t_del
p50398[0...n] Messages for field current actual value less than setpoint fact / Msg If<set fact
p50399[0...n] Messages for field current actual value less than setpoint hyst / Msg If<set hyst
p50401[0...n] Fixed value 1 / Fix val 1
p50402[0...n] Fixed value 2 / Fix val 2
p50403[0...n] Fixed value 3 / Fix val 3
p50404[0...n] Fixed value 4 / Fix val 4
p50405[0...n] Fixed value 5 / Fix val 5
p50406[0...n] Fixed value 6 / Fix val 6
p50407[0...n] Fixed value 7 / Fix val 7
p50408[0...n] Fixed value 8 / Fix val 8
p50409[0...n] Fixed value 9 / Fix val 9
p50410[0...n] Fixed value 10 / Fix val 10
p50411[0...n] Fixed value 11 / Fix val 11
p50412[0...n] Fixed value 12 / Fix val 12
p50413[0...n] Fixed value 13 / Fix val 13
p50414[0...n] Fixed value 14 / Fix val 14
p50415[0...n] Fixed value 15 / Fix val 15
p50416[0...n] Fixed value 16 / Fix val 16
p50421[0...n] Fixed bit 0 / Fixed bit 0
p50422[0...n] Fixed bit 1 / Fixed bit 1
p50423[0...n] Fixed bit 2 / Fixed bit 2
p50424[0...n] Fixed bit 3 / Fixed bit 3
p50425[0...n] Fixed bit 4 / Fixed bit 4
p50426[0...n] Fixed bit 5 / Fixed bit 5
p50427[0...n] Fixed bit 6 / Fixed bit 6
p50428[0...n] Fixed bit 7 / Fixed bit 7
p50460[0...n] Motorized potentiometer activate ramp-function generator / Mot pot act RFG
p50462[0...n] Motorized potentiometer ramp-up time / MotP t_r-up
p50463[0...n] Motorized potentiometer ramp-down time / MotP t_r-dn
p50464[0...n] Motorized potentiometer time difference for dy/dt / MotP t_dif dy/dt
p50465[0...n] Motorized potentiometer expansion factor / MotP exp fact
p50467[0...n] Motorized potentiometer starting value / MotP start value
p50468[0...n] Motorized potentiometer maximum speed / MotP n_max
p50469[0...n] Motorized potentiometer minimum speed / MotP n_min
p50473[0...n] Motorized potentiometer save output value / MotP save outp val
p50480[0...n] Oscillation setpoint 1 / Oscillation set 1
p50481[0...n] Oscillation setpoint 1 time / Oscill set 1 t
p50482[0...n] Oscillation setpoint 2 / Oscillation set 2
p50483[0...n] Oscillation setpoint 2 time / Oscill set 2 t
p50491[0...n] Motor interface alarm threshold for temperature monitoring / Mot_temp al thr
p50492[0...n] Motor interface fault threshold for temperature monitoring / Mot_temp flt thr
p50503[0...n] Torque limiting t_set factor in slave mode / T_set fact sl mode
p50512[0...n] Speed limiting controller max speed pos direction of rotation / n_max pos dir rot
p50513[0...n] Speed limiting controller max speed neg direction of rotation / n_max neg dir
p50515[0...n] Speed limiting controller P gain / n_lim Kp
p50520[0...n] Friction compensation 0% speed / Fric comp n 0%
p50521[0...n] Friction compensation 10% speed / Fric comp n 10%
p50522[0...n] Friction compensation 20% speed / Fric comp n 20%
p50523[0...n] Friction compensation 30% speed / Fric comp n 30%
p50524[0...n] Friction compensation 40% speed / Fric comp n 40%

p50525[0...n] Friction compensation 50% speed / Fric comp n 50%
p50526[0...n] Friction compensation 60% speed / Fric comp n 60%
p50527[0...n] Friction compensation 70% speed / Fric comp n 70%
p50528[0...n] Friction compensation 80% speed / Fric comp n 80%
p50529[0...n] Friction compensation 90% speed / Fric comp n 90%
p50530[0...n] Friction compensation 100% speed / Fric comp n 100%
p50540[0...n] Speed controller acceleration time / n_ctr t_accel
p50542[0...n] RFG dy/dt time difference / RFG dy/dt t_dif
p50543[0...n] Speed controller setpoint/actual value difference threshold / Set/act dif thresh
p50546[0...n] Smoothing time constant for inertia compensation / Comp inert T
p50550[0...n] Speed controller adaptation Kp y coordinate 1 / Adapt Kp y1
p50551[0...n] Speed controller adaptation Tn y coordinate 1 / Adapt Tn y1
p50552[0...n] Speed controller adaptation droop y coordinate 1 / Adapt droop y1
p50556[0...n] Speed controller adaptation Kp x coordinate 1 / Adapt Kp x1
p50557[0...n] Speed controller adaptation Tn x coordinate 1 / Adapt Tn x1
p50559[0...n] Speed controller adaptation Kp x coordinate 2 / Adapt Kp x2
p50560[0...n] Speed controller adaptation Tn x coordinate 2 / Adapt Tn x2
p50561[0...n] Speed controller adaptation droop x coordinate 2 / Adapt droop x2
p50562[0...n] Speed controller droop positive limiting / Droop pos lim
p50563[0...n] Speed controller droop negative limiting / Droop neg lim
p50570[0...n] Adaptation armature current controller changeover input / Adapt Ia chgov inp
p50571[0...n] Adaptation armature current controller non-linear L activation / Adapt N_lin L act
p50572[0...n] Adapt arm curr controller intermittent adapt activation / Adapt Interm Act
p50573[0...n] Adaptation armature current controller limiting / Adapt Ia_ctrl lim
p50574[0...n] Adapt arm curr controller intermittent adapt Kp increase / Ad Interm Kp incr
p50575[0...n] Adaptation field current controller changeover input / Adapt If chgov inp
p50576[0...n] Adaptation field current controller non-linear L activation / Adapt n_lin act
p50577[0...n] Adapt field curr controller non-linear gating unit activation / Adapt n_lin GU act
p50578[0...n] Adaptation field current controller limiting / Adapt If_ctrl lim
p50701[0...n] CUD analog input 0 scaling / CUD AI 0 scal
p50711[0...n] CUD analog input 1 scaling / CUD AI 1 scal
p50721[0...n] CUD analog input 2 scaling / CUD AI 2 scal
p50741[0...n] Analog input main actual value scaling / AI m act scal
p51591[0...n] Armature inductance reduction factor / L_armat red fact
p51592[0...n] Armature commutating inductance / Arm Lk
p51594[0...n] Interphase inductance in 12-pulse operation / L_intph 12-pulse
p51595[0...n] Interphase inductance reduction factor / L_intph red fact
p51596[0...n] Interphase resistance in 12-pulse operation / R_intph 12-pulse
p51597[0...n] Field inductance reduction factor / L_field red fact
p51608[0...n] Setpoint processing reduction factor / Red factor
p51651[0...n] Speed controller start pulse positive setpoint / Start pul pos set
p51652[0...n] Speed controller start pulse negative factor / Start pul neg fact
p51653[0...n] Speed controller start pulse negative setpoint / Start pul neg set
p51861[0...n] Capacitance of the DC link capacitor / Capac_DClink

2.3.3 Parameters for encoder data sets (EDS)

Note:

References: SINAMICS DC MASTER operating instructions
“Data sets” Chapter

The following list contains the parameters that are dependent on the encoder data sets.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: EDS

p0141[0...n] Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n] Encoder component number / Encoder comp_no
p0144[0...n] Sensor Module detection via LED / SM detection LED
p0145[0...n] Activate/deactivate encoder interface / Enc_intf act/deact
r0146[0...n] Encoder interface active/inactive / Enc_intf act/inact
r0147[0...n] Sensor Module EEPROM data version / SM EEPROM version
r0148[0...n] Sensor Module firmware version / SM FW version
p0400[0...n] Encoder type selection / Enc_typ sel
p0401[0...n] Encoder type OEM selection / Enc type OEM sel
p0402[0...n] Gearbox type selection / Gearbox type sel
p0404[0...n] Encoder configuration effective / Enc_config eff
p0405[0...n] Square-wave encoder track A/B / Sq-wave enc A/B
p0407[0...n] Linear encoder grid division / Enc grid div
p0408[0...n] Rotary encoder pulse number / Rot enc pulse No.
p0410[0...n] Encoder inversion actual value / Enc inv act value
p0411[0...n] Measuring gear configuration / Meas gear config
p0412[0...n] Measuring gear absolute encoder rotary revolutions virtual / Abs rot rev
p0413[0...n] Measuring gear position tracking tolerance window / Pos track window
p0414[0...n] Redundant coarse position value relevant bits (identified) / Relevant bits
p0415[0...n] Gx_XIST1 Coarse position safe most significant bit (identified) / Gx_XIST1 safe MSB
p0416[0...n] Non safety-relevant meas. steps position value POS1 (detected) / nsrPos1
p0417[0...n] Encoder safety comparison algorithm (detected) / Safety comp_algo
p0418[0...n] Fine resolution Gx_XIST1 (in bits) / Enc fine Gx_XIST1
p0419[0...n] Fine resolution absolute value Gx_XIST2 (in bits) / Enc fine Gx_XIST2
p0420[0...n] Encoder connection / Enc_connection
p0421[0...n] Absolute encoder rotary multiturn resolution / Enc abs multiturn
p0422[0...n] Absolute encoder linear measuring step resolution / Enc abs meas step
p0423[0...n] Absolute encoder rotary singleturn resolution / Enc abs singleturn
p0424[0...n] Encoder linear zero mark distance / Enc lin ZM_dist
p0425[0...n] Encoder rotary zero mark distance / Enc rot dist ZM
p0426[0...n] Encoder zero mark differential distance / Enc ZM Dif_dist
p0427[0...n] Encoder SSI baud rate / Enc SSI baud rate
p0428[0...n] Encoder SSI monoflop time / Enc SSI t_monoflop
p0429[0...n] Encoder SSI configuration / Enc SSI config
p0430[0...n] Sensor Module configuration / SM config
p0431[0...n] Angular commutation offset / Ang_com offset
p0432[0...n] Gearbox factor encoder revolutions / Grbx_fact enc_rev
p0433[0...n] Gearbox factor motor/load revolutions / Grbx_fact mot_rev
p0434[0...n] Encoder SSI error bit / Enc SSI error bit
p0435[0...n] Encoder SSI alarm bit / Enc SSI alarm bit
p0436[0...n] Encoder SSI parity bit / Enc SSI parity bit
p0437[0...n] Sensor Module configuration extended / SM config ext
p0438[0...n] Squarewave encoder filter time / Enc t_filt
p0439[0...n] Encoder ramp-up time / Enc ramp-up time
p0440[0...n] Copy encoder serial number / Copy enc ser_no
p0441[0...n] Encoder commissioning serial number part 1 / Enc comm ser_no 1
p0442[0...n] Encoder commissioning serial number part 2 / Enc comm ser_no 2
p0443[0...n] Encoder commissioning serial number part 3 / Enc comm ser_no 3
p0444[0...n] Encoder commissioning serial number part 4 / Enc comm ser_no 4
p0445[0...n] Encoder commissioning serial number part 5 / Enc comm ser_no 5
p0453[0...n] Pulse encoder evaluation zero speed measuring time / Enc_ev n_0 t_meas
p0454[0...n] Sensor Module configuration extended Part 2 / SM config ext 2
p4630[0...n] Absolute encoder linear measuring step factor / Abs_enc meas fact
p4649[0...n] Encoder function reserve amplitude limit incremental signals / Enc fct amp inc

p4678[0...n] Analog sensor LVDT ratio / An_sens LVDT ratio
p4679[0...n] Analog sensor LVDT phase / An_sens LVDT ph
p4680[0...n] Zero mark monitoring tolerance permissible / ZM_monit tol perm
p4681[0...n] Zero mark monitoring tolerance window limit 1 positive / ZM tol lim 1 pos
p4682[0...n] Zero mark monitoring tolerance window limit 1 negative / ZM tol lim 1 neg
p4683[0...n] Zero mark monitoring tolerance window alarm threshold positive / ZM tol A_thr pos
p4684[0...n] Zero mark monitoring tolerance window alarm threshold negative / ZM tol A_thr neg
p4685[0...n] Speed actual value mean value generation / n_act mean val
p4686[0...n] Zero mark minimum length / ZM min length

2.4 Parameters for write protection and know-how protection

2.4.1 Parameters with "WRITE_NO_LOCK"

The following list contains the parameters with the "WRITE_NO_LOCK" attribute.

These parameters are not affected by the write protection.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: WRITE_NO_LOCK

p0003	BOP access level / BOP acc_level
p0009	Device commissioning parameter filter / Dev comm par_filt
p0124[0...n]	Main component detection using LED / M_comp detect LED
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0154	Terminal Module detection via LED / TM detection LED
p0972	Drive unit reset / Drv_unit reset
p0976	Reset and load all parameters / Reset load all par
p0977	Save all parameters / Save all par
p2035	Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no
p2102	BI: Acknowledge all faults / Ackn all faults
p2111	Alarm counter / Alarm counter
p3100	RTC time stamp mode / RTC t_stamp mode
p3101[0...1]	Setting UTC time / Set UTC time
p3103	UTC synchronization process / UTC sync_process
p3950	Service parameter / Serv par
p3981	Acknowledge drive object faults / Ackn DO faults
p3985	Master control mode selection / PcCtrl mode select
p4700[0...1]	Trace control / Trace control
p4701	Measuring function control / Meas fct ctrl
p4703[0...1]	Trace options / Trace options
p4707	Measurement function configuration / Meas fct config
p4710[0...1]	Trace trigger condition / Trace Trig_cond
p4711[0...5]	Trace trigger signal / Trace trig_signal
p4712[0...1]	Trace trigger threshold / Trace trig_thresh
p4713[0...1]	Trace tolerance band trigger threshold 1 / Trace trig thr 1
p4714[0...1]	Trace tolerance band trigger threshold 2 / Trace trig thr 2
p4715[0...1]	Trace bit mask trigger, bit mask / Trace trig mask
p4716[0...1]	Trace bit mask trigger trigger condition / Trace Trig_cond
p4720[0...1]	Trace recording cycle / Trace record_cyc
p4721[0...1]	Trace recording time / Trace record_time
p4722[0...1]	Trace trigger delay / Trace trig_delay
p4723[0...1]	Trace time slice cycle / Trace cycle
p4724[0...1]	Trace average in the time range / Trace average
p4730[0...5]	Trace record signal 0 / Trace record sig 0
p4731[0...5]	Trace record signal 1 / Trace record sig 1
p4732[0...5]	Trace record signal 2 / Trace record sig 2
p4733[0...5]	Trace record signal 3 / Trace record sig 3
p4734[0...5]	Trace record signal 4 / Trace record sig 4
p4735[0...5]	Trace record signal 5 / Trace record sig 5
p4736[0...5]	Trace record signal 6 / Trace record sig 6
p4737[0...5]	Trace record signal 7 / Trace record sig 7
p4780[0...1]	Trace physical address signal 0 / Trace PhyAddr Sig0
p4781[0...1]	Trace physical address signal 1 / Trace PhyAddr Sig1
p4782[0...1]	Trace physical address signal 2 / Trace PhyAddr Sig2

p4783[0...1]	Trace physical address signal 3 / Trace PhyAddr Sig3
p4784[0...1]	Trace physical address signal 4 / Trace PhyAddr Sig4
p4785[0...1]	Trace physical address signal 5 / Trace PhyAddr Sig5
p4786[0...1]	Trace physical address signal 6 / Trace PhyAddr Sig6
p4787[0...1]	Trace physical address signal 7 / Trace PhyAddr Sig7
p4789[0...1]	Trace physical address trigger signal / Trace PhyAddr Trig
p4795	Trace memory bank changeover / Trace mem changeov
p4800	Function generator control / FG control
p4810	Function generator mode / FG operating mode
p4812	Function generator physical address / FG phys address
p4813	Function generator physical address reference value / FG phys addr ref
p4816	Function generator output signal integer number scaling / FG outp integ scal
p4819	BI: Function generator control / FG control
p4820	Function generator signal shape / FG signal shape
p4821	Function generator period / FG period duration
p4822	Function generator pulse width / FG pulse width
p4823	Function generator bandwidth / FG bandwidth
p4824	Function generator amplitude / FG amplitude
p4825	Function generator 2nd amplitude / FG 2nd amplitude
p4826	Function generator offset / FG offset
p4827	Function generator ramp-up time to offset / FG ramp-up offset
p4828	Function generator lower limit / FG lower limit
p4829	Function generator upper limit / FG upper limit
p4830	Function generator time slice cycle / FG time slice
p4831	Function generator amplitude scaling / FG amplitude scal
p4832[0...2]	Function generator amplitude scaling / FG amplitude scal
p4833[0...2]	Function generator offset scaling / FG offset scal
p4835[0...4]	Function generator free measurement function scaling / FG fr MeasFct scal
p4840[0...1]	MTrace cycle number setting / Cycle number
p7761	Write protection / Write protection
p7770	NVRAM action / NVRAM action
p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE
p8806[0...53]	Identification and Maintenance 1 / I&M 1
p8807[0...15]	Identification and Maintenance 2 / I&M 2
p8808[0...53]	Identification and Maintenance 3 / I&M 3
p9210	Flashing component number / Flash comp_no.
p9211	Flash function / Flash fct.
p9400	Safely remove memory card / Mem_card rem
p9484	BICO interconnections search signal source / BICO S_src srch

2.4.2 Parameters with "KHP_WRITE_NO_LOCK"

The following list contains the parameters with the "KHP_WRITE_NO_LOCK" attribute.

These parameters are not affected by the know-how protection.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: KHP_WRITE_NO_LOCK

p0003	BOP access level / BOP acc_level
p0009	Device commissioning parameter filter / Dev comm par_filt
p0124[0...n]	Main component detection using LED / M_comp detect LED
p0144[0...n]	Sensor Module detection via LED / SM detection LED
p0154	Terminal Module detection via LED / TM detection LED

p0972	Drive unit reset / Drv_unit reset
p0976	Reset and load all parameters / Reset load all par
p0977	Save all parameters / Save all par
p2035	Fieldbus interface USS PIV drive object number / Fieldbus USS DO_no
p2040	Fieldbus interface monitoring time / Fieldbus t_monit
p2102	BI: Acknowledge all faults / Ackn all faults
p2111	Alarm counter / Alarm counter
p3100	RTC time stamp mode / RTC t_stamp mode
p3101[0...1]	Setting UTC time / Set UTC time
p3103	UTC synchronization process / UTC sync_process
p3950	Service parameter / Serv par
p3981	Acknowledge drive object faults / Ackn DO faults
p3985	Master control mode selection / PcCtrl mode select
p7761	Write protection / Write protection
p7770	NVRAM action / NVRAM action
p8550	AOP LOCAL/REMOTE / AOP LOCAL/REMOTE
p8806[0...53]	Identification and Maintenance 1 / I&M 1
p8807[0...15]	Identification and Maintenance 2 / I&M 2
p8808[0...53]	Identification and Maintenance 3 / I&M 3
p8835	CBE20 firmware selection / CBE20 FW sel
p8839[0...1]	PZD interface hardware assignment / PZD IF HW assign
p8840	COMM BOARD monitoring time / CB t_monit
p9210	Flashing component number / Flash comp_no.
p9211	Flash function / Flash fct.
p9400	Safely remove memory card / Mem_card rem
p9484	BICO interconnections search signal source / BICO S_src srch

2.4.3 Parameters with "KHP_ACTIVE_READ"

The following list contains the parameters with the "KHP_ACTIVE_READ" attribute.

These parameters can also be read with activated know-how protection.

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng, Type: KHP_ACTIVE_READ

p0015	Macro drive unit / Macro drv unit
p0015	Macro drive object / Macro DO
p0101[0...n]	Drive object numbers / DO numbers
p0103[0...n]	Application-specific view / Appl_spec view
p0105	Activate/deactivate drive object / DO act/deact
p0107[0...n]	Drive object type / DO type
p0108[0...n]	Drive objects function module / DO fct_mod
p0121[0...n]	Power unit component number / PU comp_no
p0125[0...n]	Activate/deactivate power unit components / PU_comp act/deact
p0140	Number of Encoder Data Sets (EDS) / EDS count
p0141[0...n]	Encoder interface (Sensor Module) component number / Enc_interf comp_no
p0142[0...n]	Encoder component number / Encoder comp_no
p0145[0...n]	Activate/deactivate encoder interface / Enc_intf act/deact
p0151	Terminal Module component number / TM comp_no
p0170	Number of Command Data Sets (CDS) / CDS count
p0171[0...n]	Drive objects function module 1 / DO fct_mod 1
p0172[0...n]	Drive objects function module 2 / DO fct_mod 2
p0173[0...n]	Drive objects function module 3 / DO fct_mod 3
p0180	Number of Drive Data Sets (DDS) / DDS count

p0199[0...24]	Drive object name / DO name
p0400[0...n]	Encoder type selection / Enc_typ sel
p0595	Technological unit selection / Tech unit select
p0806	BI: Inhibit master control / PcCtrl inhibit
p0922	IF1 PROFIdrive PZD telegram selection / IF1 PZD telegr
p0978[0...n]	List of drive objects / List of the DO
p2000	Reference speed / n_ref
p2001	Reference voltage / Reference voltage
p2002	Reference current / I_ref
p2003	Reference torque / M_ref
p2005	Reference angle / Reference angle
p2006	Reference temperature / Ref temp
p2007	Reference acceleration / a_ref
p2030	Field bus interface protocol selection / Field bus protocol
p2038	IF1 PROFIdrive STW/ZSW interface mode / PD STW/ZSW IF mode
p2079	IF1 PROFIdrive PZD telegram selection extended / IF1 PZD telegr ext
p4956[0...n]	TEC DO-specific activation / TEC DO act
p7763	KHP OEM exception list number of indices for p7764 / KHP OEM qty p7764
p7764[0...n]	KHP OEM exception list / KHP OEM excep list
p7852	Number of indices for r7853 / Qty indices r7853
p8836	SINAMICS link node address / Node address
p8870[0...15]	SINAMICS Link PZD receive word / PZD recv word
p8870[0...31]	SINAMICS Link PZD receive word / PZD recv word
p8871[0...15]	SINAMICS Link PZD send word / PZD send word
p8871[0...31]	SINAMICS Link PZD send word / PZD send word
p8872[0...15]	SINAMICS Link PZD receive address / PZD recv adr.
p8872[0...31]	SINAMICS Link PZD receive address / PZD recv adr.
p9902	Target topology number of indices / TargetTopo indices

Function diagrams

3

Content

3.1 Table of contents

3.2 Explanations on the function diagrams

Function diagrams

Fig. 3-1 1020 – Explanation of the symbols (part 1)

Parameters

Symbol	Meaning
Parameter name [Unit] rxxxx[x]	Monitoring parameter with index [x].
Parameter name [Unit] rxxxx[x...y]	Monitoring parameter with index range [x...y].
[aaaa.b] Parameter name from ... to [Unit] pxxxx[y...z] (Def)	Setting parameter (if the parameter appears a multiple number of times, then diagram references are specified).
[aaaa.b] Parameter name from ... to [Unit] pxxxx[y] (Def)	Setting parameter with index (if the parameter appears a multiple number of times, then diagram references are specified).

Connectors

Symbol	Meaning
name pxxxx (xxxx)	Connector input CI.
name pxxxx[y] (xxxx [x])	Connector input CI with index [y].
name pxxxx[y...z] (xxxx [y])	Connector input CI with index range [y...z].
name [unit] rxxxx[y...z]	Connector output CO with [dimension unit] and index range [y...z].
name [unit] rxxxx[y]	Connector output CO [dimension unit] and with index [y].

CI: Connector Input
CO: Connector Output
CO/BO: Connector/Binector Output

Binectors

Symbol	Meaning
name pxxxx (Def)	Binector input BI with factory setting (Def).
name pxxxx[y] (Def)	Binector input BI with index [y] and factory setting (Def).
name pxxxx[y...z] (Def)	Binector input BI with index range [y...z] and factory setting (Def).
name rxxxx	Binector output BO.
name rxxxx.y	Binector output BO with bit y.

BI: Binector Input
BO: Binector Output

Connectors/binectors

Symbol	Meaning
Parameter name rxxxx / rxxxx	Connector/binector output CO/BO.

Cross references between diagrams

Symbol	Meaning
1 ... 8 Signal path 1 [aaaa.1] … Signal path 8 [aaaa.8]	The function diagrams are sub-divided into 8 signal paths in order to facilitate orientation.
Text → [aaaa.b]	Text = Unique signal designation aaaa = Signal goes to target diagram aaaa b = Signal goes to signal path b
[cccc.d] → Text	Text = Unique signal designation cccc = Signal comes from source diagram cccc d = Signal comes from signal path d

To "function diagram name" [aaaa.b] = for binectors.

Cross references for control bits

Symbol	Meaning
pxxxx [aaaa.b]	pxxxx = Original parameter of signal aaaa = Signal comes from source diagram aaaa b = Signal comes from signal path b

Data sets

Symbol	Meaning
pxxxx[C]	Parameter belongs to the Command Data Set (CDS).
pxxxx[D]	Parameter belongs to the Drive Data Set (DDS).
pxxxx[E]	Parameter belongs to the Encoder Data Set (EDS).
pxxxx[M]	Parameter belongs to the Motor Data Set (MDS).
pxxxx[P]	Parameter belongs to the Power unit Data Set (PDS).

Information on parameters, binectors, connectors

Symbol	Meaning
Parameter name	Parameter name (up to 18 characters).
[Unit]	[dimension unit] rotatory axis, for linear axis see list of parameters.
rxxxx[y] or rxxxx[y...z] or rxxxx[y].ww or rxxxx.ww	"r" = monitoring parameter. These parameters are read-only "xxxx" stands for the parameter number, "[y]" specifies the valid index, "[y...z]" specifies the applicable index range ".ww" specifies the bit number (e.g. 0...15).
pxxxx[y] or pxxxx[y...z] or pxxxx[y].ww or pxxxx.ww	"p" = setting parameter. These parameters can be changed. "xxxx" stands for the parameter number, "[y]" specifies the applicable index, "[y...z]" specifies the applicable index range ".ww" specifies the bit number (e.g. 0...15).
from ... to	Value range.
(xxxx[y].ww)	Parameter number (xxxx) with Index number [y] and bit number .ww.
(Def)	Factory setting.
(Def.w)	Factory setting with bit number as prefix.
[aaaa.b]	Diagram references for setting parameters that occur a multiple number of times. [Function diagram number, signal path]

Sampling times

Symbol	Meaning
pxxxx[Y] (ZZZ.ZZ µs)	Setting parameter with factory setting to select the time slice.
p0115[y] (Drive Object)	Time slice depending on the pre-setting p0112 of the drive object. "[y]" specifies the applicable index.
p0115[y] (Motor Modules)	Time slice depending on the rated pulse frequency of the motor module. "[y]" specifies the applicable index.
PROFIdrive sampling time	Pre-setting for IF1 in p2048. Pre-setting for IF2 in p8848. The bus clock applies to a clock synchronized operate to IF1 or IF2.
CAN bus sampling time	Pre-setting in p8848.
Background	There is no fixed sampling time for this function. The processing takes place in background. The cycle time depends on the computational load of the control unit.
Not relevant	A static state is displayed here. The sampling time data is not relevant.

1	2	3	4	5	6	7	8
DO: All objects					fp_1020_51_eng.vsd	Function diagram	- 1020 -
Explanations on the function diagrams - Explanation of the symbols (part 1)					27.11.15 V01.05.01	SINAMICS	

Pre-assigned binectors and connectors

Fixed percentage values

-10 000.00...10 000.00 [%] p2900[D] (0.00) → Fixed value 1 [%] p2900[D]

-10 000.00...10 000.00 [%] p2901[D] (0.00) → Fixed value 2 [%] p2901[D]

p2902[0...14] (0.00) → Fixed values [%] r2902[0...14]

p2902[0] = +0 %	p2902[5] = +100 %	p2902[10] = -20 %
p2902[1] = +5 %	p2902[6] = +150 %	p2902[11] = -50 %
p2902[2] = +10 %	p2902[7] = +200 %	p2902[12] = -100 %
p2902[3] = +20 %	p2902[8] = -5 %	p2902[13] = -150 %
p2902[4] = +50 %	p2902[9] = -10 %	p2902[14] = -200 %

Fixed speed values

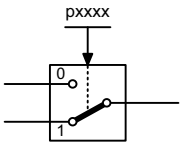
-210 000.000...210 000.000 [rpm] p1001[D] (0.000) → n_set_fixed 1 p1001[D]

-210 000.000...210 000.000 [rpm] p1015[D] (0.000) → n_set_fixed 15 p1015[D]

Fixed torque value

-100 000.00...100 000.00 [Nm] p2930[D] (0.00) → Fixed value M [Nm] p2930[D]

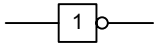
Switch symbol



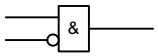
Simple changeover switch

The switch position is shown according to the factory setting of pxxxx (in this case switch position 1).

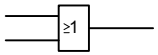
Symbols for logic functions



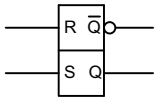
NOT element
Logical inversion (negation).



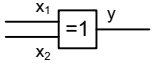
AND element
With logical inversion of an input.



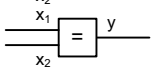
OR element



R/S flip-flop
S/R = setting input/reset input
Q = non-inverted output
$\overline{Q}$ = inverted output
With a simultaneous 1-signal at the R and S inputs, the S input dominates.

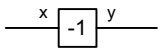


Exclusiv-OR/XOR
y = 1 when $x_1 \neq x_2$ is.



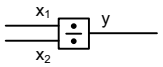
Comparator
y = 1 when $x_1 = x_2$ is.

Symbols for computational and closed-loop control functions

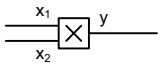


Sign reversal
y = -x

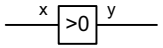
Absolute value generator
y = |x|



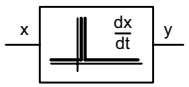
Divider
$y = \frac{x_1}{x_2}$



Multiplier
$y = x_1 * x_2$

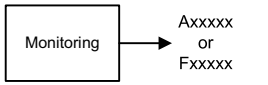


Comparator
y = 1 if the analog signal x > 0, i.e. is positive.



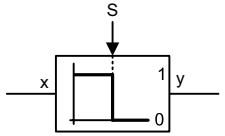
Differentiator
$Y = \frac{dx}{dt}$

Symbol for monitoring

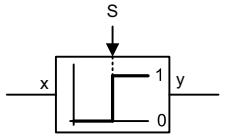


Monitoring
In the bottom right-hand corner of the diagram.

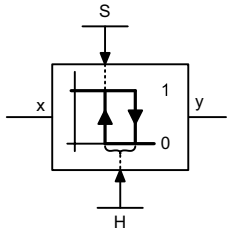
Symbols for computational and closed-loop control functions



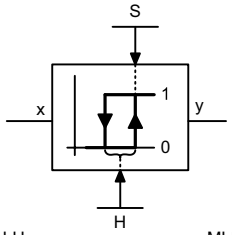
Threshold value switch 1/0
Outputs at y a logical "1" if x < S.



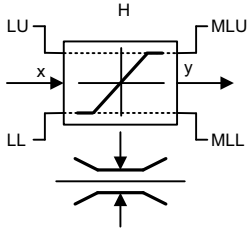
Threshold value switch 0/1
Outputs at y a logical "1" if x > S.



Threshold value switch 1/0 with hysteresis
Outputs at y a logical "1" if x < S.
If x >= S + H, then y returns to 0.



Threshold value switch 0/1 with hysteresis
Outputs at y a logical "1" if x > S.
If x <= S – H, then y returns to 0.



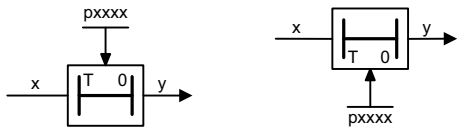
Limiter
x is limited to the upper limit LU and the lower limit LL and output at y.
The digital signals MLU and MLL have the value "1", if the upper or lower limit is active.

Sample & Hold element
Sample and hold element.
y = x if SET = 1
(not saved retentively at POWER OFF)

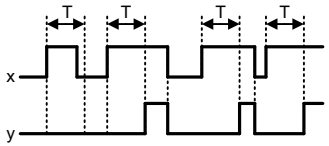
1	2	3	4	5	6	7	8
DO: All objects					fp_1021_51_eng.vsd	Function diagram	- 1021 -
Explanations on the function diagrams - Explanation of the symbols (part 2)					26.11.15 V01.05.01	SINAMICS	

Fig. 3-2 1021 – Explanation of the symbols (part 2)

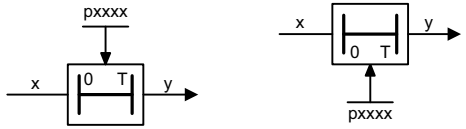
Switch-on delay



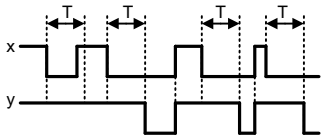
The digital signal x must have the value "1" without any interruption during the time T before output y changes to "1".



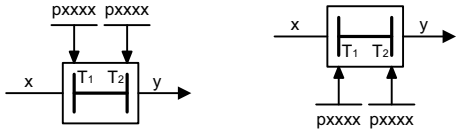
Switch-off delay



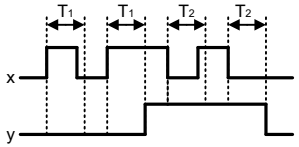
The digital signal x must have the value "0" without interruption during the time T before output y changes to "0".



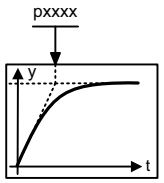
Delay (switch-on and switch-off)



The digital signal x must have the value "1" without interruption during time T_1 or must have the value "0" during time T_2 before output y changes its signal state.



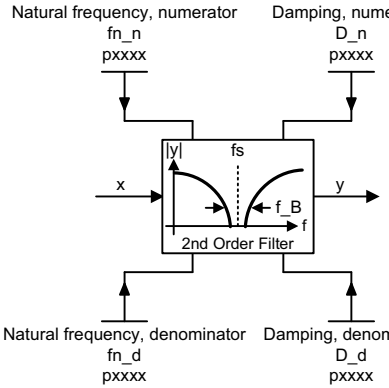
PT1 element



Delay element, first order.

pxxxx = time constant

2nd-order filter (bandstop/general filter)



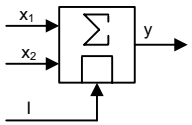
Used as bandstop filter - center frequency fs: $fn\_n = fs$, $fn\_d = fs$

- bandwidth f_B: $D\_n = 0$, $D\_d = \frac{f\_B}{2 \cdot fs}$

Transfer function when used as general filter

$$H(s) = \frac{\left(\frac{s}{2\pi\, fn\_n}\right)^2 + \frac{2 \cdot D\_n}{2\pi\, fn\_n} \cdot s + 1}{\left(\frac{s}{2\pi\, fn\_d}\right)^2 + \frac{2 \cdot D\_d}{2\pi\, fn\_d} \cdot s + 1}$$

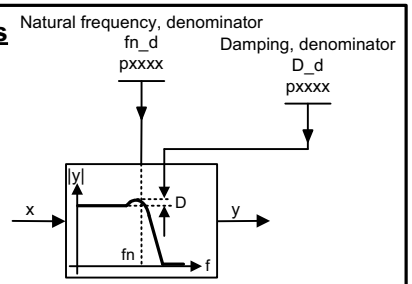
Analog adder can be activated



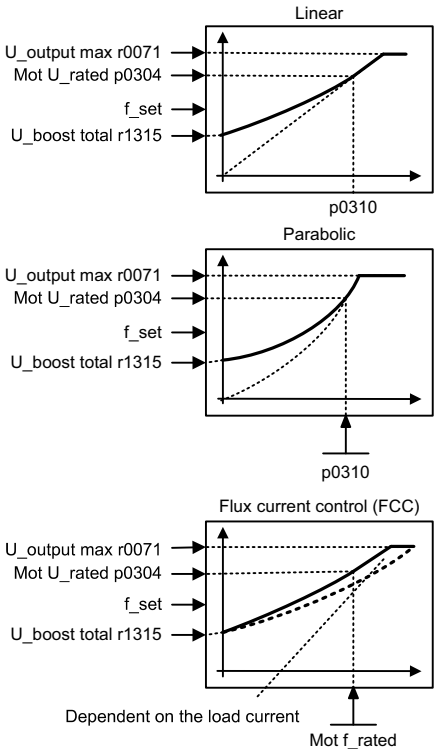
The following applies to I = 1 signal: $y = x_1 + x_2$

The following applies to I = 0 signal: $y = x_1$

PT2 low pass



Transfer function $H(s) = \frac{1}{\left(\frac{s}{2\pi\, fn\_d}\right)^2 + \frac{2 \cdot D\_d}{2\pi\, fn\_d} \cdot s + 1}$



1	2	3	4	5	6	7	8
DO: All objects					fp_1022_51_eng.vsd	Function diagram	- 1022 -
Explanations on the function diagrams - Explanation of the symbols (part 3)					17.07.13 V01.05.01	SINAMICS	

Fig. 3-3 1022 – Explanation of the symbols (part 3)

Handling BICO technology

Binector: r0723.15

Binectors are binary signals that can be freely interconnected (BO = Binector Output).
They represent a bit of a "BO:" display parameter (e.g. bit 15 from r0723).

Connector: r0723

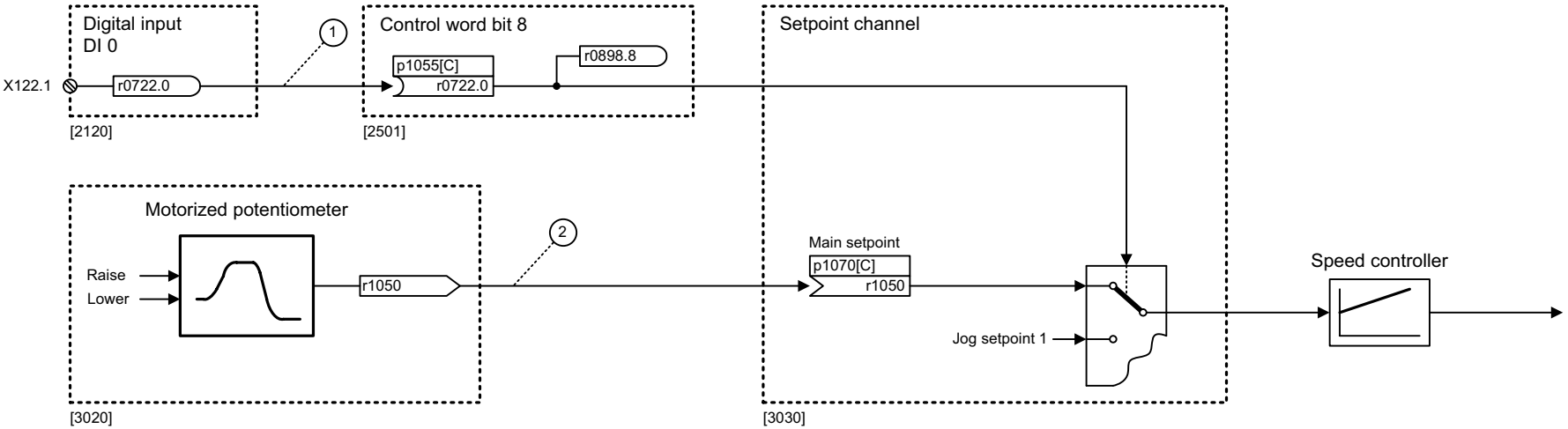
Connectors are bit fields or numerical values that can be freely interconnected (e.g. "analog signals", like percentage variables, speeds or torques).
Connectors are also "CO:" display parameters (CO = Connector Output).

Parameterization:

At the signal destination, the required binector or connector is selected using appropriate parameters:
"BI:" parameter for binectors (BI = Binector Input)
or
"CI:" parameter for connectors (CI = Connector Input)

Example:

The main setpoint for the speed controller (CI: p1070) should be received from the output of the motorized potentiometer (CO: r1050) and the "jog" command (BI: p1055) from digital input DI 0 (BO: r0722.0, X122.1 terminal) on the CU320.



Parameterizing steps:

(1) p1055[0] = r0722.0 Terminal X122.1 acts as "Jog bit 0".

(2) p1070[0] = r1050 The output of the motorized potentiometer acts as main setpoint for the speed controller.

1	2	3	4	5	6	7	8
DO: All objects					fp_1030_51_eng.vsd	Function diagram	- 1030 -
Explanations on the function diagrams - Handling BICO technology					09.08.18 V01.05.01	SINAMICS	

Fig. 3-4 1030 – Handling BICO technology

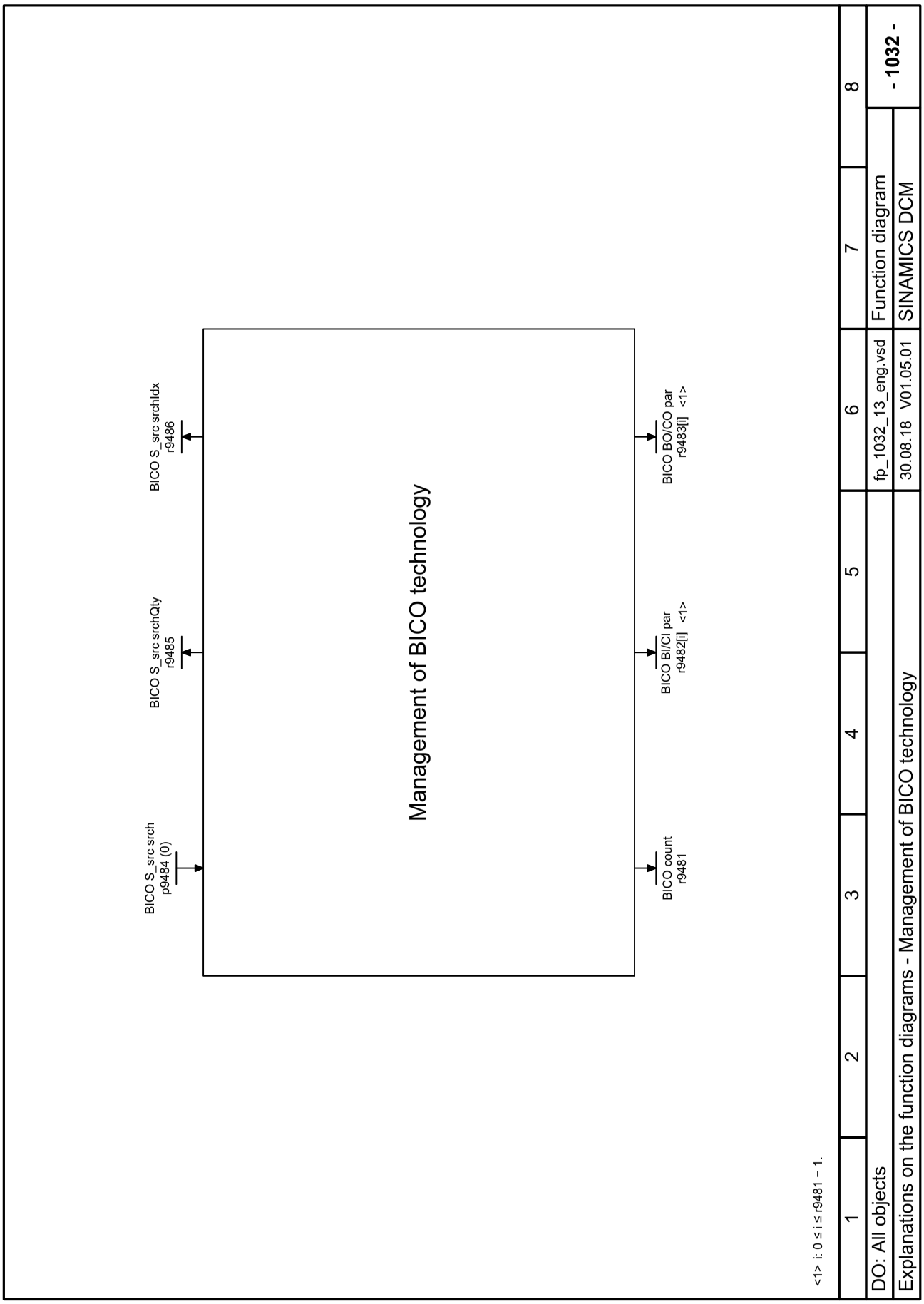


Fig. 3-5 1032 – Management of BICO technology

3.3 Overviews

Function diagrams

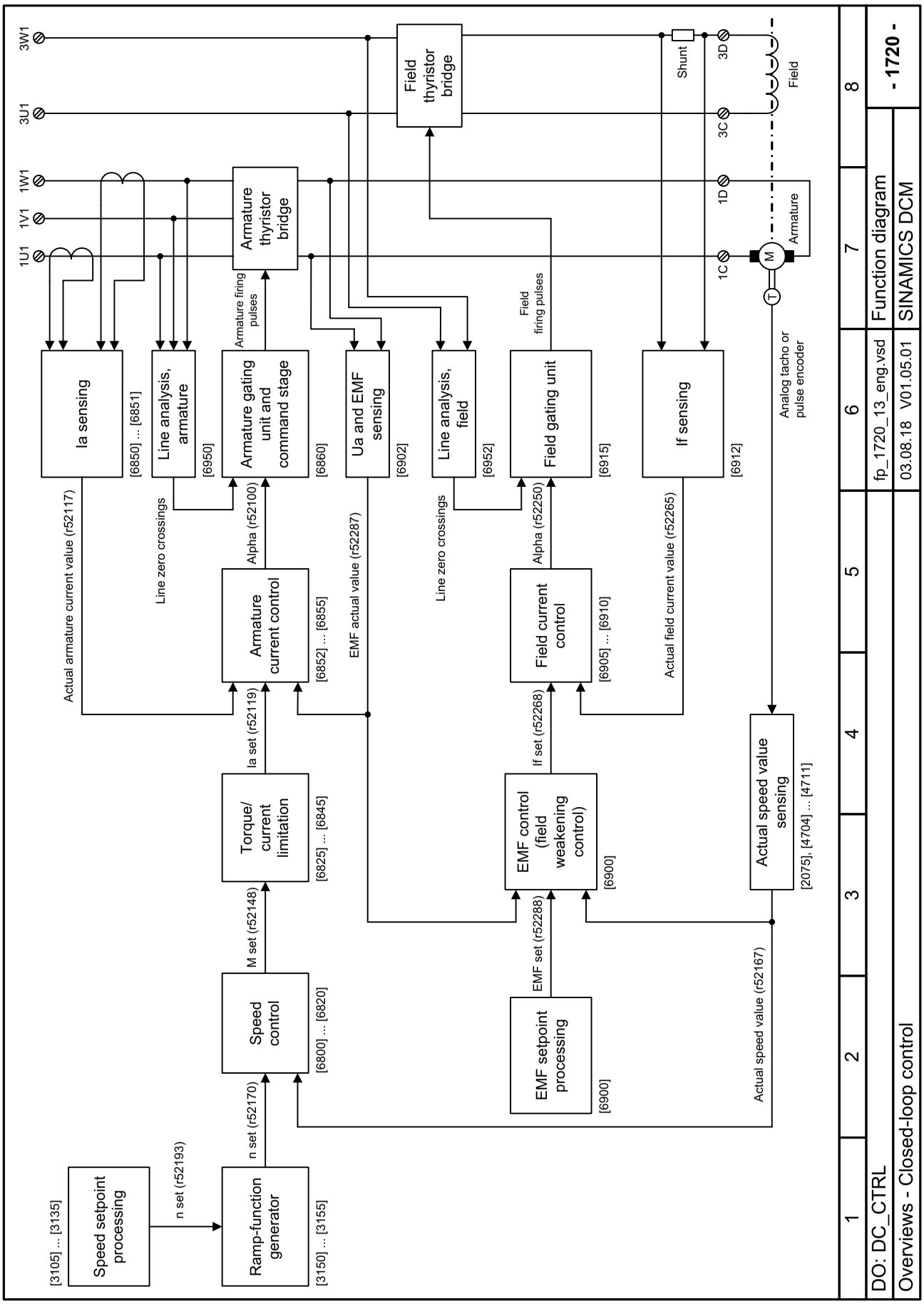


Fig. 3-6 1720 – Closed-loop control

The most important control blocks can be activated/deactivated using parameter p50899.

Note 1:
This parameter is evaluated only once during a ramp-up, meaning that a change only becomes effective after a POWER ON or after a ramp-up with saved parameters (p0976 = 11).

Note 2:
The ability to deactivate control function blocks is intended for all users who wish to configure their own control system using Drive Control Chart (DCC), e.g. because they are using the SINAMICS DC MASTER to operate something other than a motor (such as the excitation winding of a synchronous generator).
Deactivating control function blocks that are not required frees up CPU time for the DCC function blocks.

Parameter	Meaning	
p50899[0]	Speed setpoint processing ([3105] … [3135])	<1>
p50899[1]	Ramp-function generator ([3150] … [3155])	
p50899[2]	Speed control ([6800] … [6820])	<2>
p50899[3]	Torque limitation/current limitation ([6825] … [6845], [8040])	
p50899[4]	Armature current control ([6852] … [6855])	
p50899[5]	EMF setpoint processing and EMF control ([6900])	
p50899[6]	Field current control ([6905] … [6910])	

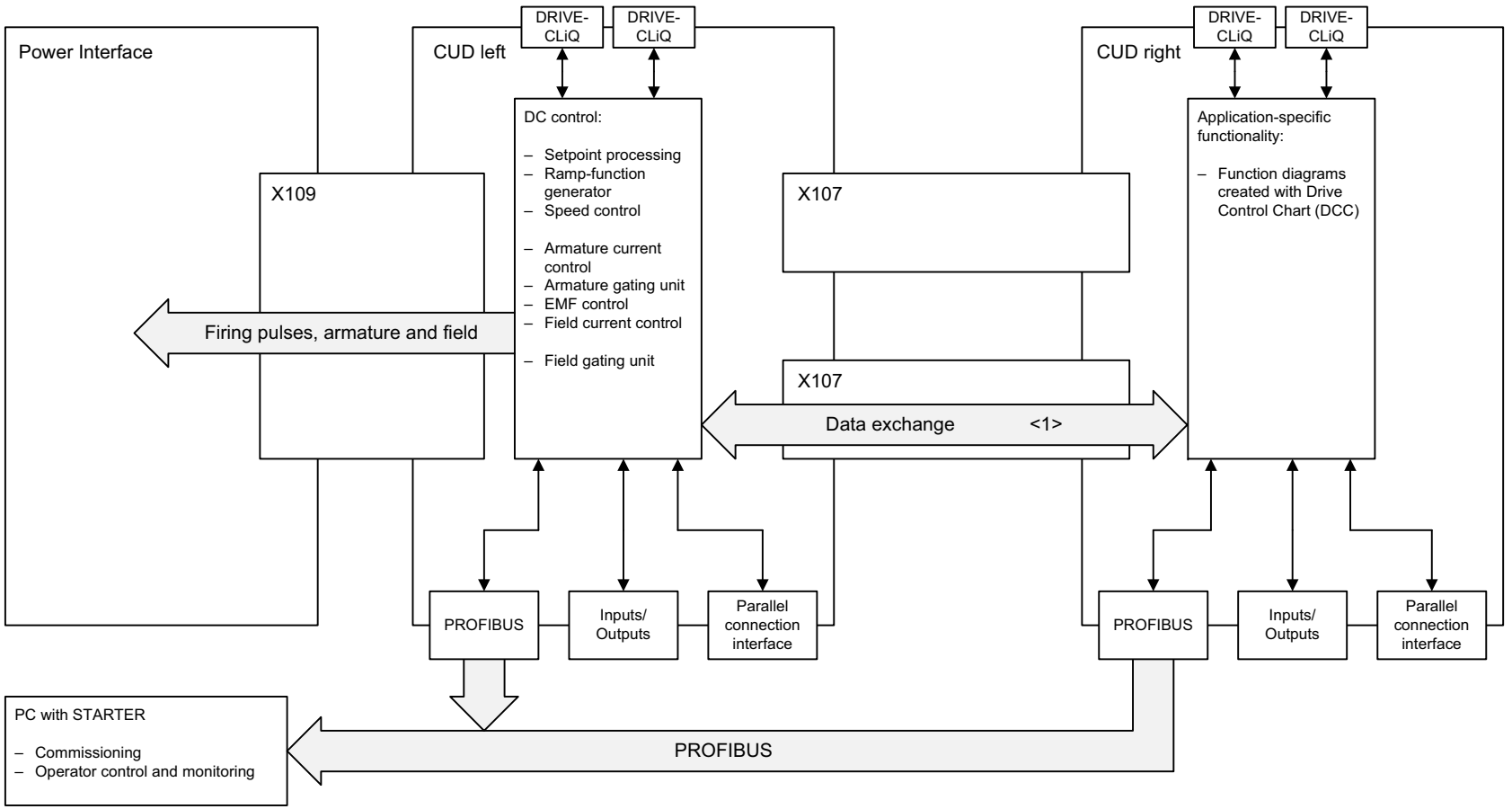
<1> Exception [3130]:
The switch-on command and the intervention of r0807.0 and r53010.2 are always active.

<2> Exception [6810]:
The "Selection of the actual speed value" is always active.

p50899[0…6] = 0: Block is deactivated
p50899[0…6] = 1: Block is activated

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_1721_13_eng.vsd	Function diagram	- 1721 -
Overviews - Control functions activation/deactivation					23.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-7 1721 – Closed-loop control functions - activation/deactivation



NOTE:
Operator control/monitoring and commissioning of the right-hand CUD cannot be carried out on the BOP20, only via STARTER!
For this purpose, both the left-hand CUD and the right-hand CUD must be connected via PROFIBUS.
Each of the two CUDs is a separate PROFIBUS node.

<1> Data exchange via parallel connection interface [9350].

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_1722_13_eng.vsd	Function diagram	- 1722 -
Overviews - CUD left, CUD right					23.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-8 1722 – CUD left, CUD right

3.4 CUD input/output terminals

Function diagrams

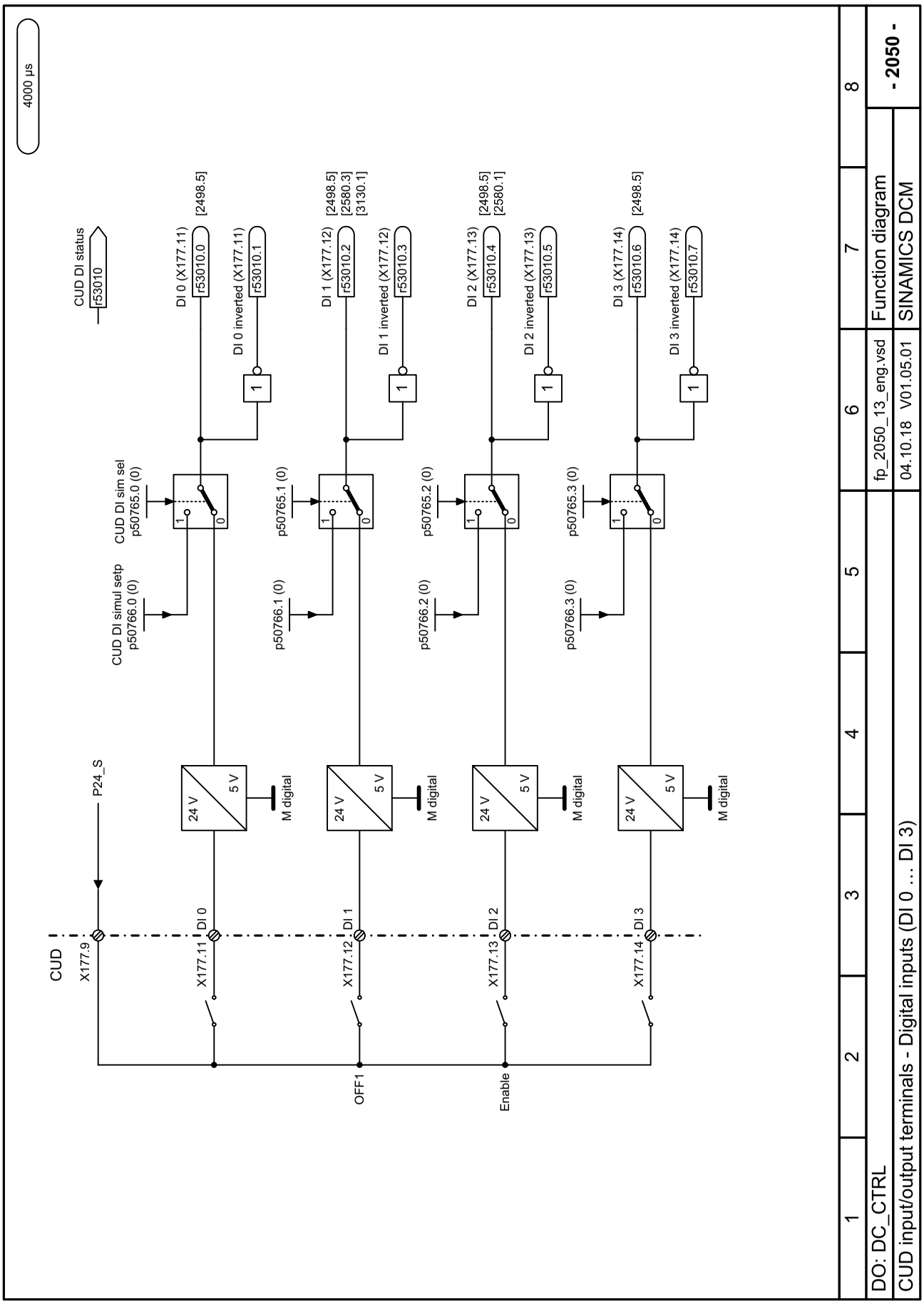


Fig. 3-9 2050 – Digital inputs (DI 0 ... DI 3)

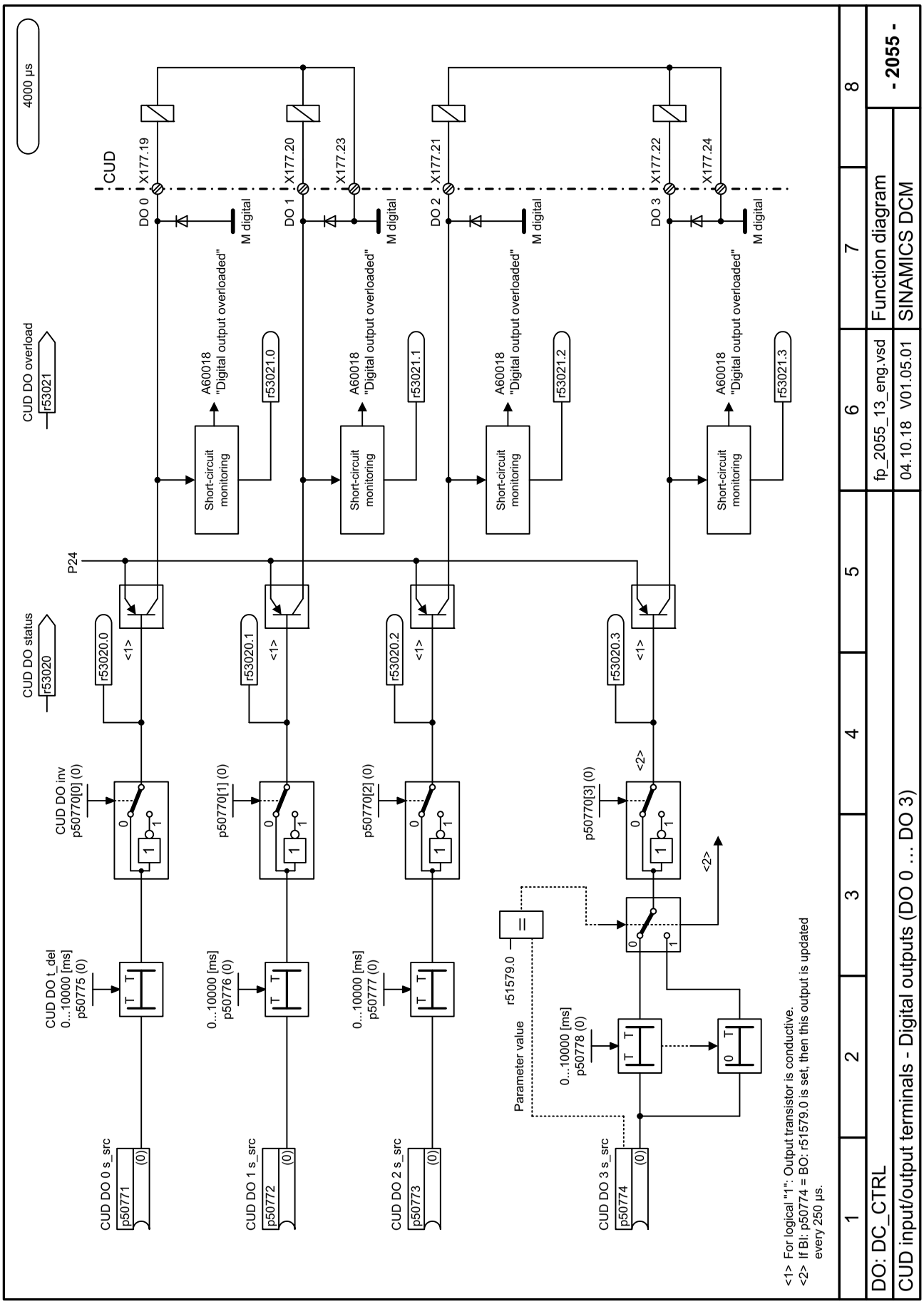


Fig. 3-10 2055 – Digital outputs (DO 0 ... DO 3)

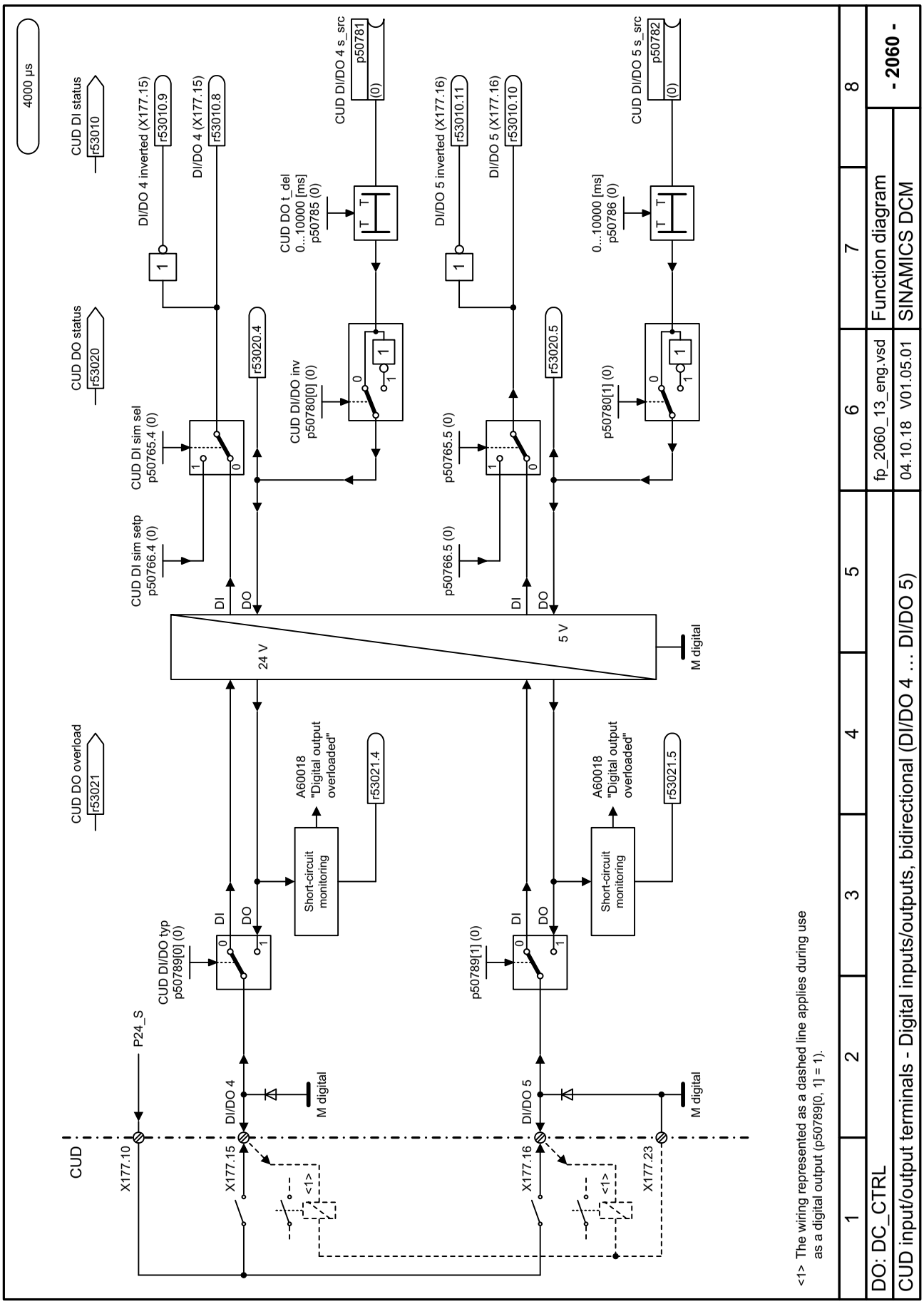


Fig. 3-11 2060 – Digital inputs/outputs, bidirectional (DI/DO 4 ... DI/DO 5)

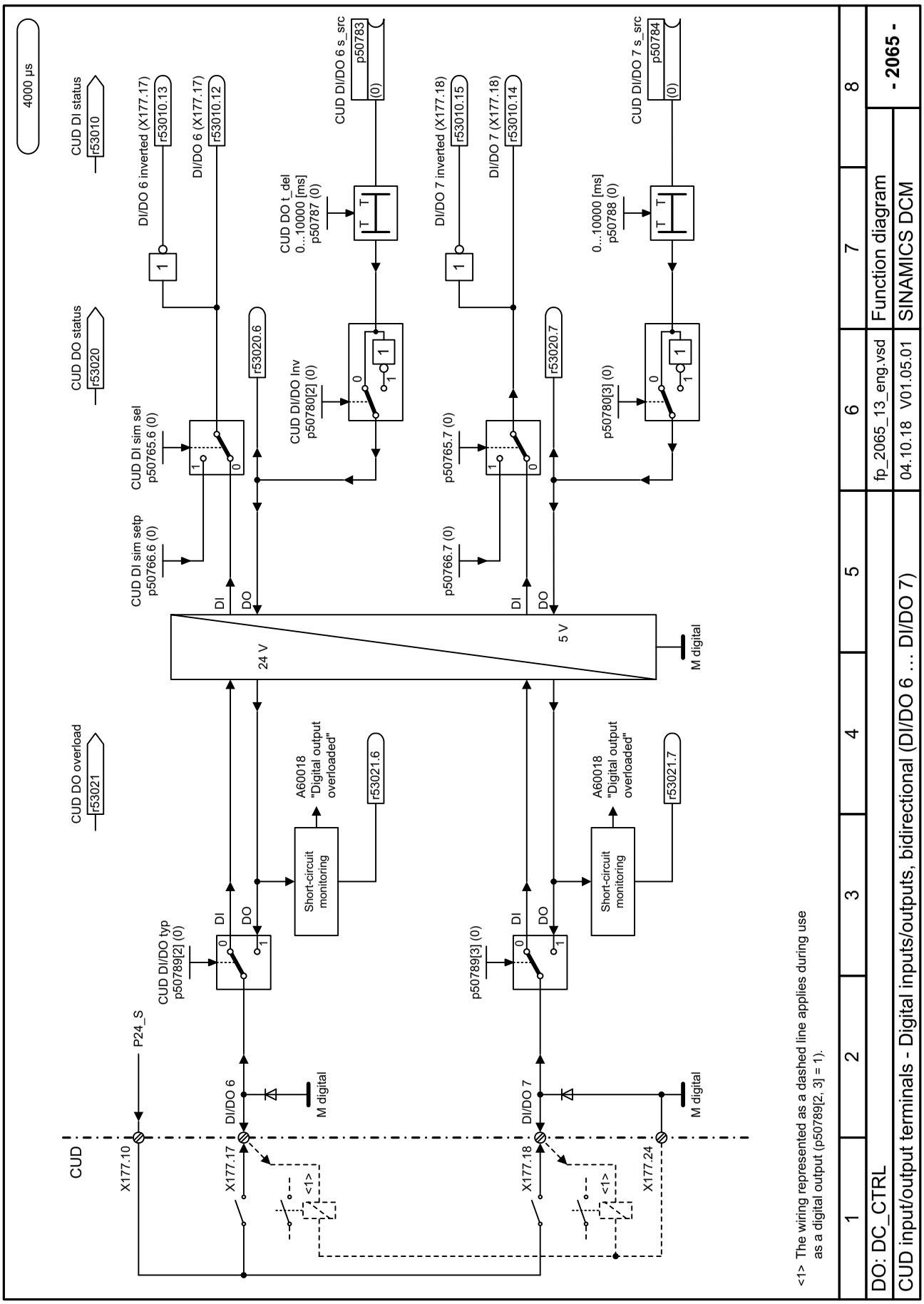


Fig. 3-12 2065 – Digital inputs/outputs, bidirectional (DI/DO 6 ... DI/DO 7)

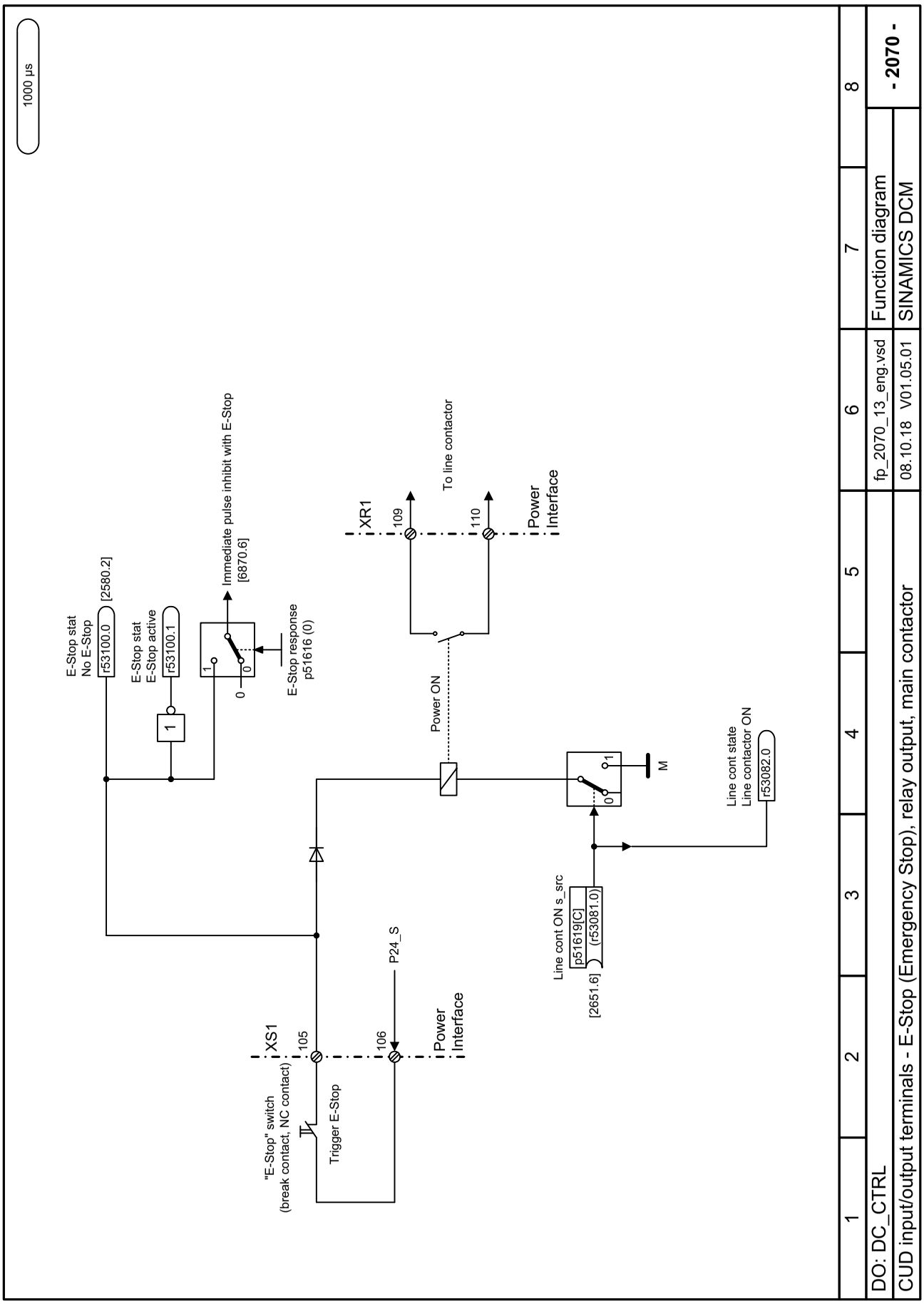
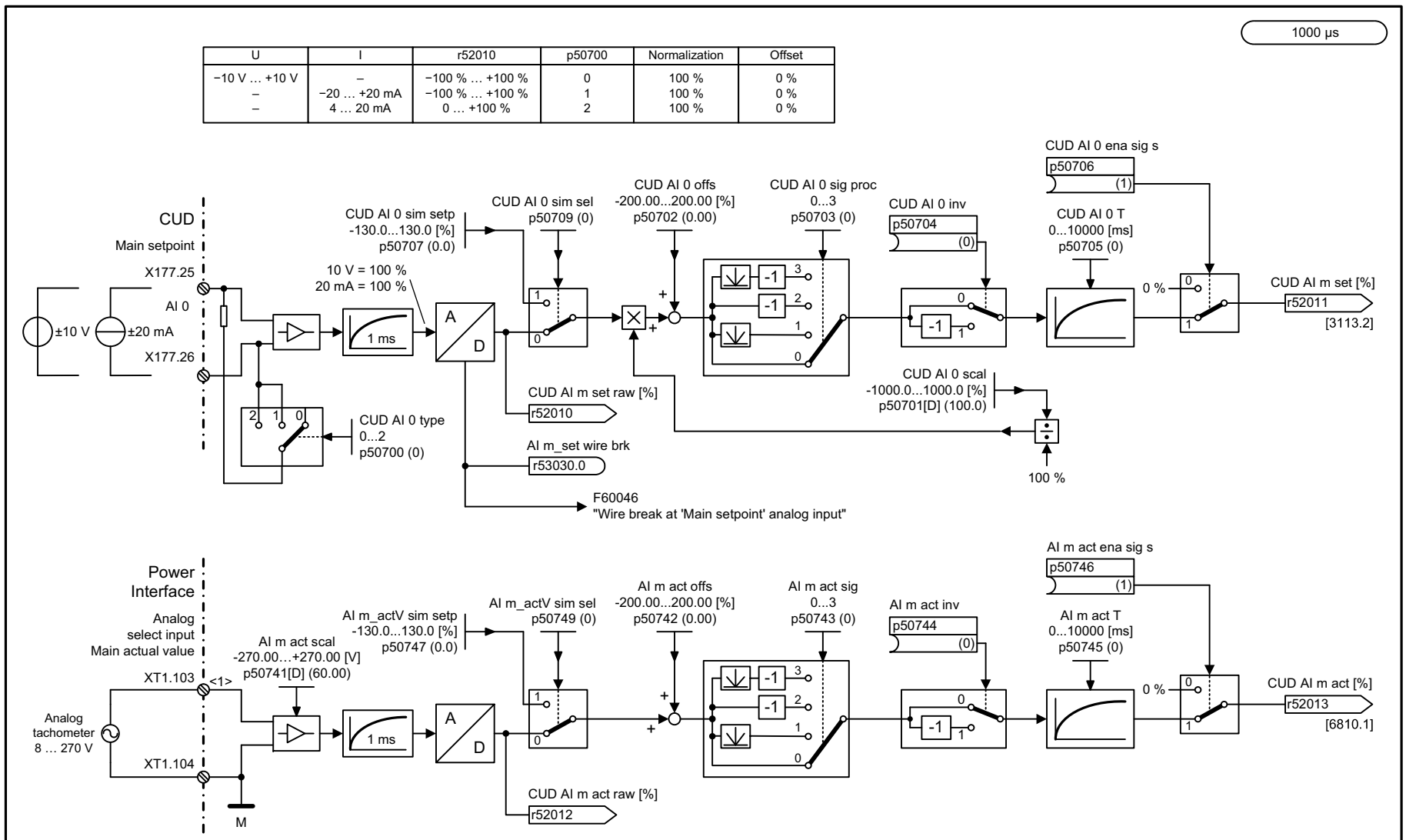


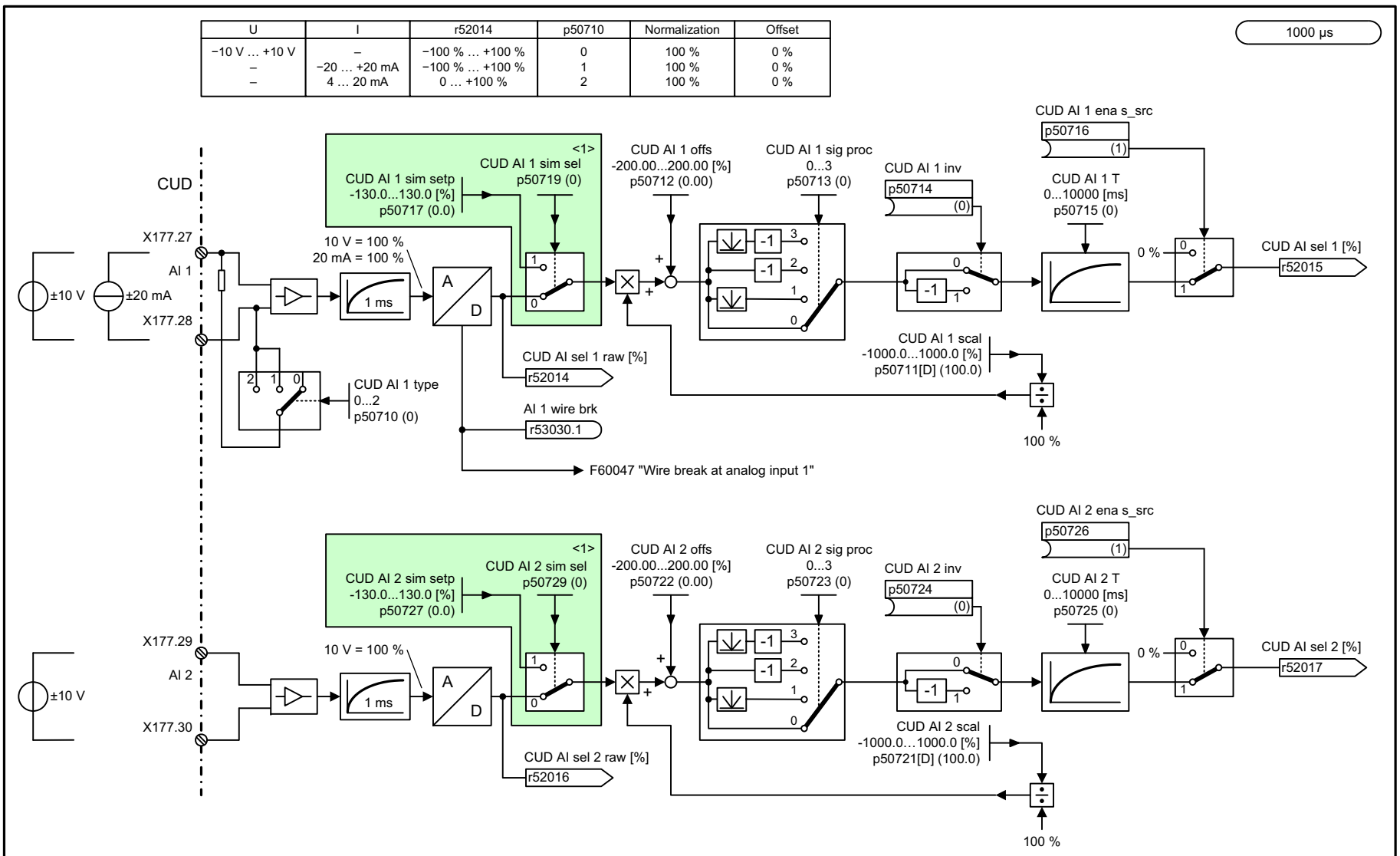
Fig. 3-13 2070 – E-Stop (Emergency Stop), relay output, main contactor



<1> Permissible input voltage: −p50741 to +p50741
Absolute maximum: −270 V to +270 V.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2075_13_eng.vsd	Function diagram	- 2075 -
CUD input/output terminals - Analog inputs (AI 0 and XT1.103/104)					04.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-14 2075 – Analog inputs (AI 0 and XT1.103/104)



1	2	3	4	5	6	7	8
DO: DC_CTRL, DCP_CTRL					fp_2080_70_eng.vsd	Function diagram	- 2080 -
CUD input/output terminals - Analog inputs (AI 1 … AI 2)					05.10.18 V01.05.01	SINAMICS DCM/DCP	

Fig. 3-15 2080 – Analog inputs (AI 1 ... AI 2)

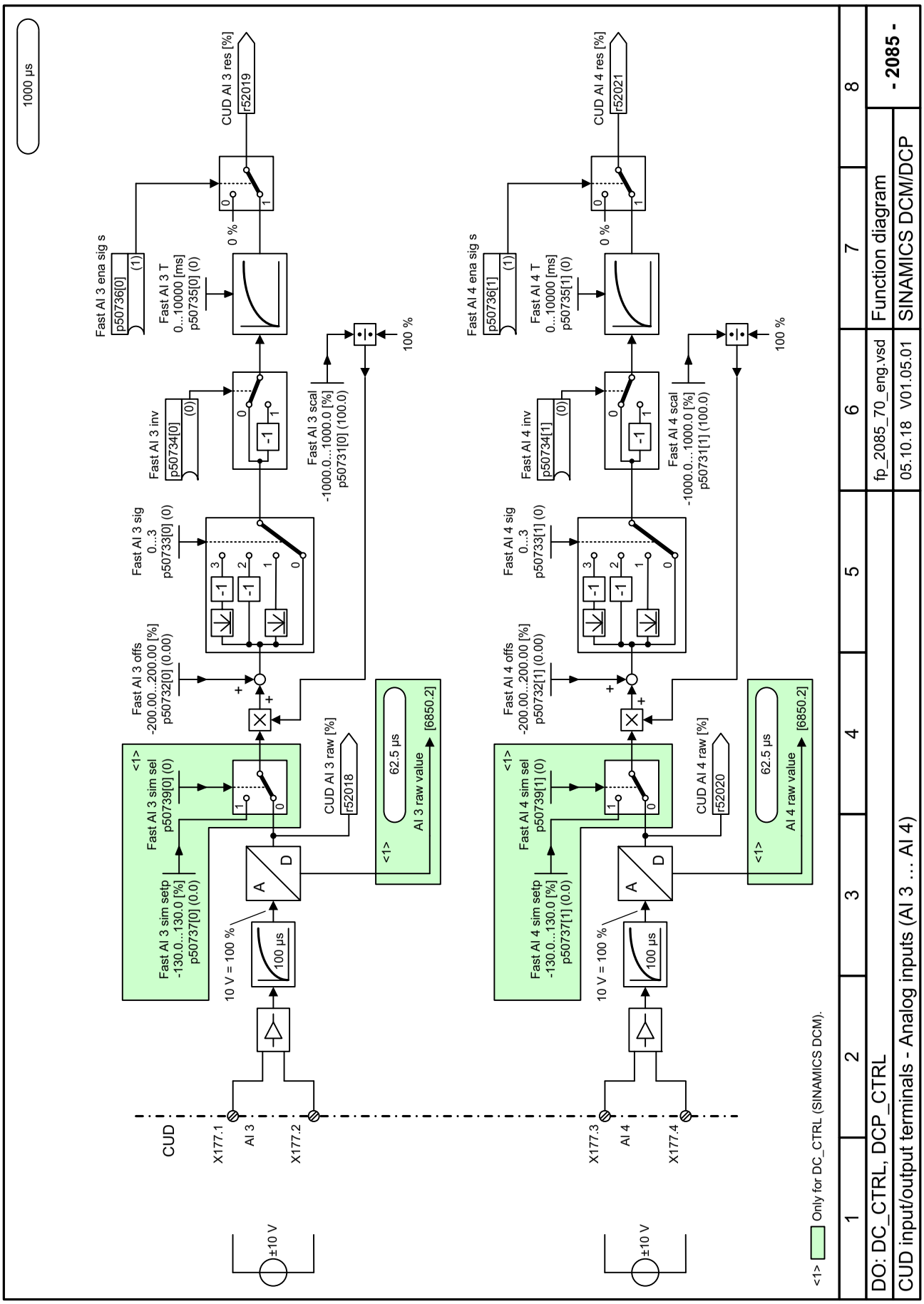


Fig. 3-16 2085 – Analog inputs (AI 3 ... AI 4)

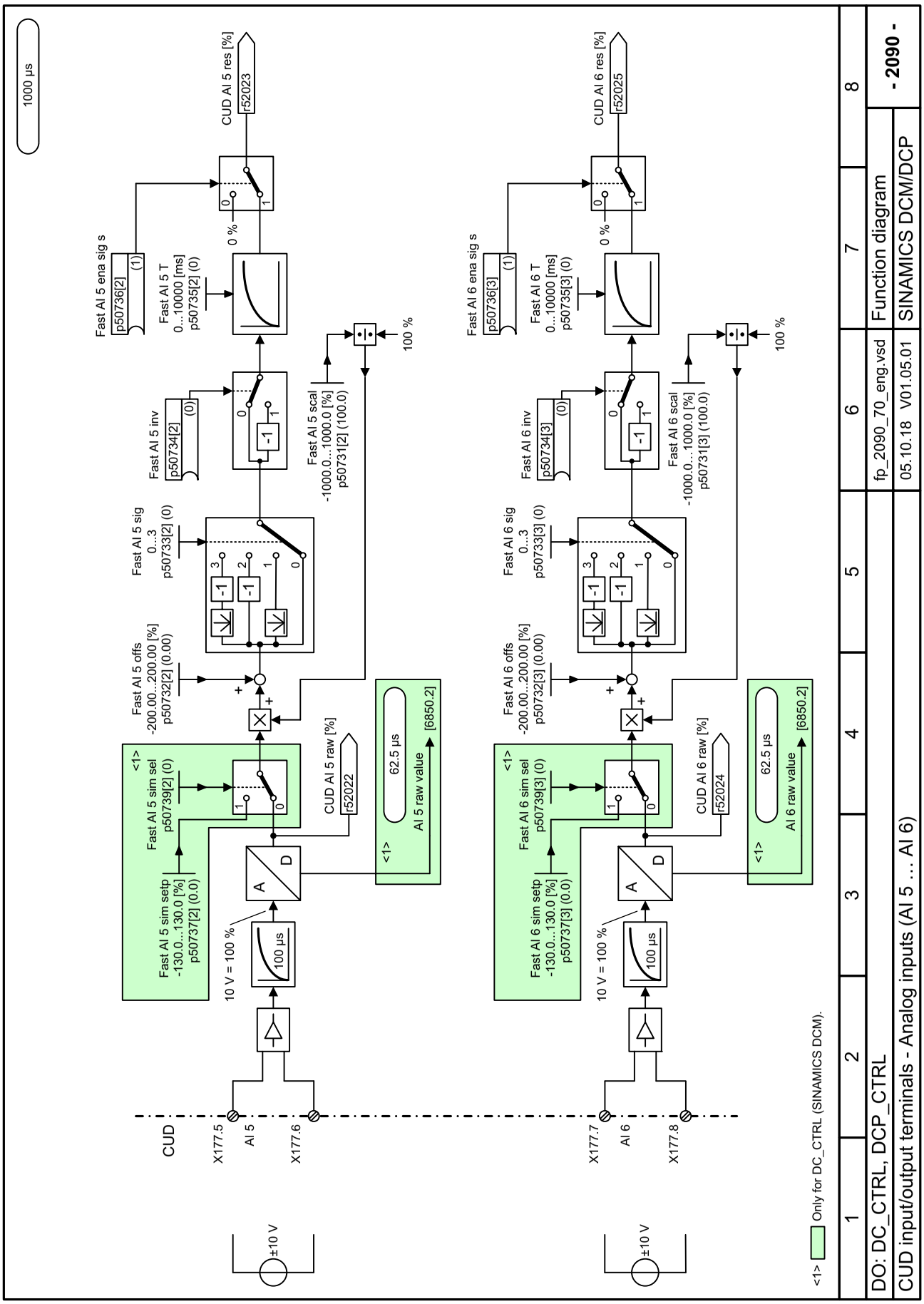


Fig. 3-17 2090 – Analog inputs (AI 5 ... AI 6)

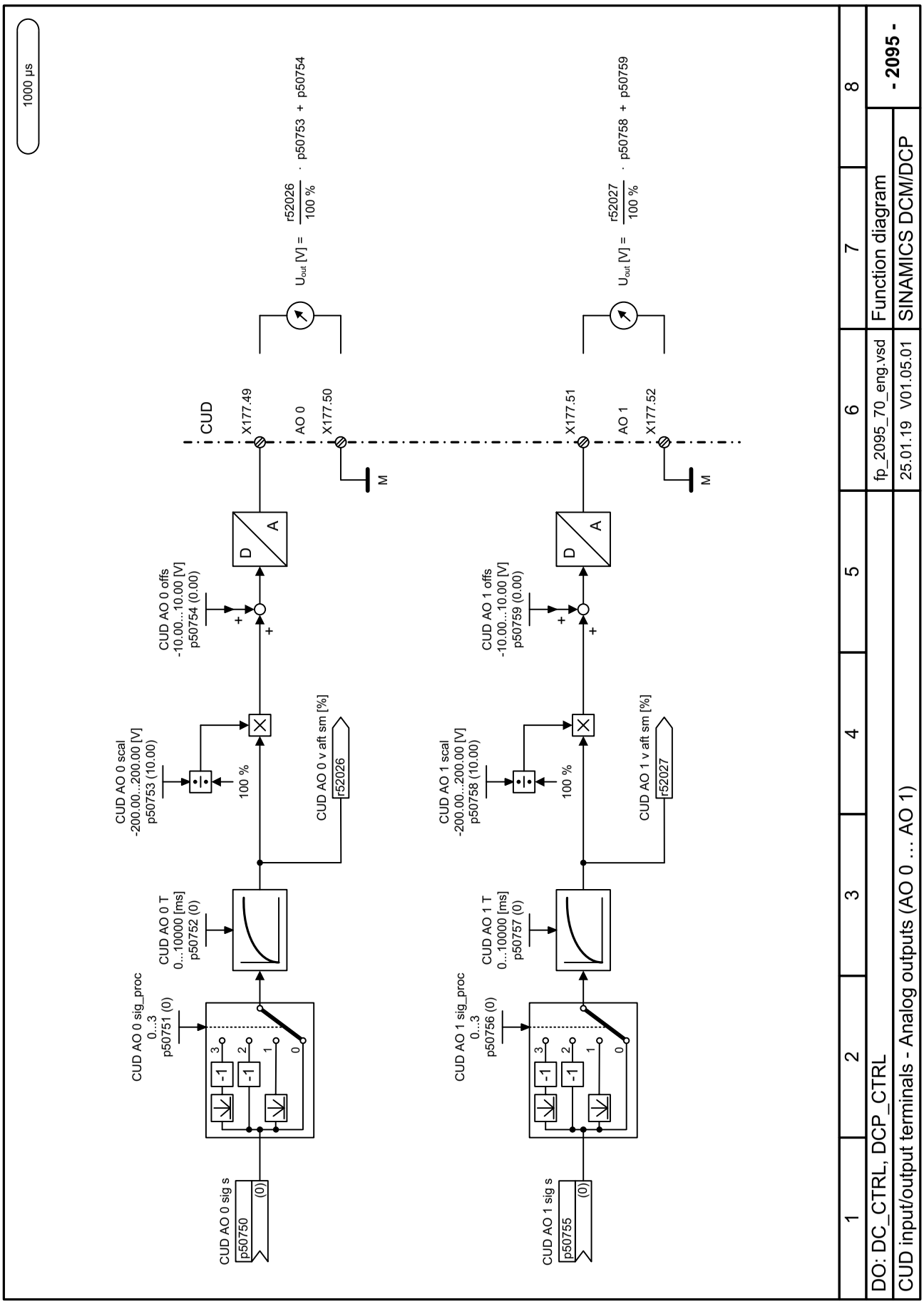


Fig. 3-18 2095 – Analog outputs (AO 0 ... AO 1)

3.5 Control Unit communication

Function diagrams

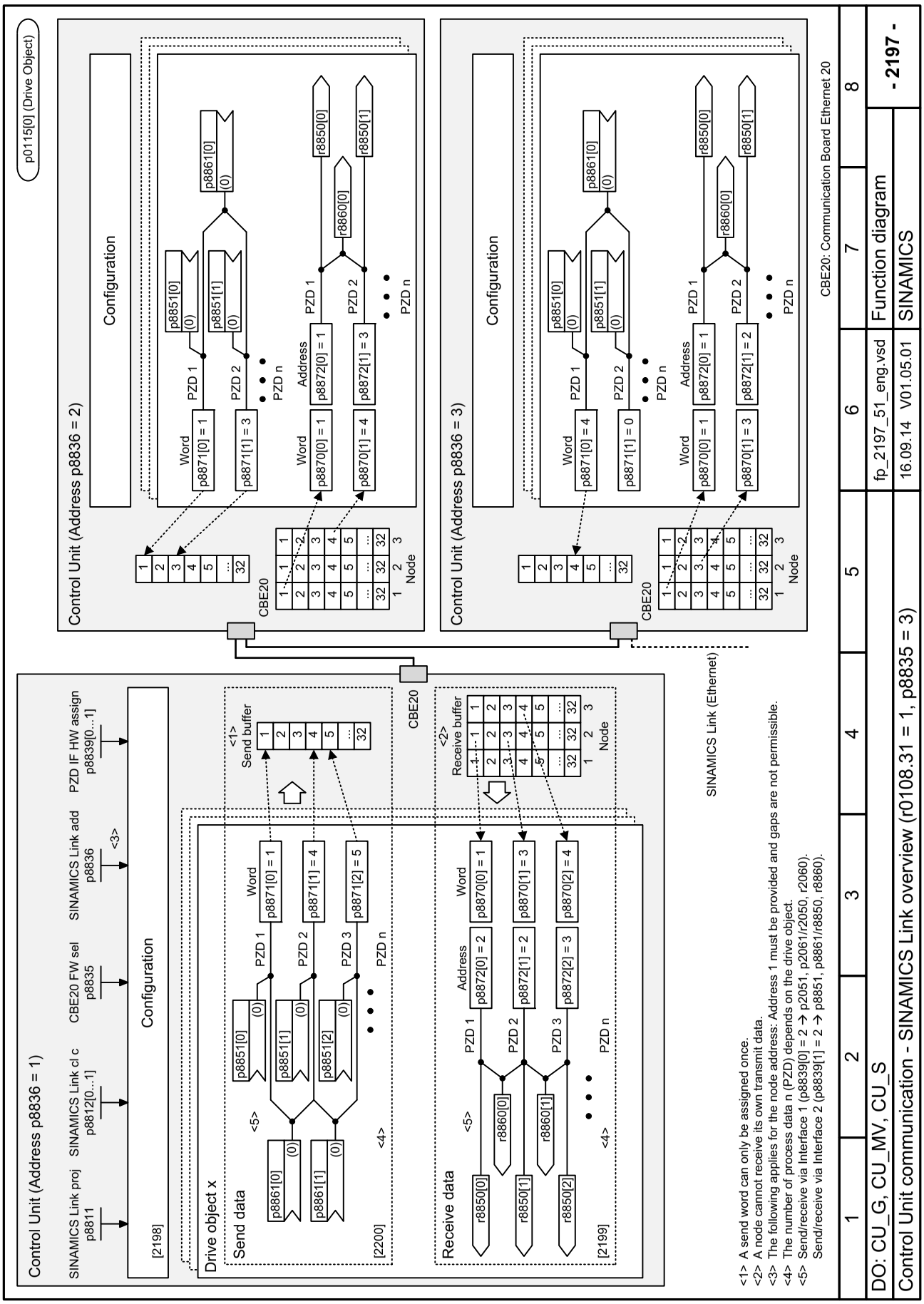
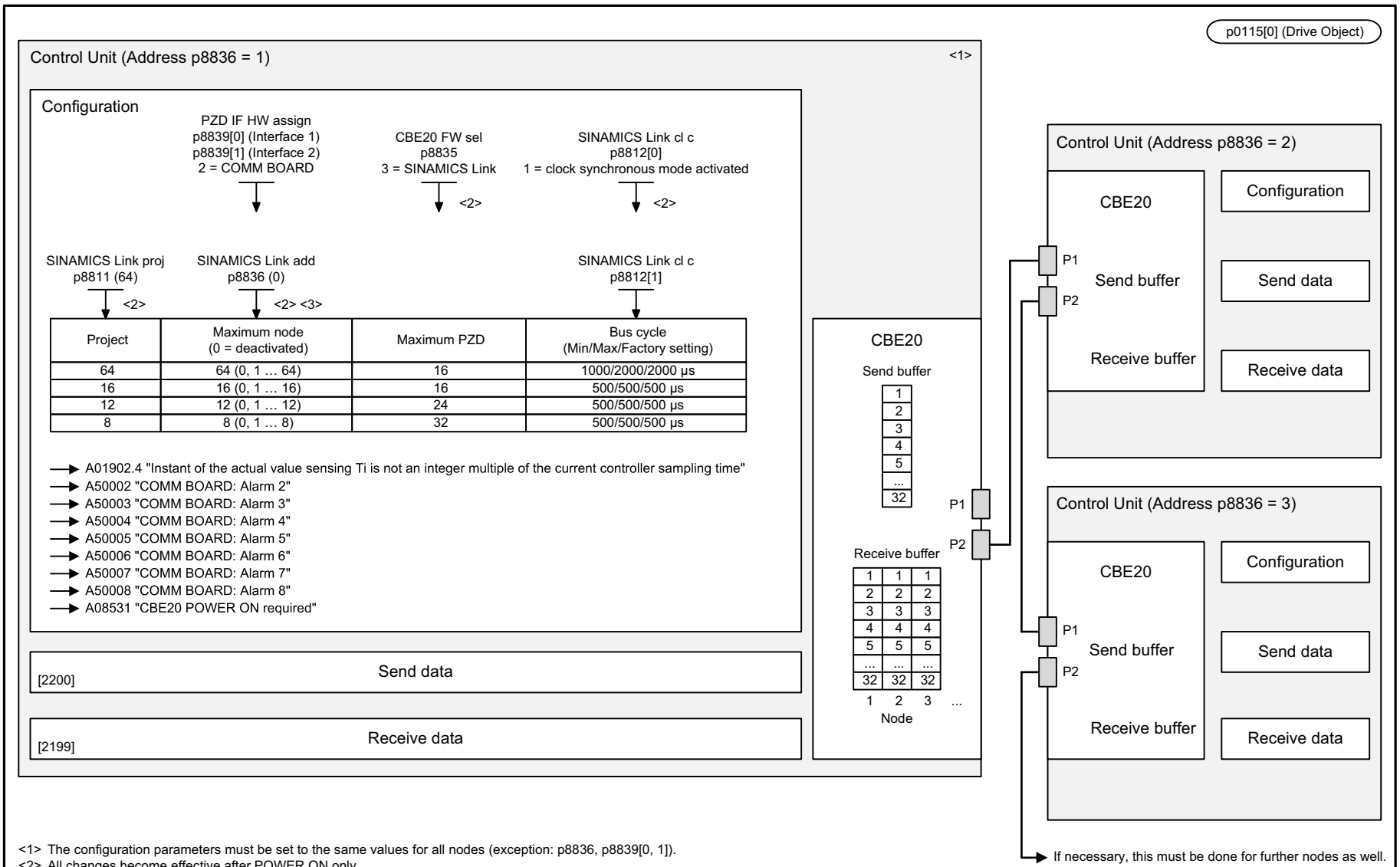


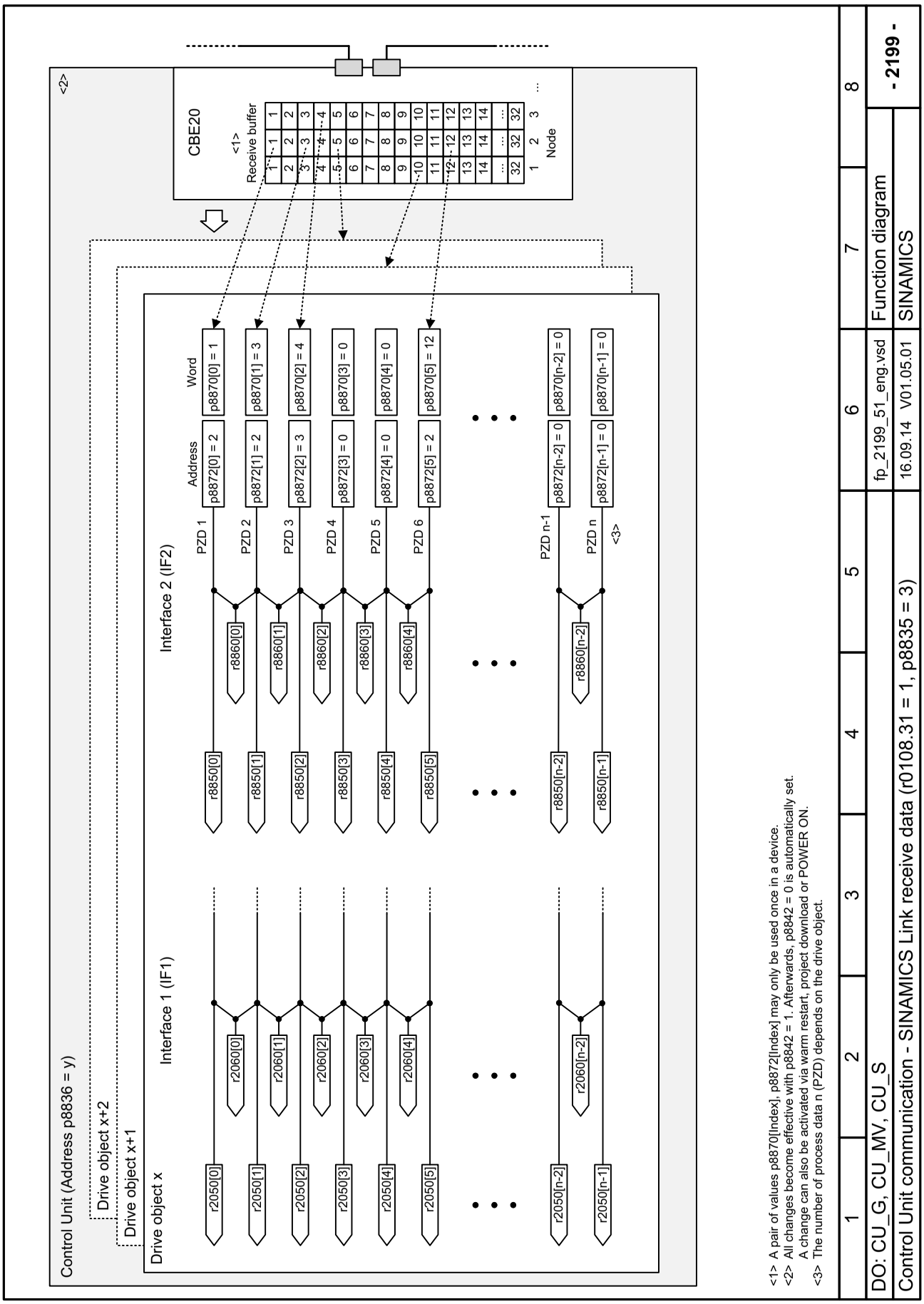
Fig. 3-19 2197 – SINAMICS Link overview (r0108.31 = 1, p8835 = 3)



<1> The configuration parameters must be set to the same values for all nodes (exception: p8836, p8839[0, 1]).
<2> All changes become effective after POWER ON only.
<3> The following applies for the node address: Address 1 must be provided and gaps are not permissible.

1	2	3	4	5	6	7	8
DO: CU_G, CU_MV, CU_S					fp_2198_51_eng.vsd	Function diagram	- 2198 -
Control Unit communication - SINAMICS Link configuration (r0108.31 = 1, p8835 = 3)					08.10.14 V01.05.01	SINAMICS	

Fig. 3-20 2198 – SINAMICS Link configuration (r0108.31 = 1, p8835 = 3)



<1> A pair of values p8870[Index], p8872[Index] may only be used once in a device.
<2> All changes become effective with p8842 = 1. Afterwards, p8842 = 0 is automatically set.
A change can also be activated via warm restart, project download or POWER ON.
<3> The number of process data n (PZD) depends on the drive object.

Fig. 3-21 2199 – SINAMICS Link receive data (r0108.31 = 1, p8835 = 3)

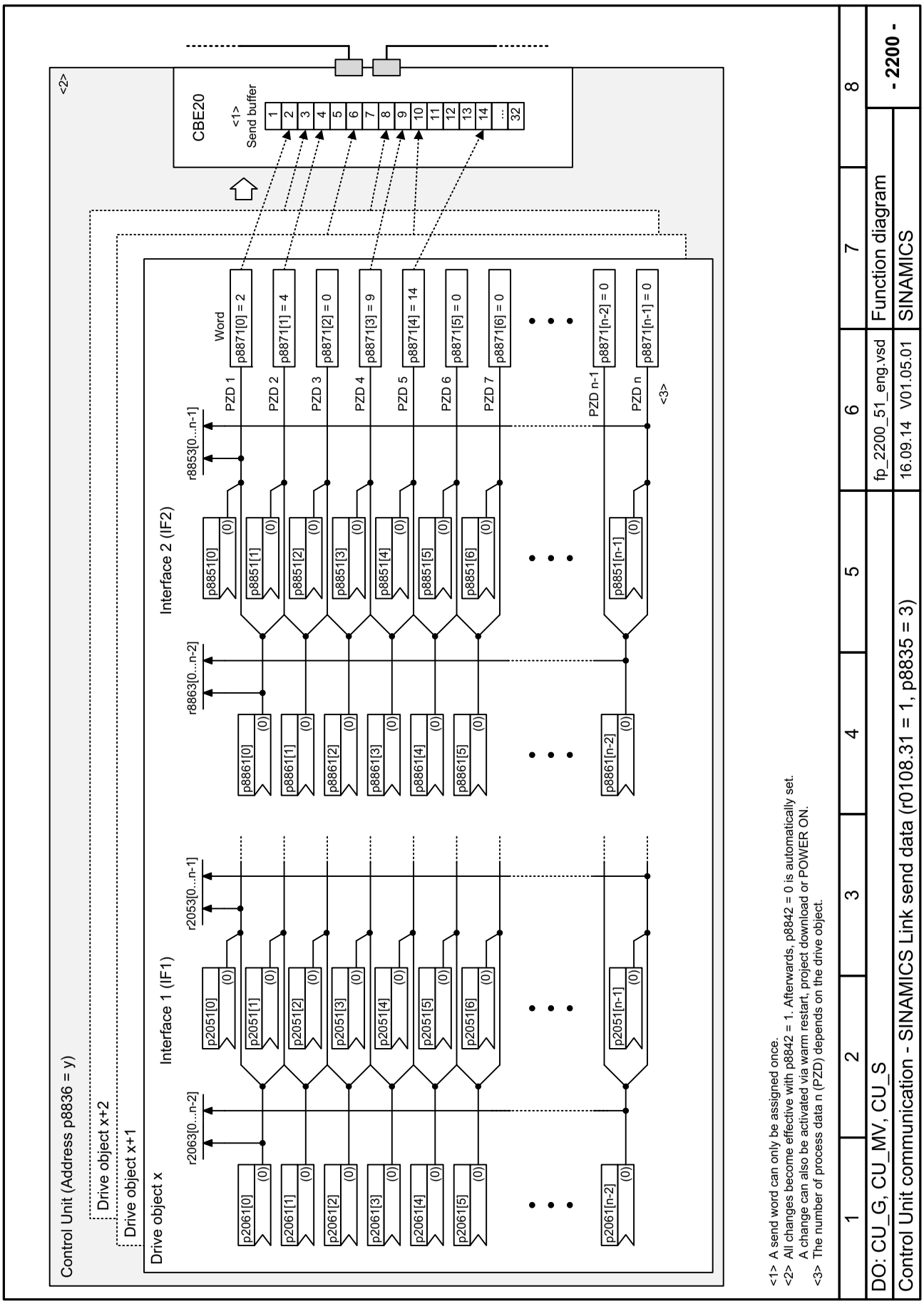


Fig. 3-22 2200 – SINAMICS Link send data (r0108.31 = 1, p8835 = 3)

3.6 PROFIdrive

Function diagrams

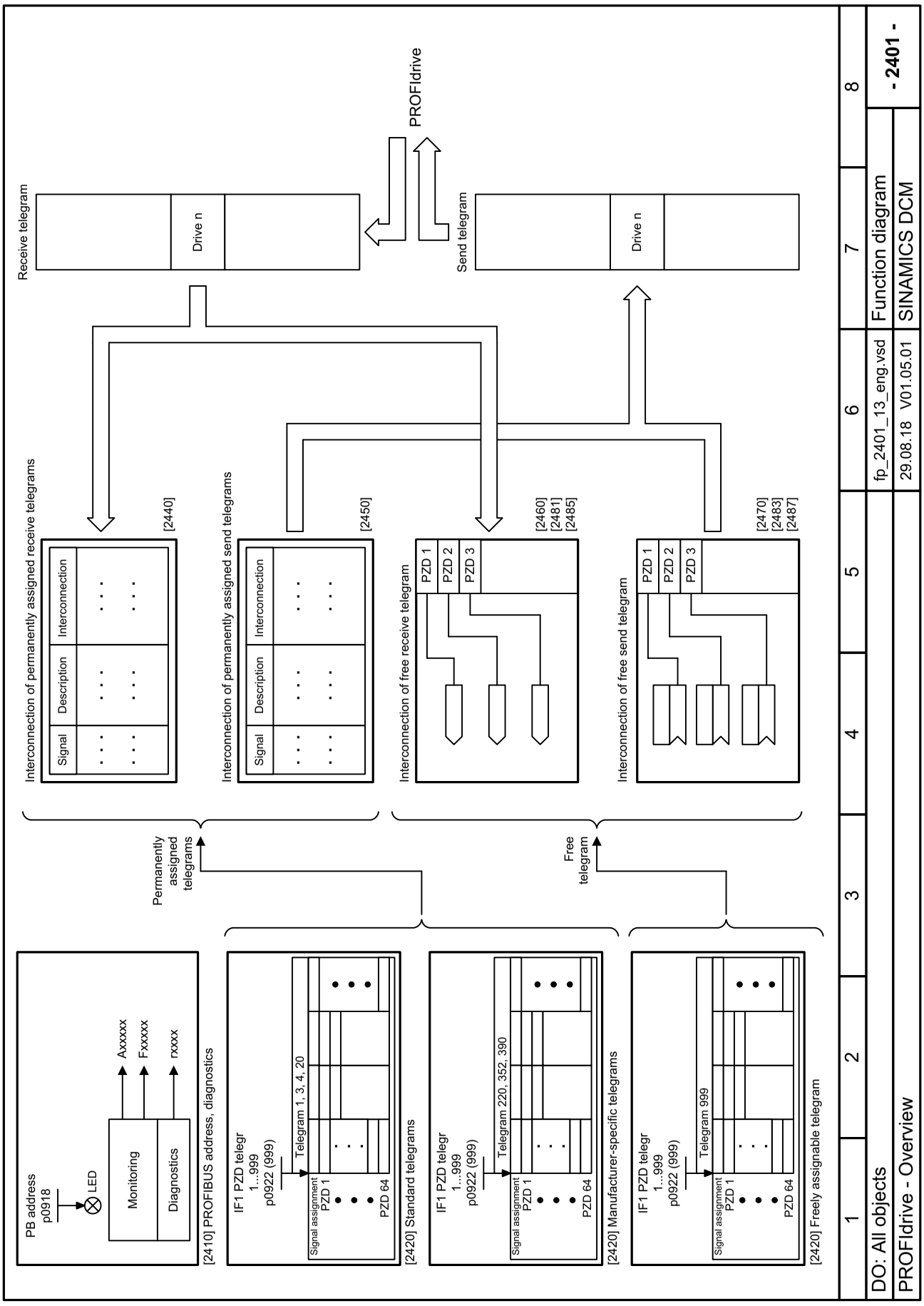
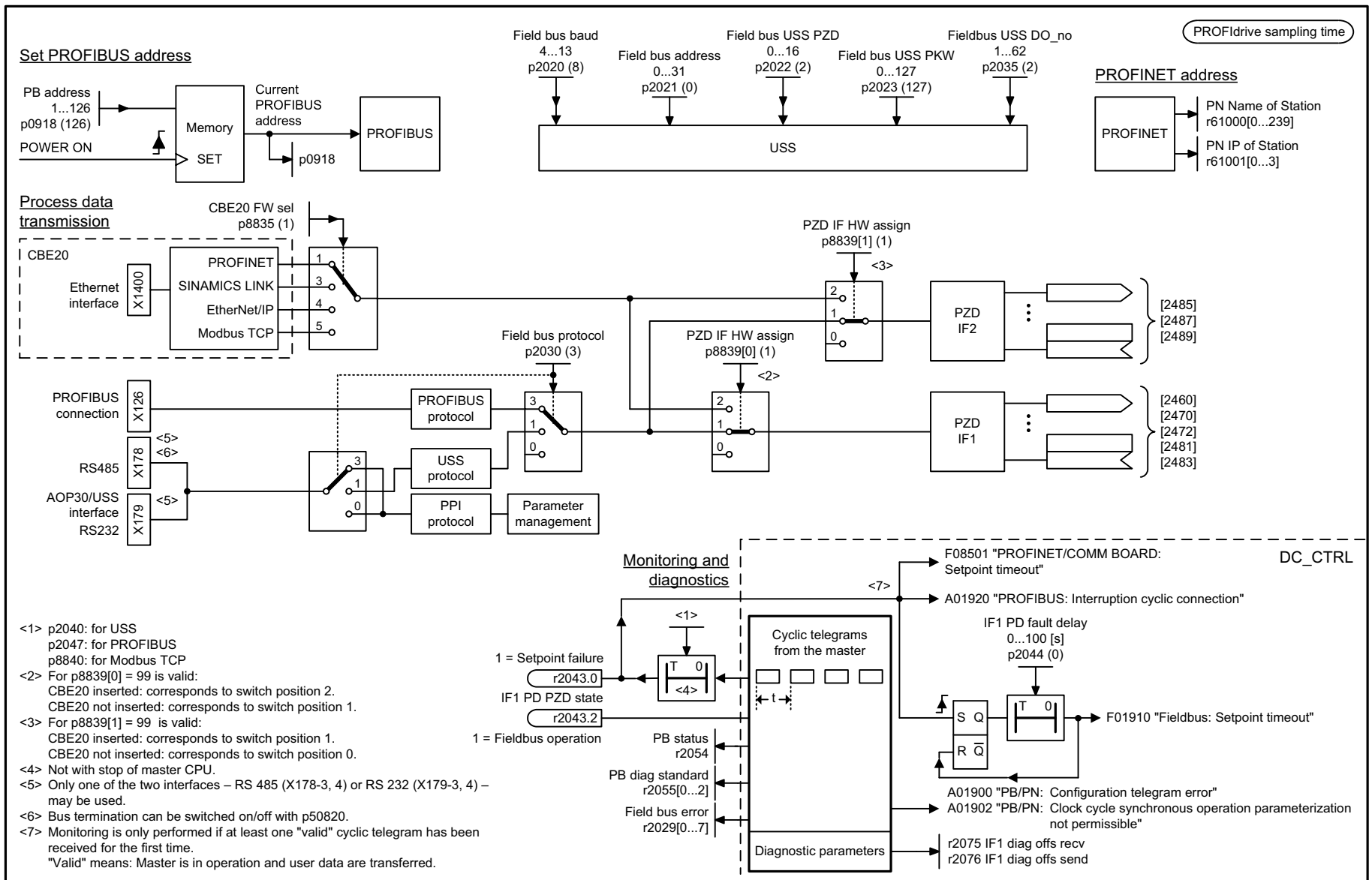


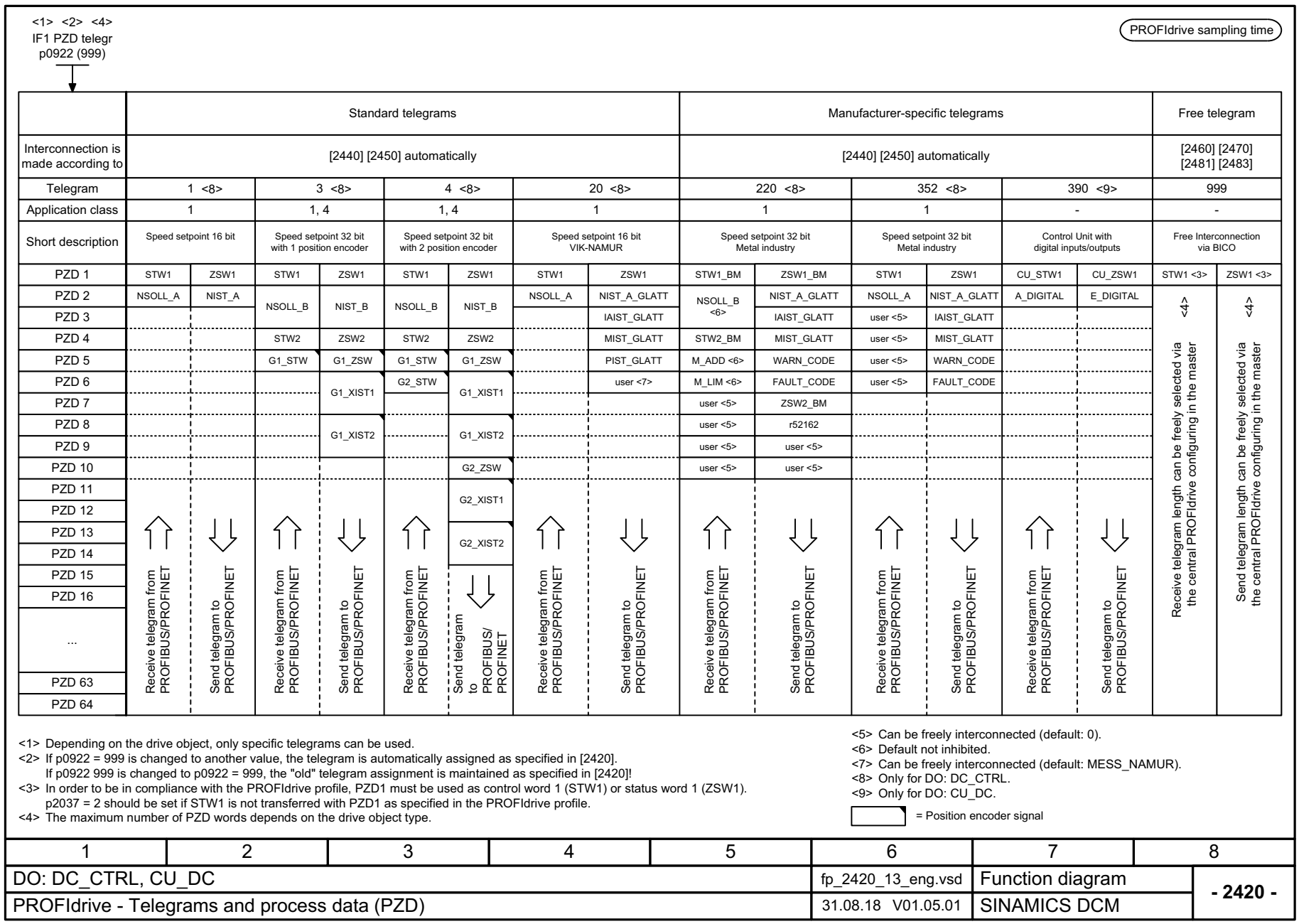
Fig. 3-23 2401 – Overview



<1> p2040: for USS
p2047: for PROFIBUS
p8840: for Modbus TCP
<2> For p8839[0] = 99 is valid:
CBE20 inserted: corresponds to switch position 2.
CBE20 not inserted: corresponds to switch position 1.
<3> For p8839[1] = 99 is valid:
CBE20 inserted: corresponds to switch position 1.
CBE20 not inserted: corresponds to switch position 0.
<4> Not with stop of master CPU.
<5> Only one of the two interfaces – RS 485 (X178-3, 4) or RS 232 (X179-3, 4) – may be used.
<6> Bus termination can be switched on/off with p50820.
<7> Monitoring is only performed if at least one "valid" cyclic telegram has been received for the first time.
"Valid" means: Master is in operation and user data are transferred.

1	2	3	4	5	6	7	8
DO: CU_DC, DC_CTRL					fp_2410_13_eng.vsd	Function diagram	- 2410 -
PROFIdrive - PROFIBUS (PB) / PROFINET (PN) / USS, addresses and diagnostics					17.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-24 2410 – PROFIBUS (PB) / PROFINET (PN), addresses and diagnostics



<1> Depending on the drive object, only specific telegrams can be used.
<2> If p0922 = 999 is changed to another value, the telegram is automatically assigned as specified in [2420].
If p0922 999 is changed to p0922 = 999, the "old" telegram assignment is maintained as specified in [2420]!
<3> In order to be in compliance with the PROFIdrive profile, PZD1 must be used as control word 1 (STW1) or status word 1 (ZSW1).
p2037 = 2 should be set if STW1 is not transferred with PZD1 as specified in the PROFIdrive profile.
<4> The maximum number of PZD words depends on the drive object type.

<5> Can be freely interconnected (default: 0).
<6> Default not inhibited.
<7> Can be freely interconnected (default: MESS_NAMUR).
<8> Only for DO: DC_CTRL.
<9> Only for DO: CU_DC.

= Position encoder signal

1	2	3	4	5	6	7	8
DO: DC_CTRL, CU_DC					fp_2420_13_eng.vsd	Function diagram	- 2420 -
PROFIdrive - Telegrams and process data (PZD)					31.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-25 2420 – Telegrams and process data (PZD)

PROFIdrive sampling time

Signal destinations for STW1_BM for telegram 220

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
STW1.0	**0 = OFF (OFF1)** ↑ = ON	p0840[0] = r2090.0	[2580.1]	–
STW1.1	**0 = OFF2** (immediate pulse suppression and switching on inhibited) 1 = No OFF2 (enable possible)	p0844[0] = r2090.1	[2580.1]	–
STW1.2	**0 = OFF3** (braking along the OFF3 ramp, then pulse suppression and switching on inhibited) 1 = No OFF3 (enable possible)	p0848[0] = r2090.2	[2580.1]	–
STW1.3	0 = Inhibit operation **1 = Enable operation**	p2816[0] = r2090.3	[2655.7]	–
STW1.4	**0 = Set ramp-function generator zero** 1 = Enable ramp-function generator	p1140[0] = r2090.4	[2580.3]	–
STW1.5	**0 = Freeze ramp-function generator** 1 = Continue ramp-function generator	p1141[0] = r2090.5	[2580.3]	–
STW1.6	**0 = Speed setpoint = 0** 1 = Speed setpoint enable	p1142[0] = r2090.6	[2580.3]	–
STW1.7	**↑ = Acknowledge fault**	p2103[0] = r2090.7	[2546.1]	–
STW1.8	**Reserved**	–	–	–
STW1.9	**Reserved**	–	–	–
STW1.10	**1 = Control via PLC** <1>	p0854[0] = r2090.10	[2580.3]	–
STW1.11	**Reserved**	–	–	–
STW1.12	**Reserved** <2>	– <2>	–	–
STW1.13	**Reserved** <2>	– <2>	–	–
STW1.14	**Reserved** <2>	– <2>	–	–
STW1.15	**Reserved** <2>	– <2>	–	–

<1> STW1.10 must be set in order for the drive object to accept the process data (PZD).
<2> Interconnection is not inhibited.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2425_13_eng.vsd	Function diagram	- 2425 -
PROFIdrive - STW1_BM control word sector metal interconnection					26.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-26 2425 – STW1_BM control word, metal industry interconnection

PROFIdrive sampling time

Signal destinations for STW2_BM for telegram 220

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
STW2.0	**Command data set selection CDS bit 0**	p0810 = r2093.0	[8560.3]	–
STW2.1	**Reserved;** bit must always be set to 0	–	–	–
STW2.2	**Command data set selection DDS bit 0** <1>	p0820[0] = r2093.2 <1>	[8565.3]	–
STW2.3	**Command data set selection DDS bit 1** <1>	p0821[0] = r2093.3 <1>	[8565.3]	–
STW2.4	**Reserved;** bit must always be set to 0	–	–	–
STW2.5	**1 = Bridge ramp-function generator**	p50641[0] = r2093.5	[3152.1]	–
STW2.6	**Reserved**	–	–	–
STW2.7	**1 = Speed controller integration value set**	p50695[0] = r2093.7	[6815.1]	–
STW2.8	**1 = Enable droop**	p50684[0] = r2093.8	[6805.4]	–
STW2.9	**1 = Enable speed controller** <1>	p0856[0] = r2093.9 <1>	[2580.3]	–
STW2.10	**Reserved** <1>	– <1>	–	–
STW2.11	0 = Speed-controlled operation **1 = Torque-controlled operation**	p50687[0] = r2093.11	[6830.2]	–
STW2.12	**Reserved** <1>	– <1>	–	–
STW2.13	**Reserved** <1>	– <1>	–	–
STW2.14	**Reserved** <1>	– <1>	–	–
STW2.15	**Controller sign-of-life toggle bit**	p2081[15] = r2093.15	[2472.1]	–

<1> Interconnection is not inhibited.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2426_13_eng.vsd	Function diagram	- 2426 -
PROFIdrive - STW2_BM control word sector metal interconnection					28.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-27 2426 – STW2_BM control word, metal industry interconnection

PROFIdrive sampling time

Signal sources for ZSW1_BM for telegram 220 <1>

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
ZSW1.0	**1 = Ready to switch on**	p2080[0] = r0899.0	[2585.7]	–
ZSW1.1	**1 = Ready**	p2080[1] = r0899.1	[2585.7]	–
ZSW1.2	**1 = Operation enabled**	p2080[2] = r2811.0	[2655.8]	–
ZSW1.3	**1 = Fault effective**	p2080[3] = r2139.3	[2548.7]	–
ZSW1.4	**0 = Coasting down active** (OFF2)	p2080[4] = r0899.4	[2585.7]	–
ZSW1.5	**0 = Quick stop active** (OFF3)	p2080[5] = r0899.5	[2585.7]	–
ZSW1.6	**1 = Switching on inhibited active**	p2080[6] = r0899.6	[2585.7]	–
ZSW1.7	**1 = Alarm effective**	p2080[7] = r2139.7	[2548.7]	–
ZSW1.8	**1 = Speed setpoint - actual value deviation within tolerance**	p2080[8] = r2197.7	[2534.7]	–
ZSW1.9	**1 = Control requested** <2>	p2080[9] = r0899.9	[2585.7]	–
ZSW1.10	**1 = f or n comparison value reached or exceeded**	p2080[10] = r2199.1	[2537.7]	–
ZSW1.11	**1 = Torque limit not reached**	p2080[11] = r1407.7	[6830.7]	✔
ZSW1.12	**1 = Open holding brake**	p2080[12] = r0899.12	[2585.7]	–
ZSW1.13	**Reserved** <3>	– <3>	–	–
ZSW1.14	**Reserved** <3>	– <3>	–	–
ZSW1.15	**Reserved** <3>	– <3>	–	–

<1> ZSW1_BM is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...15).
<2> The drive object is ready for acceptance.
<3> Interconnection is not inhibited.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2428_13_eng.vsd	Function diagram	- 2428 -
PROFIdrive - ZSW1_BM status word sector metal interconnection					28.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-28 2428 – ZSW1_BM status word, metal industry interconnection

PROFIdrive sampling time

Signal sources for ZSW2_BM for telegram 220

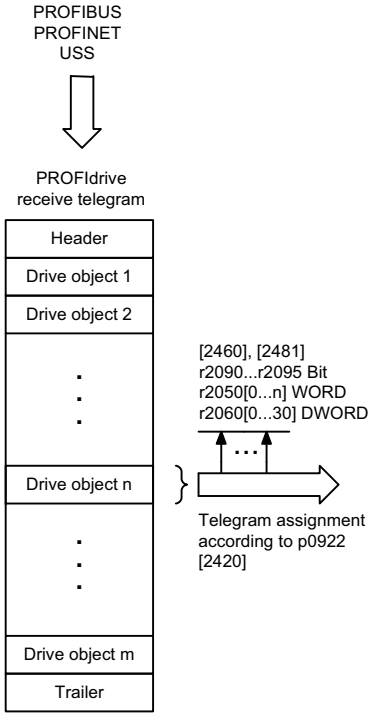
Signal	Meaning	Interconnection parameter	Function diagram	Inverted
ZSW2.0	**Reserved** <1>	– <1>	–	–
ZSW2.1	**Reserved** <1>	– <1>	–	–
ZSW2.2	**Reserved** <1>	– <1>	–	–
ZSW2.3	**Reserved** <1>	– <1>	–	–
ZSW2.4	**Reserved** <1>	– <1>	–	–
ZSW2.5	**1 = Alarm class bit 0**	p2081[5] = r2139.11	[2548.7]	–
ZSW2.6	**1 = Alarm class bit 1**	p2081[6] = r2139.12	[2548.7]	–
ZSW2.7	**Reserved**	–	–	–
ZSW2.8	**Reserved**	–	–	–
ZSW2.9	**Reserved**	–	–	–
ZSW2.10	**Reserved**	–	–	–
ZSW2.11	**Reserved**	–	–	–
ZSW2.12	**Reserved**	–	–	–
ZSW2.13	**Reserved**	–	–	–
ZSW2.14	**Reserved**	–	–	–
ZSW2.15	**Controller sign-of-life toggle bit**	p2081[15] = r2093.15	[2460.6]	–

<1> Interconnection is not inhibited.

Fig. 3-29 2429 – ZSW2_BM status word, metal industry interconnection

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2429_13_eng.vsd	Function diagram	- 2429 -
PROFIdrive - ZSW2_BM status word sector metal interconnection					28.08.18 V01.05.01	SINAMICS DCM	

PROFIdrive sampling time



Signal sinks for PZD receive signals

Signal	Meaning	PROFIdrive signal no.	Interconnection parameter <2>	Function diagram	Data type <1>	Normalization
STW1	Control word 1	1	(bit by bit)	[2442]	U16	–
STW2	Control word 2	3	(bit by bit)	[2444]	U16	–
NSOLL_A	Speed setpoint A (16-bit)	5	p1070 p50433[0]	- [3113.2]	I16	4000 hex ≙ 100 % = p2000 <3>
NSOLL_B	Speed setpoint B (32-bit)	7	p50621	[6812.2]	I32	4000 0000 hex ≙ 100 % = p2000 <3>
G1_STW	Encoder 1 control word	9	p0480[0]	[4720.1]	U16	–
G2_STW	Encoder 2 control word	13	p0480[1]	[4720.1]	U16	–
A_DIGITAL	Digital output (16-bit)	22	(bit by bit)	[2497]	U16	–
M_LIM	Torque limit	310	p50605[0] p50500[0]	[6825.2] [6830.1]	I16	4000 hex ≙ 100 % <4>
M_ADD	Additional torque	311	p50619	[6820.5]	I16	4000 hex ≙ 100 % <5>
STW1_BM	Control word 1, variant for BM	322	(bit by bit)	[2425]	U16	–
STW2_BM	Control word 2, variant for BM	324	(bit by bit)	[2426]	U16	–
CU_STW1	Control word 1 for Control Unit	500	(bit by bit)	[2495]	U16	–

<1> Data type according to PROFIdrive profile:
I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<2> When selecting a standard telegram or a manufacturer-specific telegram (telegram number <> 999) via p0922, these interconnection parameters of command data set CDS0 are set automatically.
<3> Depending on the setting of p50083[D], further reference quantities must be set, see [6810.3], [2075.2].
<4> For p50605[0…3] is valid: 100 % ≙ Rated torque of the motor.
For p50500[C] is valid: 100 % ≙ "Rated torque" of the device.
"Rated torque" of the device = Rated torque of the motor · (r50072[1] / p50100)).
<5> For p50619 is valid: 100 % ≙ "Rated torque" of the device.

1	2	3	4	5	6	7	8
DO: DC_CTRL, CU_DC					fp_2440_13_eng.vsd	Function diagram	- 2440 -
PROFIdrive - PZD receive signals interconnection					07.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-30 2440 – PZD receive signals interconnection

PROFIdrive sampling time

Signal destinations for STW1 for telegrams 1, 3, 4, 20, 352

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
STW1.0	⊓ = ON (pulses can be enabled) **0 = OFF1** (braking with ramp-fct. generator, then pulse suppression and ready to switch on)	p0840[0] = r2090.0	[2580.1]	–
STW1.1	**1 = OC** (enable possible) <4> 0 = OFF2 (immediate pulse suppression and switching on inhibited)	p0844[0] = r2090.1	[2580.1]	–
STW1.2	**1 = OC** (enable possible) <4> 0 = OFF3 (braking along the OFF3 ramp, then pulse suppression and switching on inhibited)	p0848[0] = r2090.2	[2580.1]	–
STW1.3	**1 = Enable operation** (pulses can be enabled) 0 = Inhibit operation (suppress pulses)	p0852[0] = r2090.3	[2580.1]	–
STW1.4	**1 = Enable ramp-function generator** 0 = Inhibit ramp-function generator (set ramp-function generator output to zero)	p1140[0] = r2090.4	[2580.3]	–
STW1.5	**1 = Start ramp-function generator** 0 = Stop ramp-function generator (freeze ramp-function generator output)	p1141[0] = r2090.5	[2580.3]	–
STW1.6	**1 = Enable speed setpoint** 0 = Inhibit speed setpoint (set ramp-function generator input to zero)	p1142[0] = r2090.6	[2580.3]	–
STW1.7	⊓ **= Acknowledge fault**	p2103[0] = r2090.7	[2546.1]	–
STW1.8	**Reserved**	–	–	–
STW1.9	**Reserved**	–	–	–
STW1.10	**1 = Control via PLC** <2>	p0854[0] = r2090.10	[2580.3]	–
STW1.11	**1 = Setpoint inversion**	p1113[0] = r2090.11	[3113.6]	–
STW1.12	**Reserved**	–	–	–
STW1.13	**1 = Motorized potentiometer, higher** <3>	p1035[0] = r2090.13 p50673[0] = r2090.13	[3110.1]	–
STW1.14	**1 = Motorized potentiometer, lower** <3>	p1036[0] = r2090.14 p50674[0] = r2090.14	[3110.1]	–
STW1.15	**1 = Command data set selection CDS bit 0** <1>	p0810[0] = r2090.15 <5>	[8560.3]	–

<1> Only for telegram 20.
<2> STW1.10 must be set in order for the drive object to accept the process data (PZD).
<3> Only for telegram 1, 3, 4 and 352.
<4> OC = Operating condition
<5> Interconnection is not inhibited.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2442_13_eng.vsd	Function diagram	- 2442 -
PROFIdrive - STW1 control word interconnection					28.08.19 V01.05.01	SINAMICS DCM	

Fig. 3-31 2442 – STW1 control word interconnection

PROFIdrive sampling time

Signal destinations for STW2 for telegrams 3, 4

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
STW2.0	**Drive data set selection DDS bit 0**	p0820[0] = r2093.0	[8565.3]	–
STW2.1	**Drive data set selection DDS bit 1**	p0821[0] = r2093.1	[8565.3]	–
STW2.2	**Reserved**	–	–	–
STW2.3	**Reserved**	–	–	–
STW2.4	**Reserved**	–	–	–
STW2.5	**Reserved**	–	–	–
STW2.6	**Reserved**	–	–	–
STW2.7	**Reserved**	–	–	–
STW2.8	**Reserved**	–	–	–
STW2.9	**Reserved**	–	–	–
STW2.10	**Reserved**	–	–	–
STW2.11	**Reserved**	–	–	–
STW2.12	**Reserved**	–	–	–
STW2.13	**Reserved**	–	–	–
STW2.14	**Reserved**	–	–	–
STW2.15	**Reserved**	–	–	–

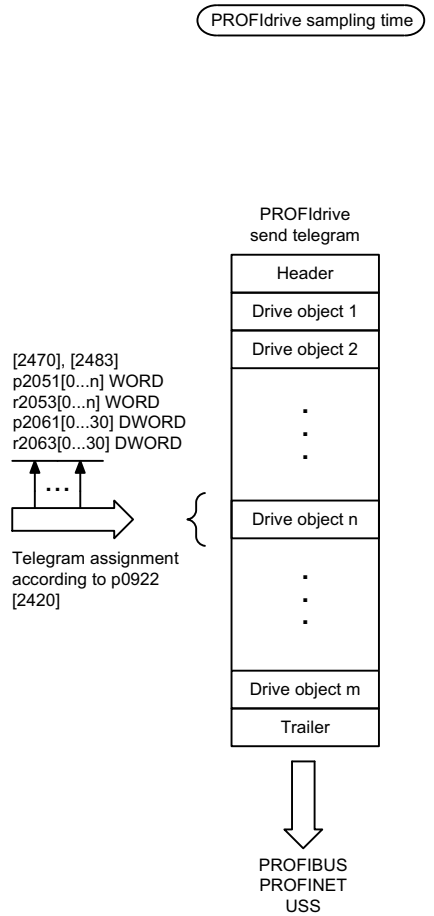
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2444_13_eng.vsd	Function diagram	- 2444 -
PROFIdrive - STW2 control word interconnection					28.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-32 2444 – STW2 control word interconnection

Fig. 3-33 2450 – PZD send signals interconnection

Signal sources for PZD send signals

Signal	Meaning	PROFIdrive signal no. <2>	Interconnection parameter <2>	Function diagram	Data type <1>	Normalization
ZSW1	Status word 1	2	r2089[0]	[2452], [2472]	U16	–
ZSW2	Status word 1	4	r2089[1]	[2054], [2472]	U16	–
NIST_A	Actual speed value A (16-bit) <3>	6	r0063[0]	[6810.4]	I16	4000 hex ≙ 100 % = p2000
G1_ZSW	Encoder 1 status word	10	r0481[0]	[4730.5]	U16	–
G1_IST1	Encoder 1 actual position value 1	11	r0482[0]	[4704.8]	U32	–
G1_IST2	Encoder 1 actual position value 2	12	r0483[0]	[4704.8]	U32	–
G2_ZSW	Encoder 2 status word	14	r0481[1]	[4704.8]	U32	–
G2_IST1	Encoder 2 actual position value 1	15	r0482[1]	[4704.8]	U32	–
G2_IST2	Encoder 2 actual position value 2	16	r0483[1]	[4704.8]	U32	–
E_DIGITAL	Digital input (16-bit)	21	r2089[2]	[2498], [2472]	U16	–
IAIST_GLATT	Absolute actual current value smoothed	51	r0027	[6851.6]	I16	4000 hex ≙ 100 % = p2002
MIST_GLATT	Actual torque value smoothed <4>	53	r0080	[6851.7]	I16	4000 hex ≙ 100 % = p2003
PIST_GLATT	Active power smoothed <5>	54	r0082[1]	–	I16	4000 hex ≙ 100 % = p2004
NIST_A_GLATT	Actual speed value smoothed <3>	57	r0063[1]	[6810.5]	I16	4000 hex ≙ 100 % = p2000
MELD_NAMUR	VIK-NAMUR message bit bar	58	r3113	–	U16	–
FAULT_CODE	Fault code	301	r2131	[8060.3]	U16	–
WARN_CODE	Alarm code	303	r2132	[8065.3]	U16	–
ZSW1_BM	Status word 1, variant for BM	323	r2089[0]	[2428], [2472]	U16	–
ZSW2_BM	Status word 2, variant for BM	325	r2089[1]	[2429], [2472]	U16	–
CU_ZSW1	Status word 1 for Control Unit	501	r2089[1]	[2496], [2472]	U16	–



<1> Data type according to PROFIdrive profile:
I16 = Integer16, I32 = Integer32, U16 = Unsigned16, U32 = Unsigned32.
<2> When selecting a standard telegram or a manufacturer-specific telegram (telegram number <> 999) via p0922, these interconnection parameters of command data set CDS0 are set automatically.
<3> Depending on the setting of p50083[D], further reference quantities must be set, see [6810.3], [2075.2].
<4> Value refers to device data (i.e. 100 % corresponds to p2003).
<5> Electric power output of the SINAMICS DCM.

1	2	3	4	5	6	7	8
DO: DC_CTRL, CU_DC					fp_2450_13_eng.vsd	Function diagram	- 2450 -
PROFIdrive - PZD send signals interconnection					14.11.18 V01.05.01	SINAMICS DCM	

PROFIdrive sampling time

Signal sources for ZSW1 fo telegrams 1, 3, 4, 20, 352 <2>

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
ZSW1.0	**1 = Ready to switch on**	p2080[0] = r0899.0	[2585.7]	–
ZSW1.1	**1 = Ready**	p2080[1] = r0899.1	[2585.7]	–
ZSW1.2	**1 = Operation enabled**	p2080[2] = r0899.2	[2585.7]	–
ZSW1.3	**1 = Fault effective**	p2080[3] = r2139.3	[2548.7]	–
ZSW1.4	**1 = No coasting active** (OFF2 inactive)	p2080[4] = r0899.4	[2585.7]	–
ZSW1.5	**1 = No Quick Stop active** (OFF3 inactive)	p2080[5] = r0899.5	[2585.7]	–
ZSW1.6	**1 = Switching on inhibited active**	p2080[6] = r0899.6	[2585.7]	–
ZSW1.7	**1 = Alarm effective**	p2080[7] = r2139.7	[2548.7]	–
ZSW1.8	**1 = Speed setpoint - actual value deviation within tolerance t_off**	p2080[8] = r2197.7	[2534.6]	–
ZSW1.9	**1 = Control request** <3>	p2080[9] = r0899.9	[2585.7]	–
ZSW1.10	**1 = f or n comparison value reached or exceeded**	p2080[10] = r2199.1	[2537.6]	–
ZSW1.11	**1 = M limit not reached** **1 = I or M limit not reached** <1>	p2080[11] = r1407.7 p2080[11] = r0056.13	–	✔
ZSW1.12	**1 = Holding brake open** **Reserved** (always value 0) <1>	p2080[12] = r0899.12 –	[2585.7]	–
ZSW1.13	**1 = No warning overtemperature motor**	p2080[13] = r2135.14	[2548.7]	✔
ZSW1.14	**1 = Motor rotates forwards** (n_act >= 0) **0 = Motor rotates backwards** (n_act < 0)	p2080[14] = r2197.3	[2534.6]	–
ZSW1.15	**1 = No warning thermal overload power unit** **1 = Command data set CDS effective bit 0** <1>	p2080[15] = r2135.15 p2080[15] = r0836.0	[2548.7] [8560.7]	✔

<1> For telegram 20.
<2> ZSW1 is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...15).
<3> The drive object is ready for acceptance.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2452_13_eng.vsd	Function diagram	- 2452 -
PROFIdrive - ZSW1 status word interconnection					16.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-34 2452 – ZSW1 status word interconnection

PROFIdrive sampling time

Signal sources for ZSW2 for telegrams 3, 4

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
ZSW2.0	**1 = Drive data set DDS effective bit 0**	p2081[0] = r0051.0	[8565.7]	–
ZSW2.1	**1 = Drive data set DDS effective bit 1**	p2081[1] = r0051.1	[8565.7]	–
ZSW2.2	**Reserved**	–	–	–
ZSW2.3	**Reserved**	–	–	–
ZSW2.4	**Reserved**	–	–	–
ZSW2.5	**1 = Alarm class bit 0**	p2081[5] = r2139.11	[2548.7]	–
ZSW2.6	**1 = Alarm class bit 1**	p2081[6] = r2139.12	[2548.7]	–
ZSW2.7	**Reserved**	–	–	–
ZSW2.8	**Reserved**	–	–	–
ZSW2.9	**Reserved**	–	–	–
ZSW2.10	**1 = Pulses enabled**	p2081[10] = r0899.11	[2585.7]	–
ZSW2.11	**Reserved**	–	–	–
ZSW2.12	**Reserved**	–	–	–
ZSW2.13	**Reserved**	–	–	–
ZSW2.14	**Reserved**	–	–	–
ZSW2.15	**Reserved**	–	–	–

Fig. 3-35 2454 – ZSW2 status word interconnection

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2454_13_eng.vsd	Function diagram	- 2454 -
PROFIdrive - ZSW2 status word interconnection					28.08.18 V01.05.01	SINAMICS DCM	

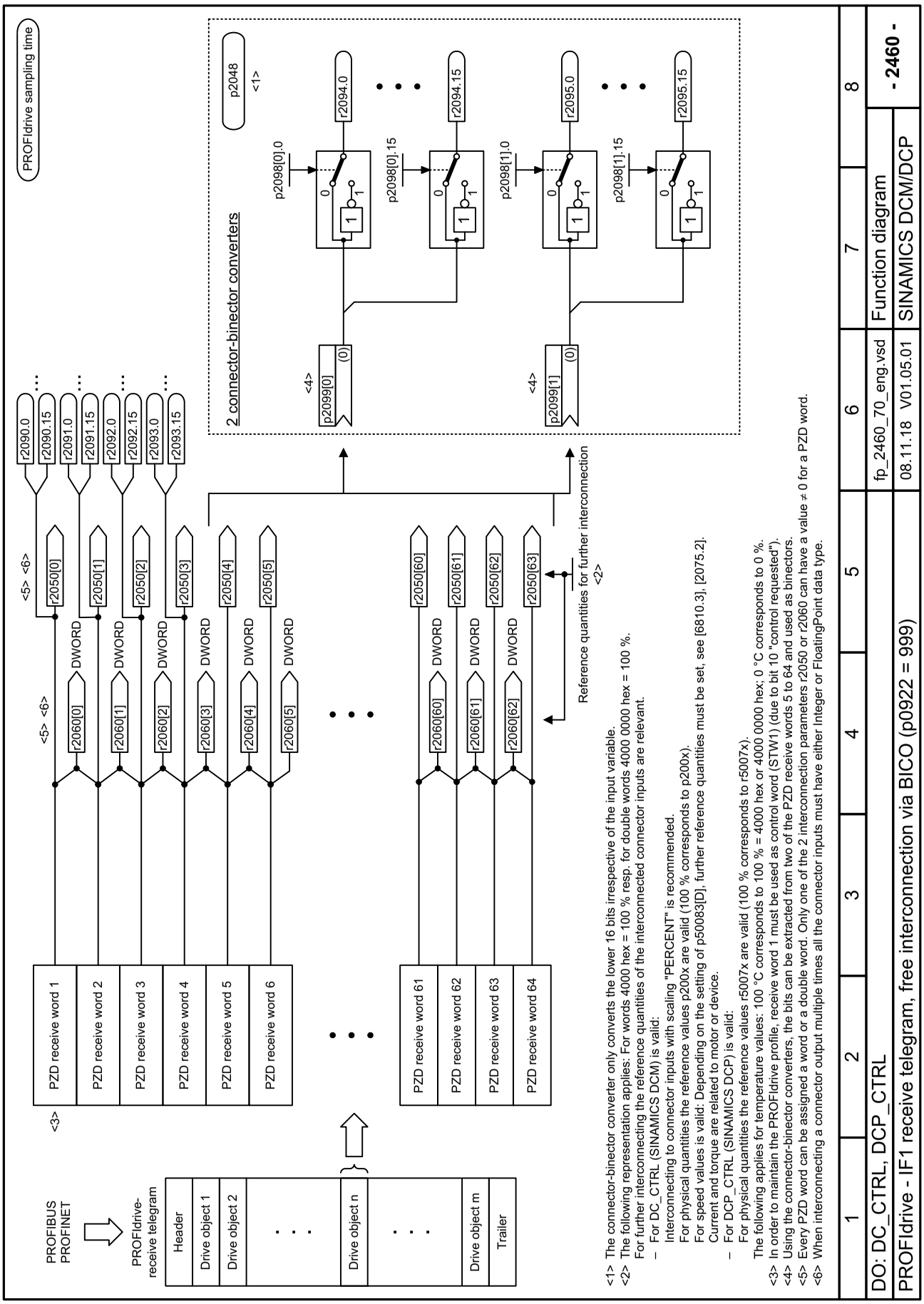


Fig. 3-36 2460 – IF1 receive telegram free interconnection via BICO (p0922 = 999)

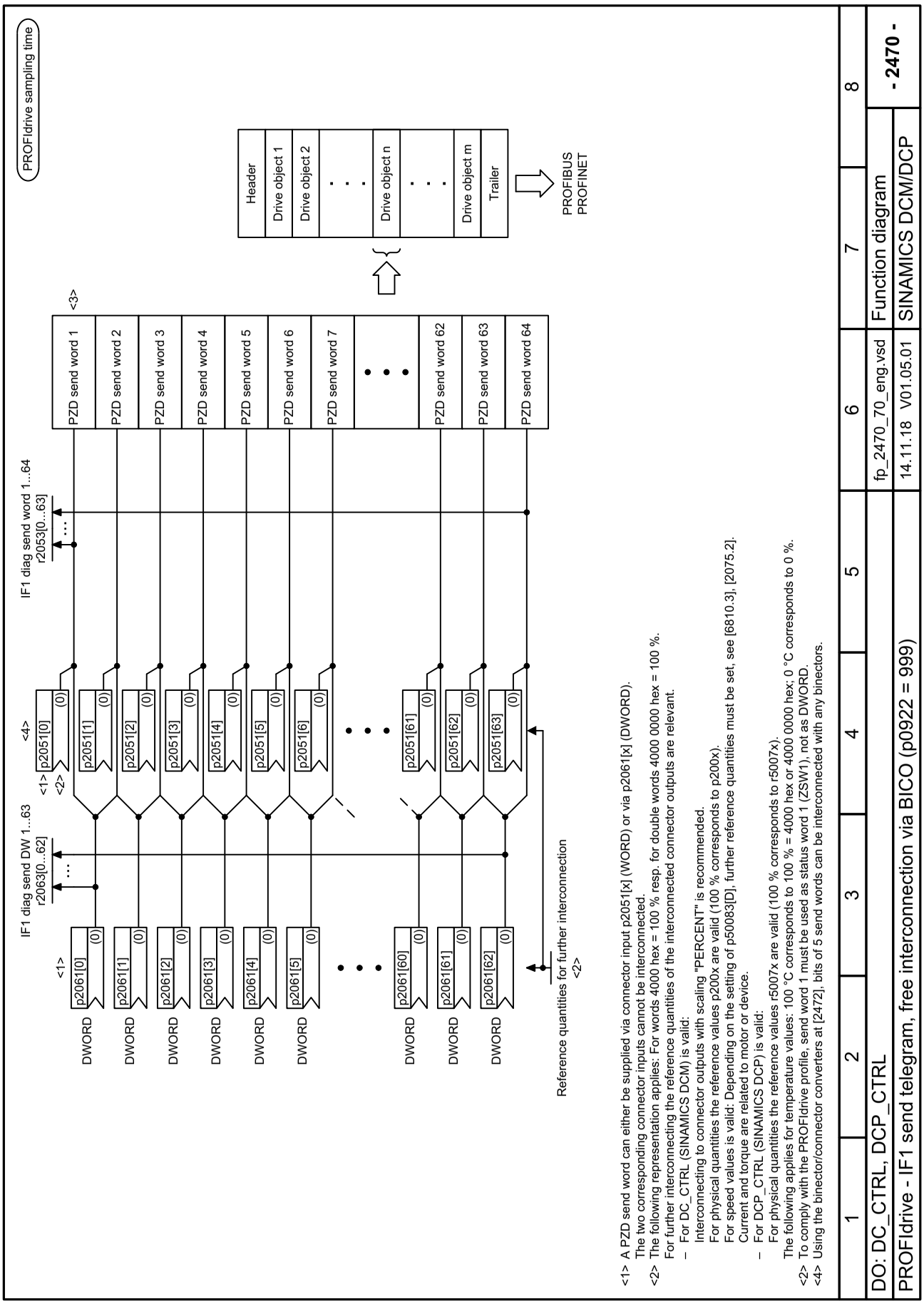


Fig. 3-37 2470 – IF1 send telegram, free interconnection via BICO (p0922 = 999)

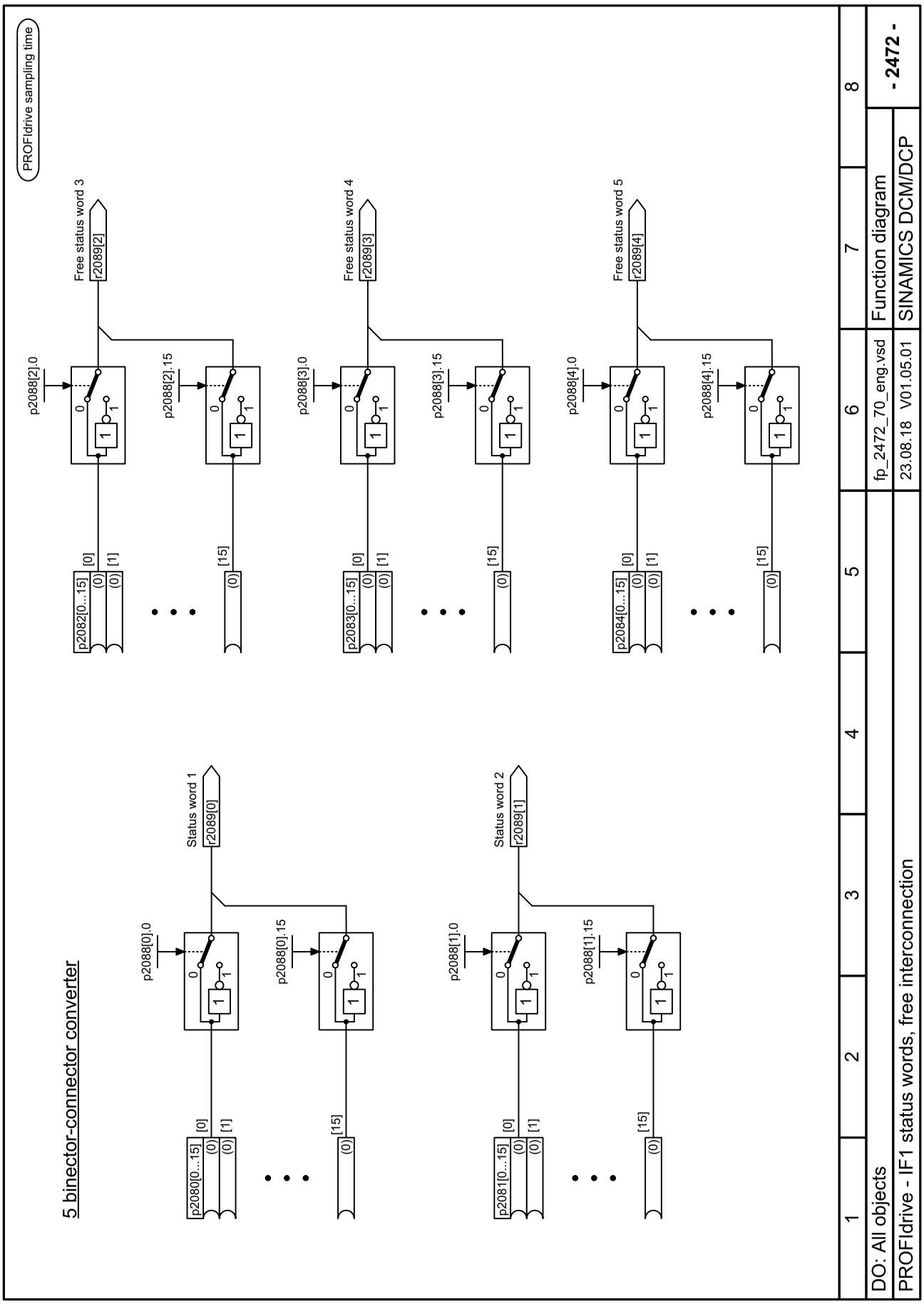


Fig. 3-38 2472 – IF1 status words, free interconnection

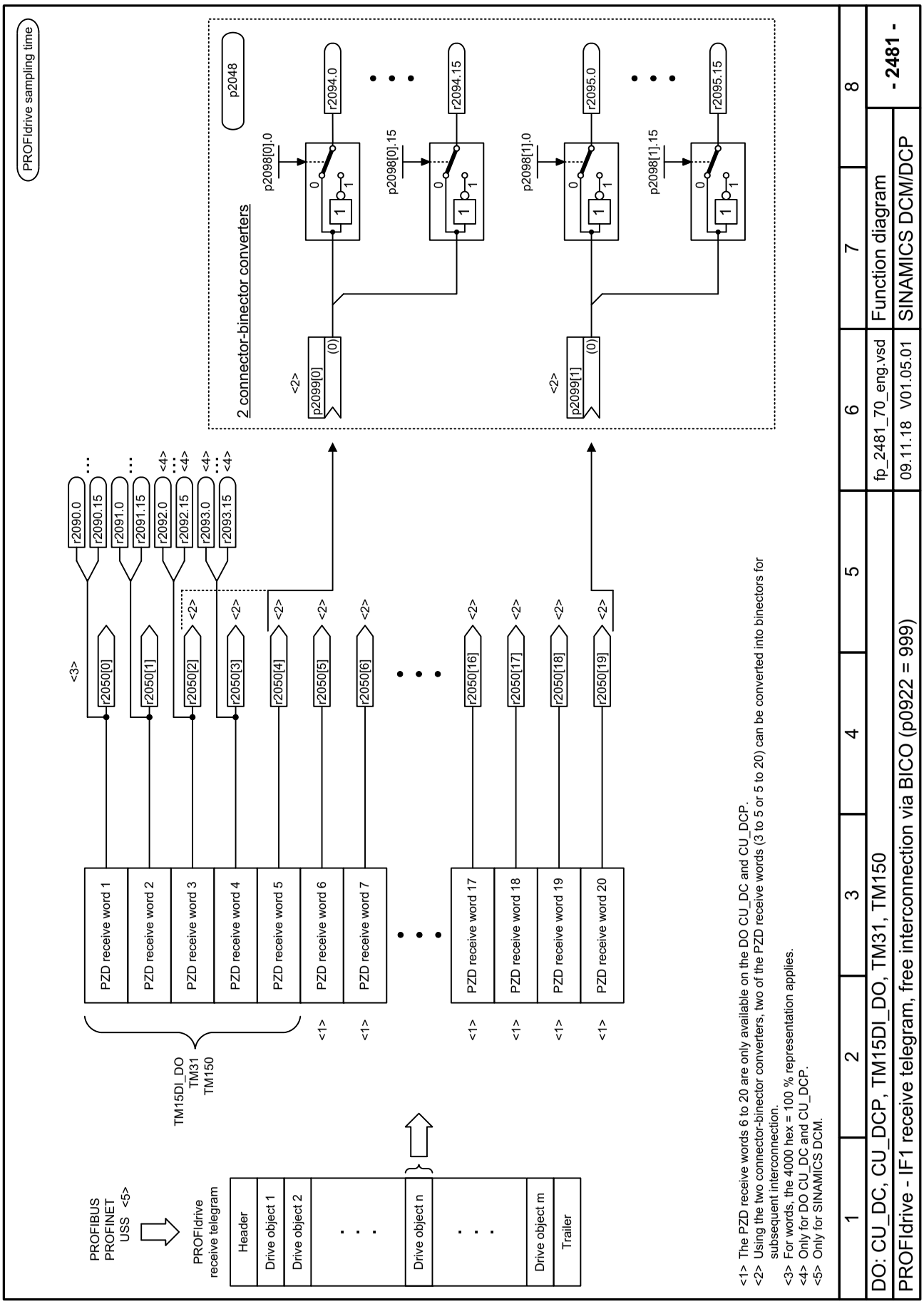


Fig. 3-39 2481 – IF1 receive telegram, free interconnection via BICO (p0922 = 999)

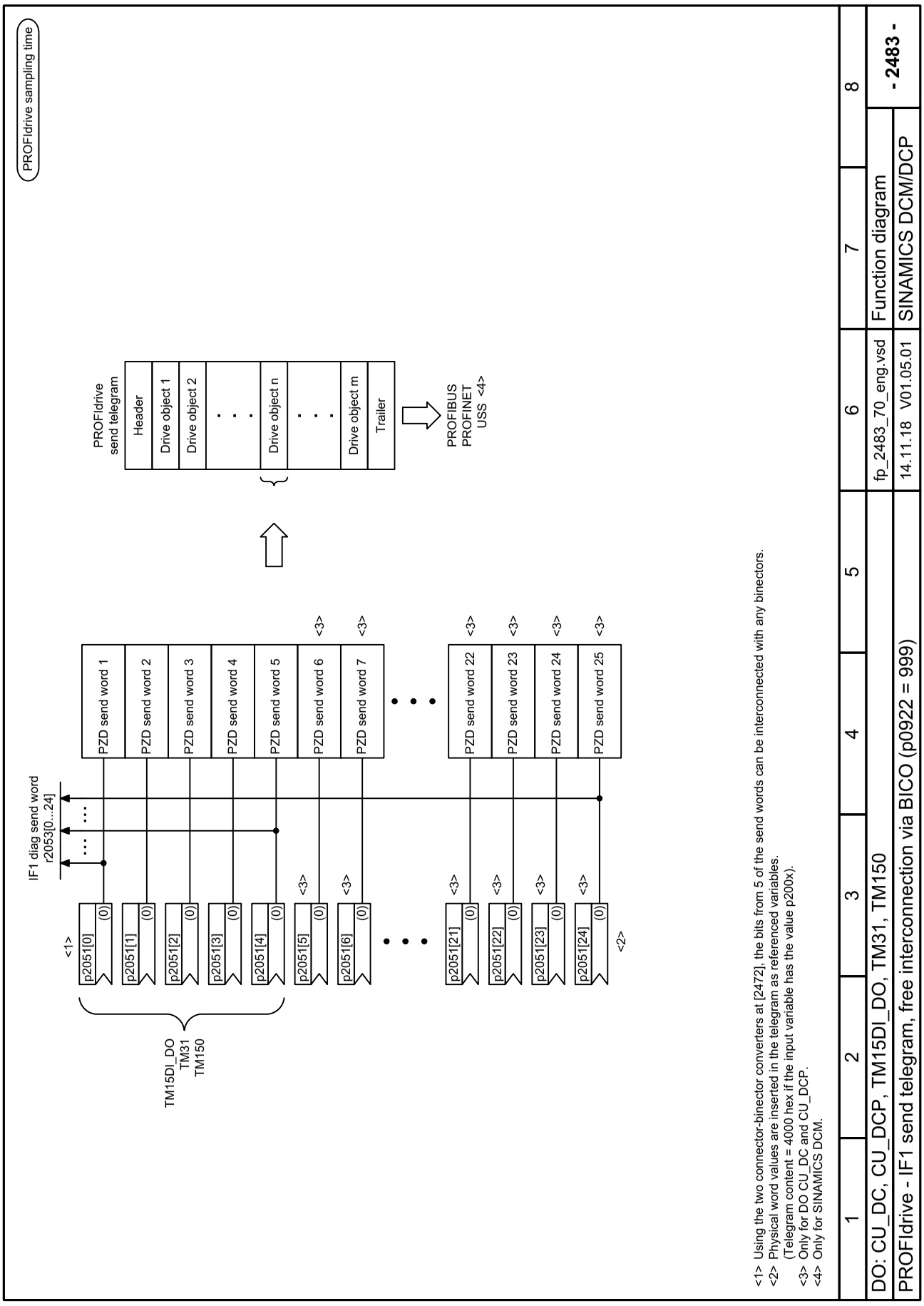


Fig. 3-40 2483 – IF1 send telegram, free interconnection via BICO (p0922 = 999)

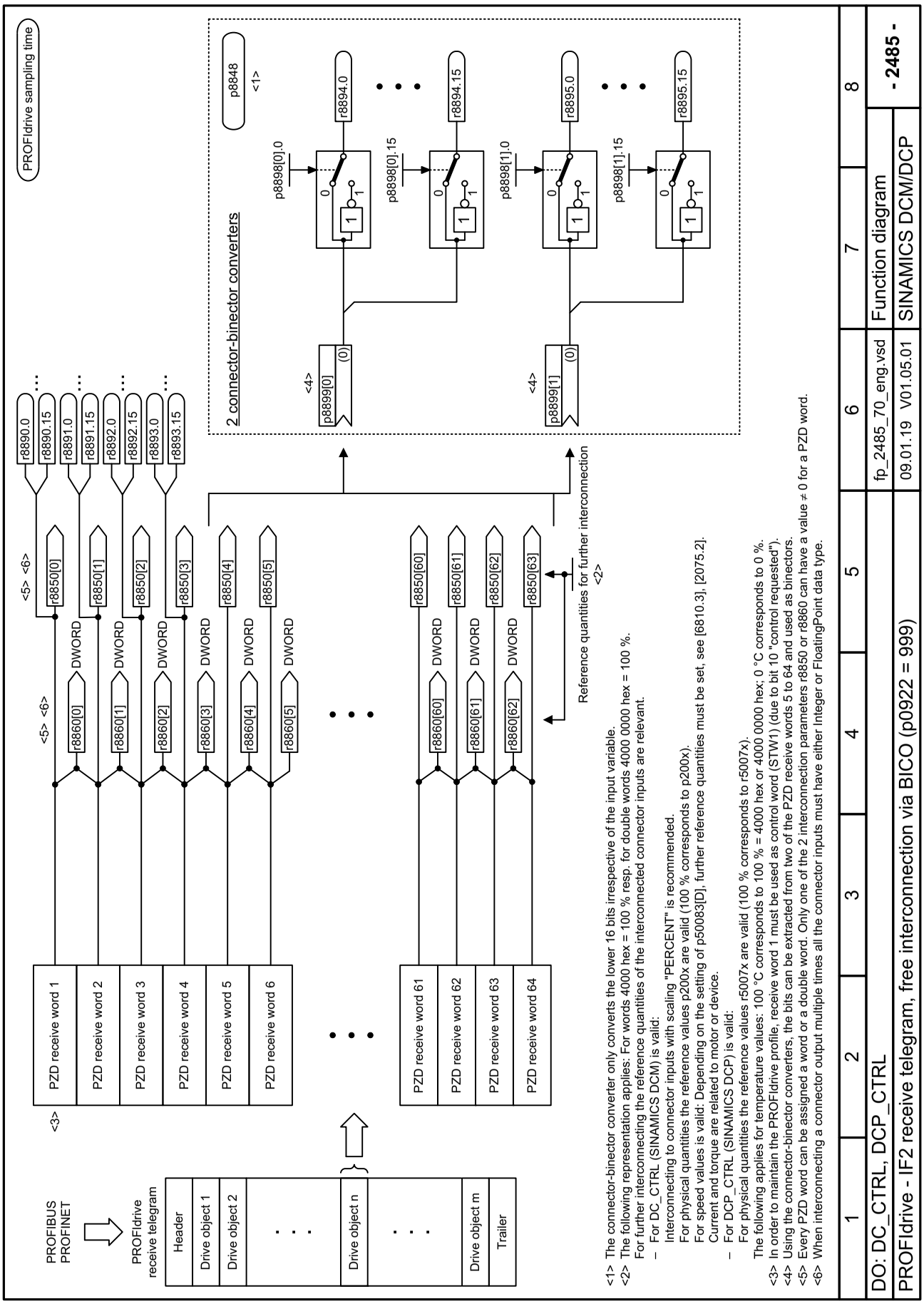


Fig. 3-41 2485 – IF2 receive telegram, free interconnection via BICO (p0922 = 999)

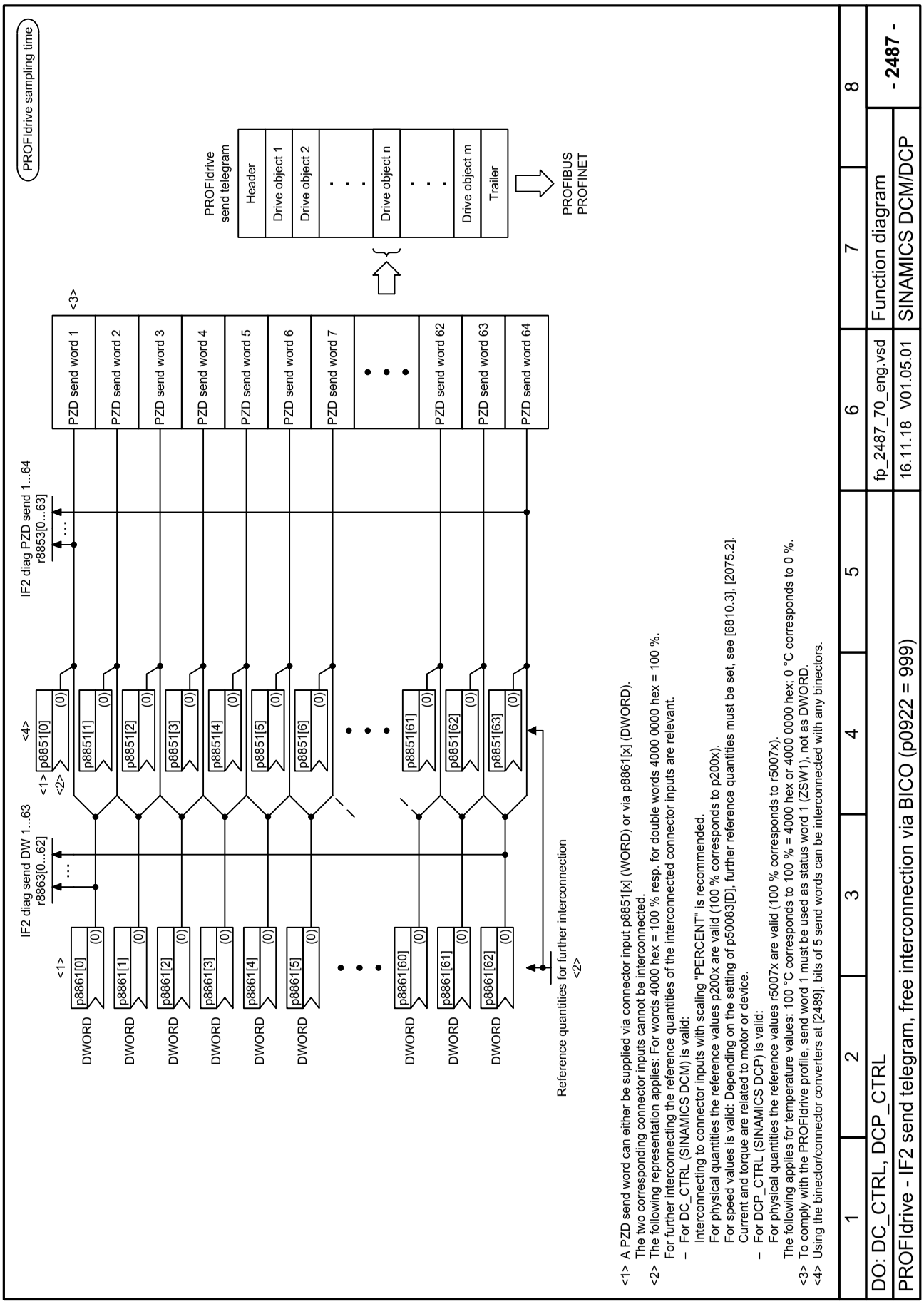


Fig. 3-42 2487 – IF2 send telegram, free interconnection via BICO (p0922 = 999)

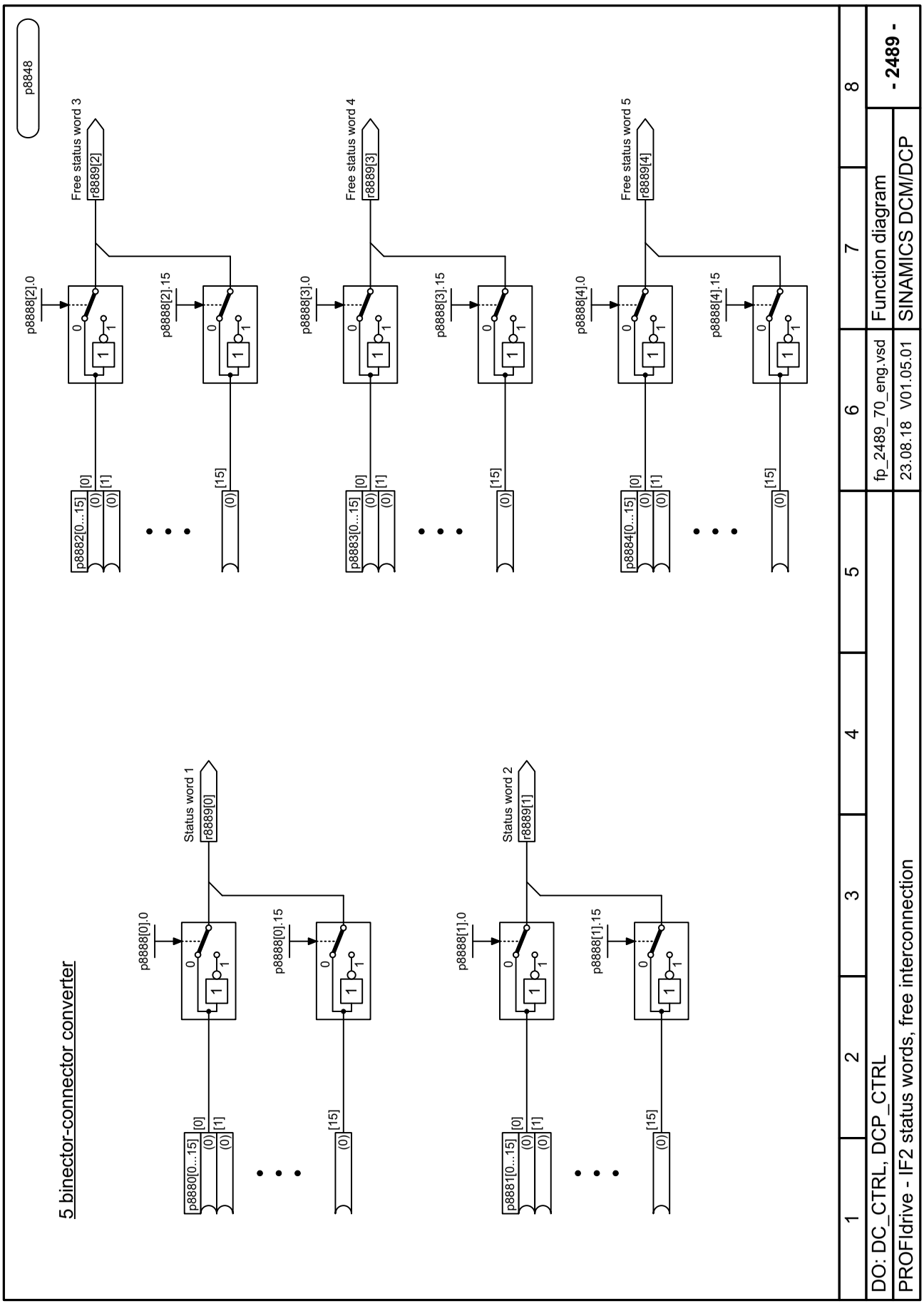


Fig. 3-43 2489 – IF2 status words, free interconnection

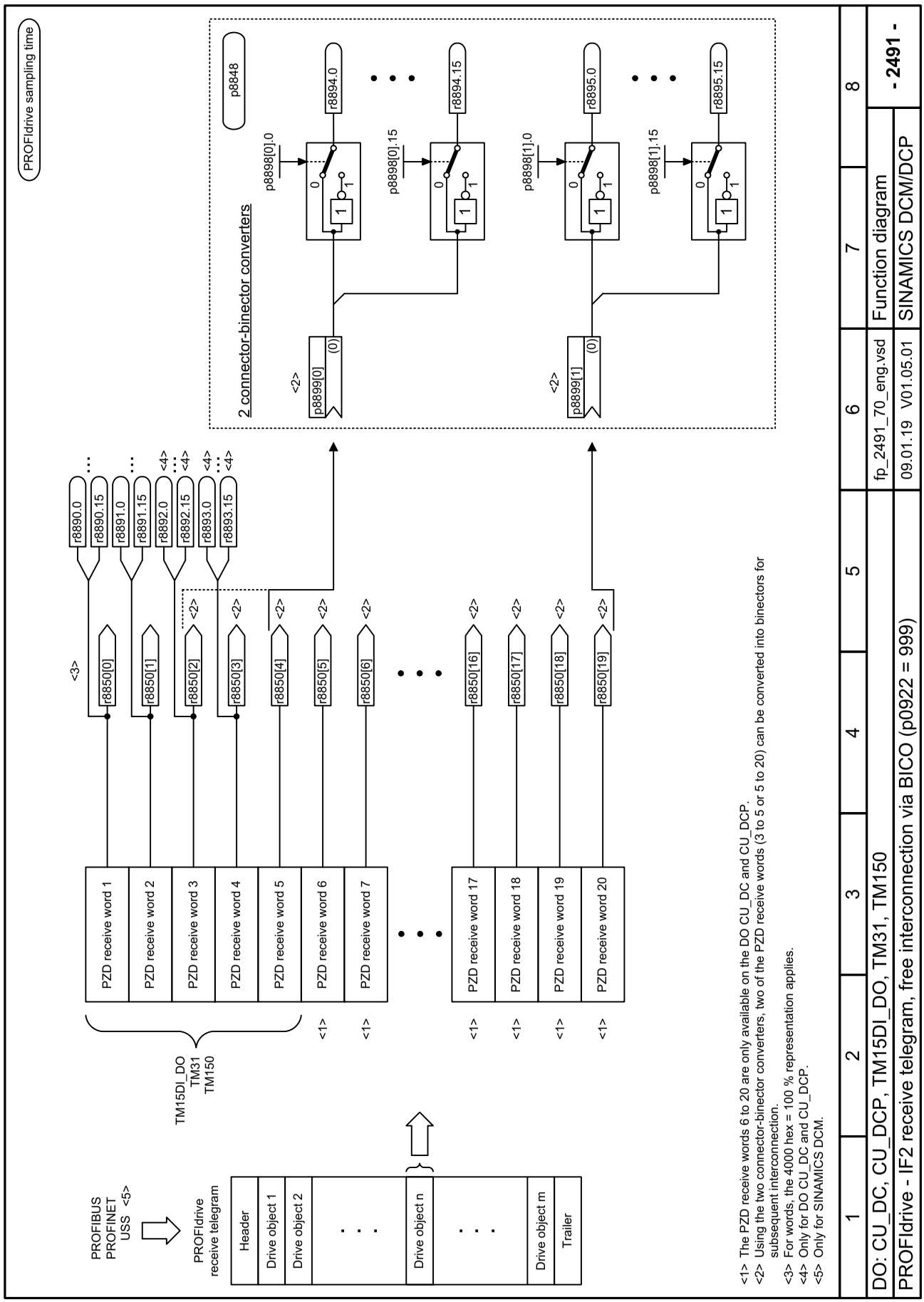


Fig. 3-44 2491 – PROFIdrive - IF2 receive telegram, free interconnection via BICO (p0922 = 999)

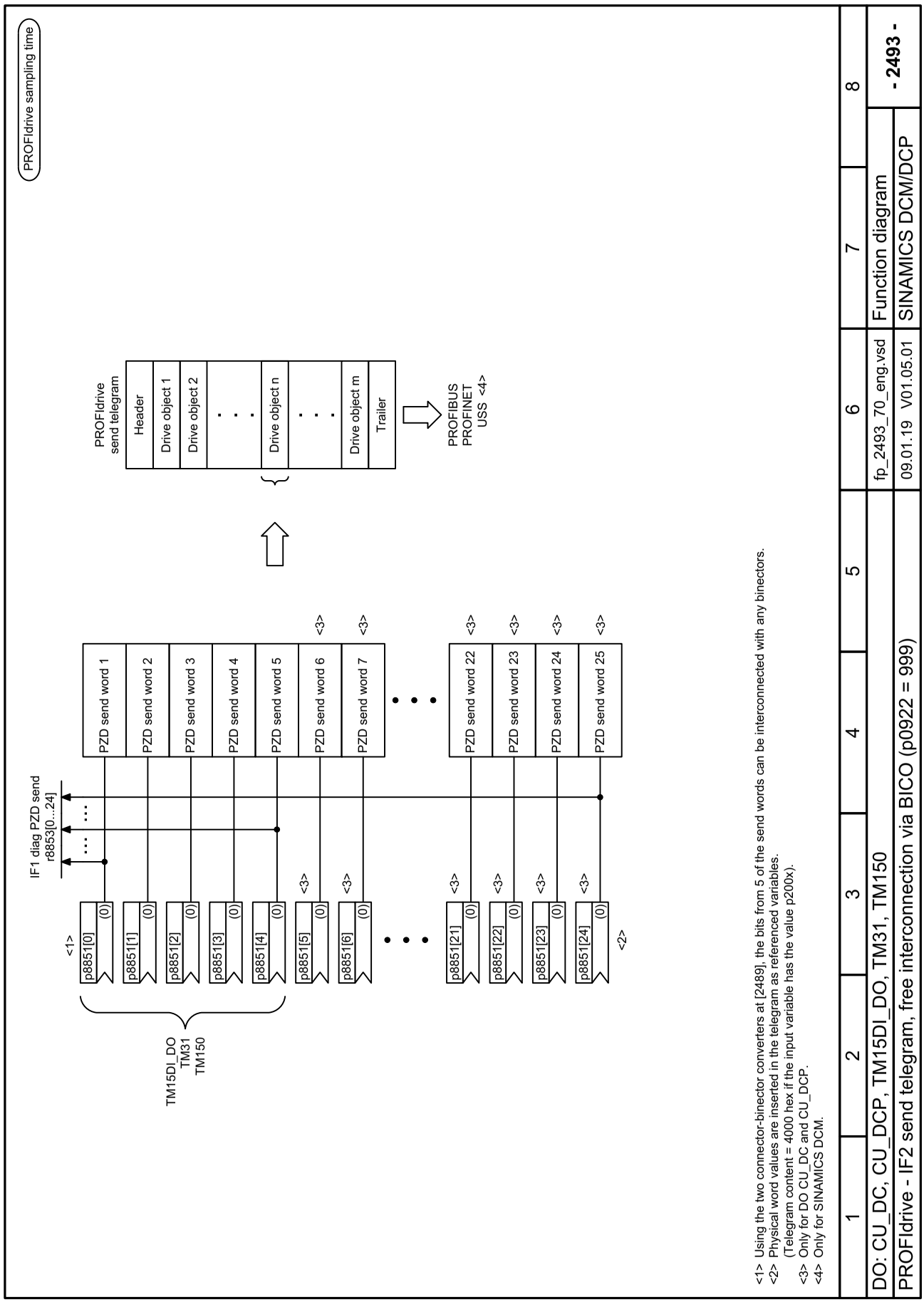


Fig. 3-45 2493 – PROFIdrive - IF2 send telegram, free interconnection via BICO (p0922 = 999)

PROFIdrive sampling time

Signal destinations for CU_STW1 for telegram 390

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
CU_STW1.0	**Reserved**	–	–	–
CU_STW1.1	**RTC real-time synchronization PING**	p3104 = r2090.1	–	–
CU_STW1.2	**Reserved**	–	–	–
CU_STW1.3	**Reserved**	–	–	–
CU_STW1.4	**Reserved**	–	–	–
CU_STW1.5	**Reserved**	–	–	–
CU_STW1.6	**Reserved**	–	–	–
CU_STW1.7	**Acknowledge fault**	p2103[0] = r2090.7	[2546.2]	–
CU_STW1.8	**Reserved**	–	–	–
CU_STW1.9	**Reserved**	–	–	–
CU_STW1.10	**Control by PLC**	p3116 = r2090.10	–	–
CU_STW1.11	**Reserved**	–	–	–
CU_STW1.12	**Reserved**	–	–	–
CU_STW1.13	**Reserved**	–	–	–
CU_STW1.14	**Reserved**	–	–	–
CU_STW1.15	**Reserved**	–	–	–

Fig. 3-46 2495 – CU_STW1 control word 1, Control Unit interconnection

1	2	3	4	5	6	7	8
DO: CU_DC					fp_2495_13_eng.vsd	Function diagram	- 2495 -
PROFIdrive - CU_STW1 control word 1, Control Unit interconnection					28.08.18 V01.05.01	SINAMICS DCM	

PROFIdrive sampling time

Signal sources for CU_ZSW1 for telegram 390 <1>

Signal	Meaning	Interconnection parameter	Function diagram	Inverted
CU_ZSW1.0	**Reserved**	–	–	–
CU_ZSW1.1	**Reserved**	–	–	–
CU_ZSW1.2	**Reserved**	–	–	–
CU_ZSW1.3	**1 = Fault effective**	p2081[3] = r2139.3	[2548.7]	–
CU_ZSW1.4	**Reserved**	–	–	–
CU_ZSW1.5	**Reserved**	–	–	–
CU_ZSW1.6	**Reserved**	–	–	–
CU_ZSW1.7	**1 = Alarm effective**	p2081[7] = r2139.7	[2548.7]	–
CU_ZSW1.8	**Reserved**	–	–	–
CU_ZSW1.9	**1 = No group alarm present**	p2081[9] = r3114.9	[8065.7]	✔
CU_ZSW1.10	**1 = No group fault present**	p2081[10] = r3114.10	[8060.8]	✔
CU_ZSW1.11	**Reserved**	–	–	–
CU_ZSW1.12	**Reserved**	–	–	–
CU_ZSW1.13	**Reserved**	–	–	–
CU_ZSW1.14	**Reserved**	–	–	–
CU_ZSW1.15	**Reserved**	–	–	–

<1> CU_ZSW1 is formed via binector-connector converter (BI: p2080[0...15], inversion: p2088[0].0...15).

1	2	3	4	5	6	7	8
DO: CU_DC					fp_2496_13_eng.vsd	Function diagram	- 2496 -
PROFIdrive - CU_ZSW1 status word 1, Control Unit interconnection					16.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-47 2496 – CU_ZSW1 status word 1, Control Unit interconnection

PROFIdrive sampling time

Signal destinations for A_DIGITAL for telegram 390 <1>

Signal	Meaning		Interconnection parameter	Function diagram	Inverted
A_DIGITAL.0	**CUD digital output 0 (DO 0)**	<2>	DC_CTRL CU_DC p50771 = r2091.0	[2055.1]	–
A_DIGITAL.1	**CUD digital output 1 (DO 1)**	<2>	DC_CTRL CU_DC p50772 = r2091.1	[2055.1]	–
A_DIGITAL.2	**CUD digital output 2 (DO 2)**	<2>	DC_CTRL CU_DC p50773 = r2091.2	[2055.1]	–
A_DIGITAL.3	**CUD digital output 3 (DO 3)**	<2>	DC_CTRL CU_DC p50774 = r2091.3	[2055.1]	–
A_DIGITAL.4	**Reserved**		–	–	–
A_DIGITAL.5	**Reserved**		–	–	–
A_DIGITAL.6	**Reserved**		–	–	–
A_DIGITAL.7	**Reserved**		–	–	–
A_DIGITAL.8	**Reserved**		–	–	–
A_DIGITAL.9	**Reserved**		–	–	–
A_DIGITAL.10	**Reserved**		–	–	–
A_DIGITAL.11	**Reserved**		–	–	–
A_DIGITAL.12	**Reserved**		–	–	–
A_DIGITAL.13	**Reserved**		–	–	–
A_DIGITAL.14	**Reserved**		–	–	–
A_DIGITAL.15	**Reserved**		–	–	–

<1> Default can be changed by user.
<2> This interconnection will not be established automatically by setting of p0922 =390. If required the interconnection must be established by the user.

1	2	3	4	5	6	7	8
DO: CU_DC					fp_2497_13_eng.vsd	Function diagram	- 2497 -
PROFIdrive - A_DIGITAL interconnection					04.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-48 2497 – A_DIGITAL interconnection

PROFIdrive sampling time

Signal sources for E_DIGITAL for telegram 390 <1>

Signal	Meaning			Interconnection parameter	Function diagram	Inverted
E_DIGITAL.0	**CUD digital input 4 (DI 4)**	<3>	<2>	CU_DC DC_CTRL p2082[0] = r53010.8	[2060.8]	–
E_DIGITAL.1	**CUD digital input 5 (DI 5)**	<3>	<2>	CU_DC DC_CTRL p2082[1] = r53010.10	[2060.8]	–
E_DIGITAL.2	**CUD digital input 6 (DI 6)**	<3>	<2>	CU_DC DC_CTRL p2082[2] = r53010.12	[2065.8]	–
E_DIGITAL.3	**CUD digital input 7 (DI 7)**	<3>	<2>	CU_DC DC_CTRL p2082[3] = r53010.14	[2065.8]	–
E_DIGITAL.4	**Reserved**			–	–	–
E_DIGITAL.5	**Reserved**			–	–	–
E_DIGITAL.6	**Reserved**			–	–	–
E_DIGITAL.7	**Reserved**			–	–	–
E_DIGITAL.8	**CUD digital input 0 (DI 0)**		<2>	CU_DC DC_CTRL p2082[8] = r53010.0	[2050.7]	–
E_DIGITAL.9	**CUD digital input 1 (DI 1)**		<2>	CU_DC DC_CTRL p2082[9] = r53010.2	[2050.7]	–
E_DIGITAL.10	**CUD digital input 2 (DI 2)**		<2>	CU_DC DC_CTRL p2082[10] = r53010.4	[2050.7]	–
E_DIGITAL.11	**CUD digital input 3 (DI 3)**		<2>	CU_DC DC_CTRL p2082[11] = r53010.6	[2050.7]	–
E_DIGITAL.12	**Reserved**			–	–	–
E_DIGITAL.13	**Reserved**			–	–	–
E_DIGITAL.14	**Reserved**			–	–	–
E_DIGITAL.15	**Reserved**			–	–	–

<1> Default can be changed by user.
<2> This interconnection will not be established automatically by setting of p0922 =390. If required the interconnection must be established by the user.
<3> Can be set via p50789[0…3] as digital input or digital output.

1	2	3	4	5	6	7	8
DO: CU_DC					fp_2498_13_eng.vsd	Function diagram	- 2498 -
PROFIdrive - E_DIGITAL interconnection					16.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-49 2498 – E_DIGITAL interconnection

3.7 Internal control/status words

Function diagrams

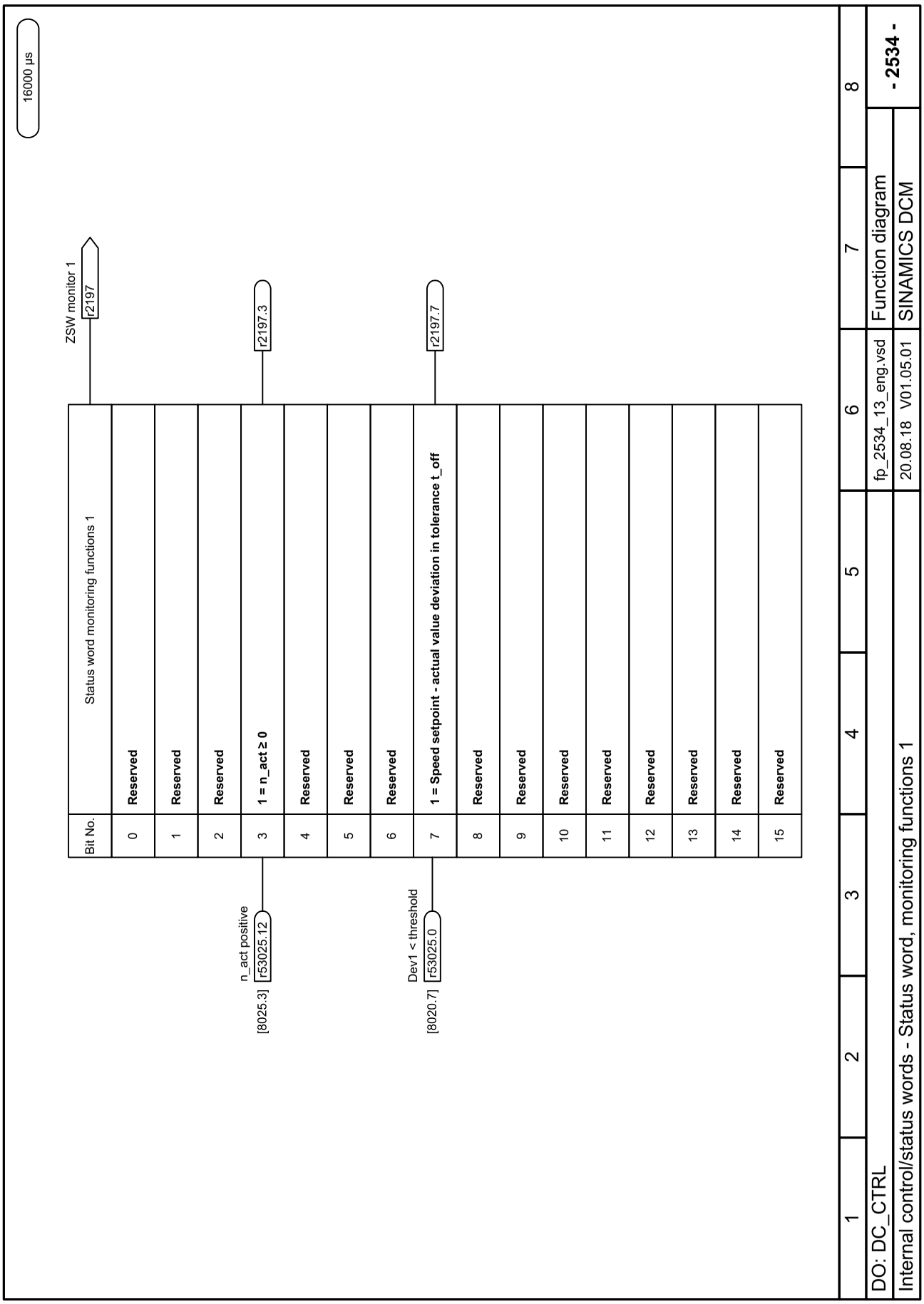


Fig. 3-50 2534 – Status word, monitoring functions 1

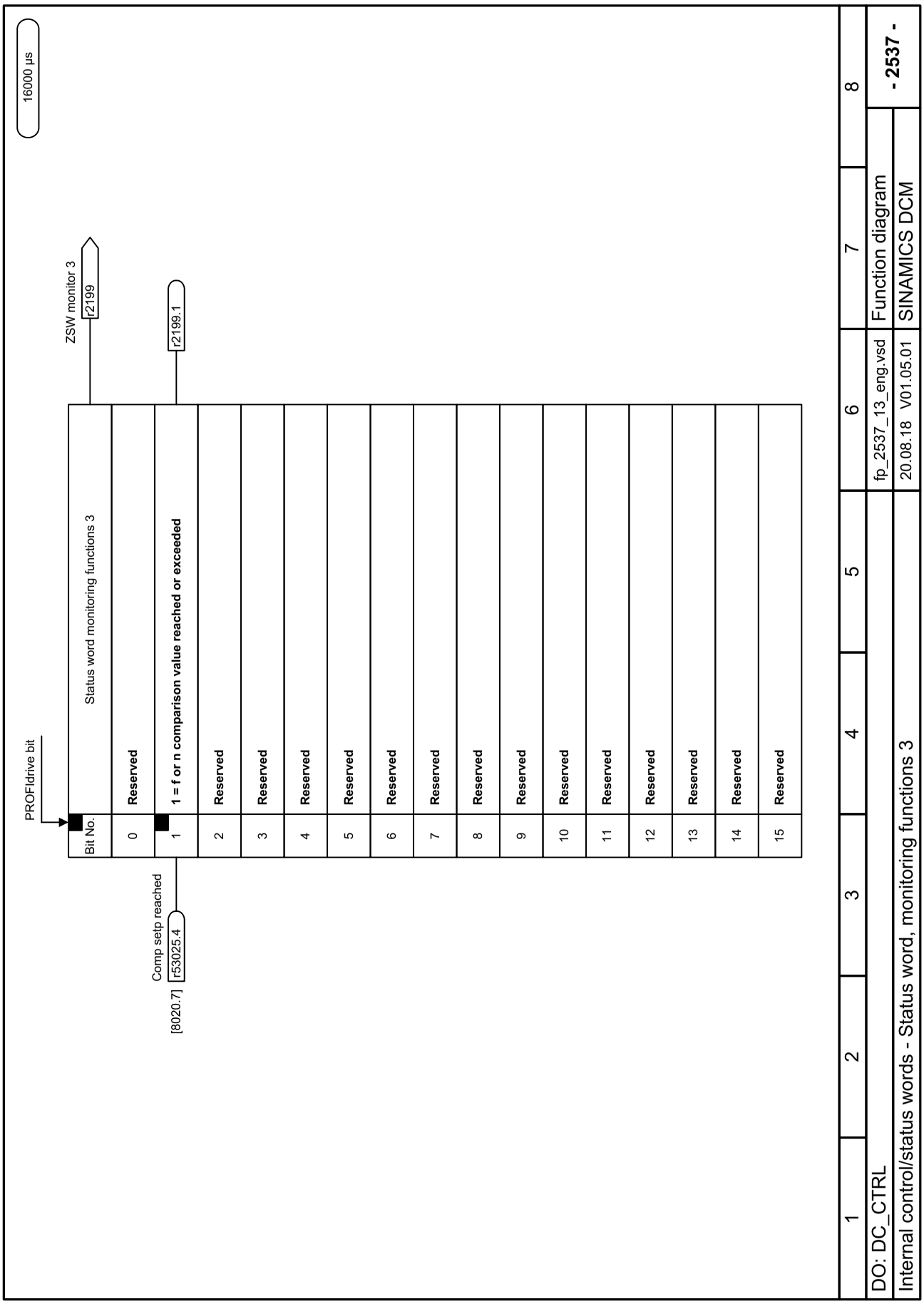


Fig. 3-51 2537 – Status word, monitoring functions 3

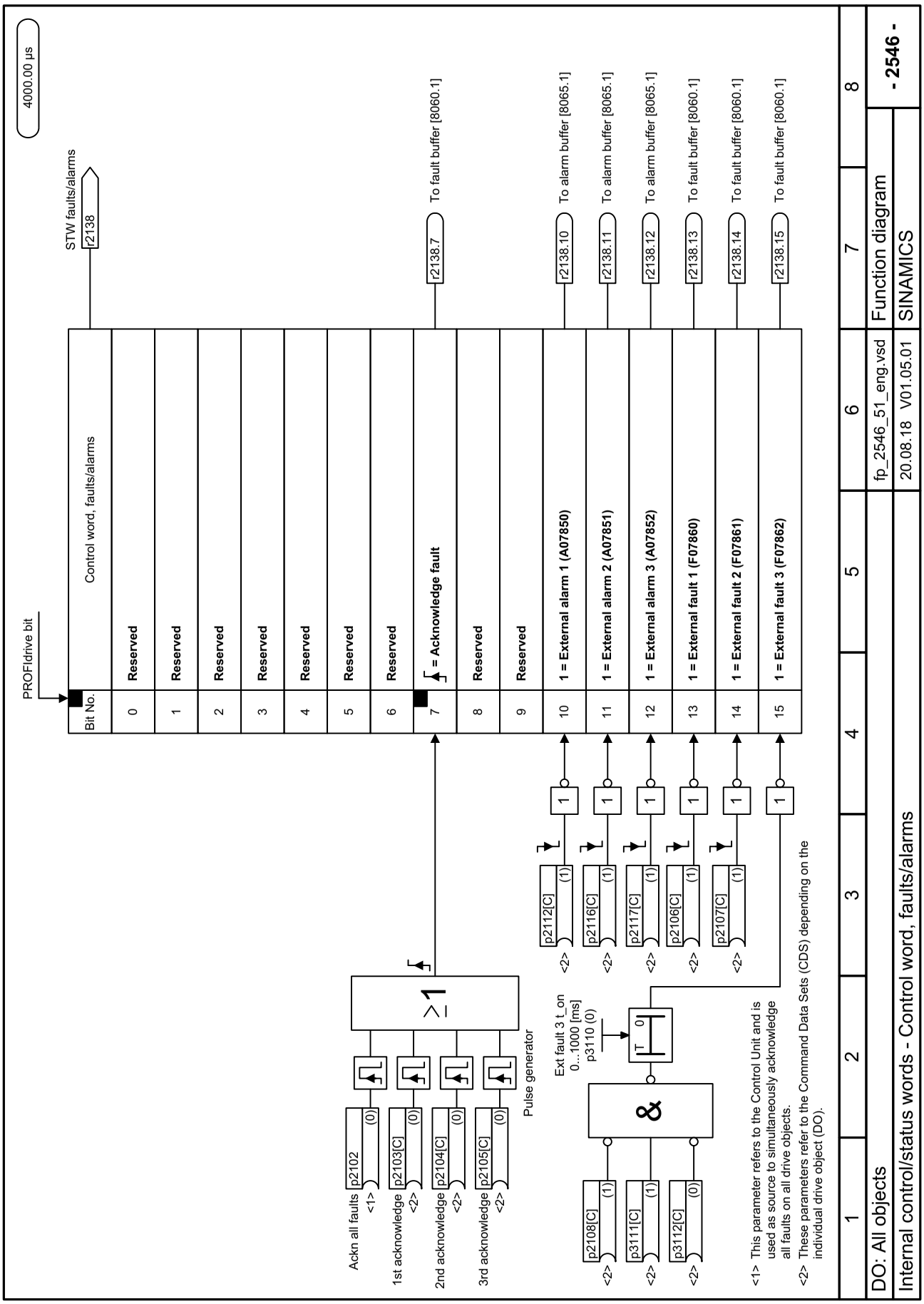


Fig. 3-52 2546 – Control word faults/alarms

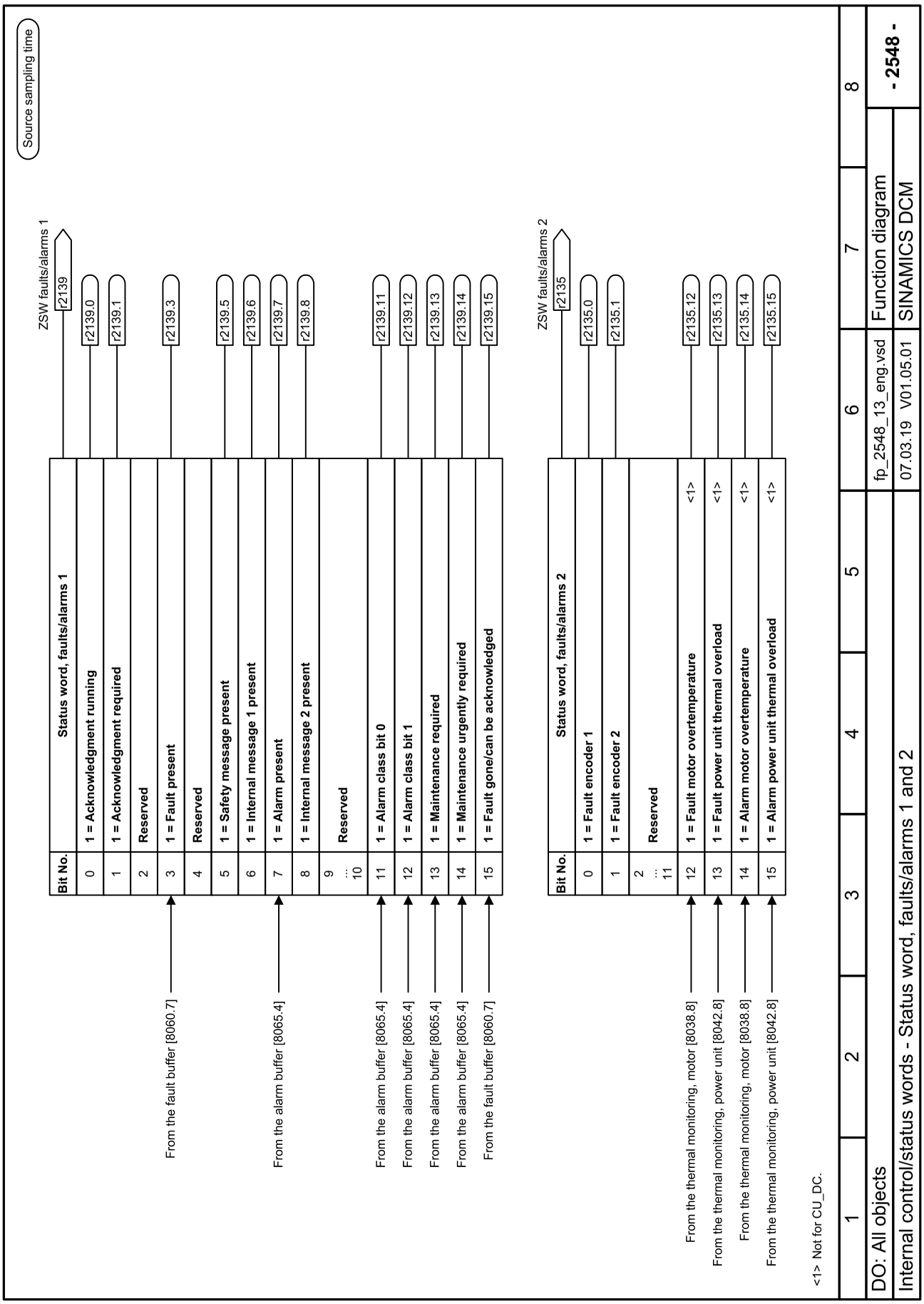
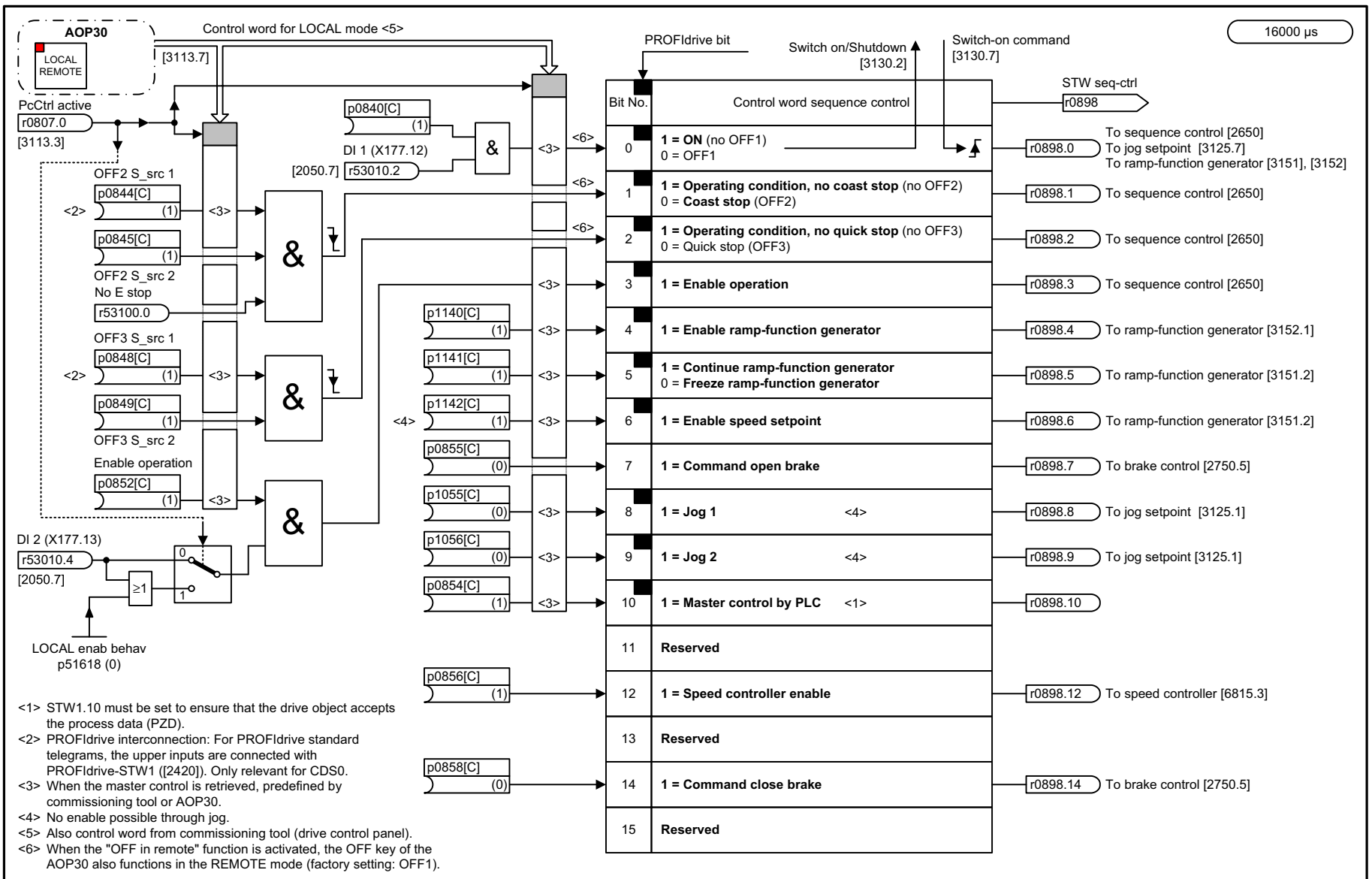


Fig. 3-53 2548 – Status word, faults/alarms 1 and 2

Fig. 3-54 2580 – Control word, sequence control



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2580_13_eng.vsd	Function diagram	- 2580 -
Internal control/status words - Control word, sequence control					23.10.18 V01.05.01	SINAMICS DCM	

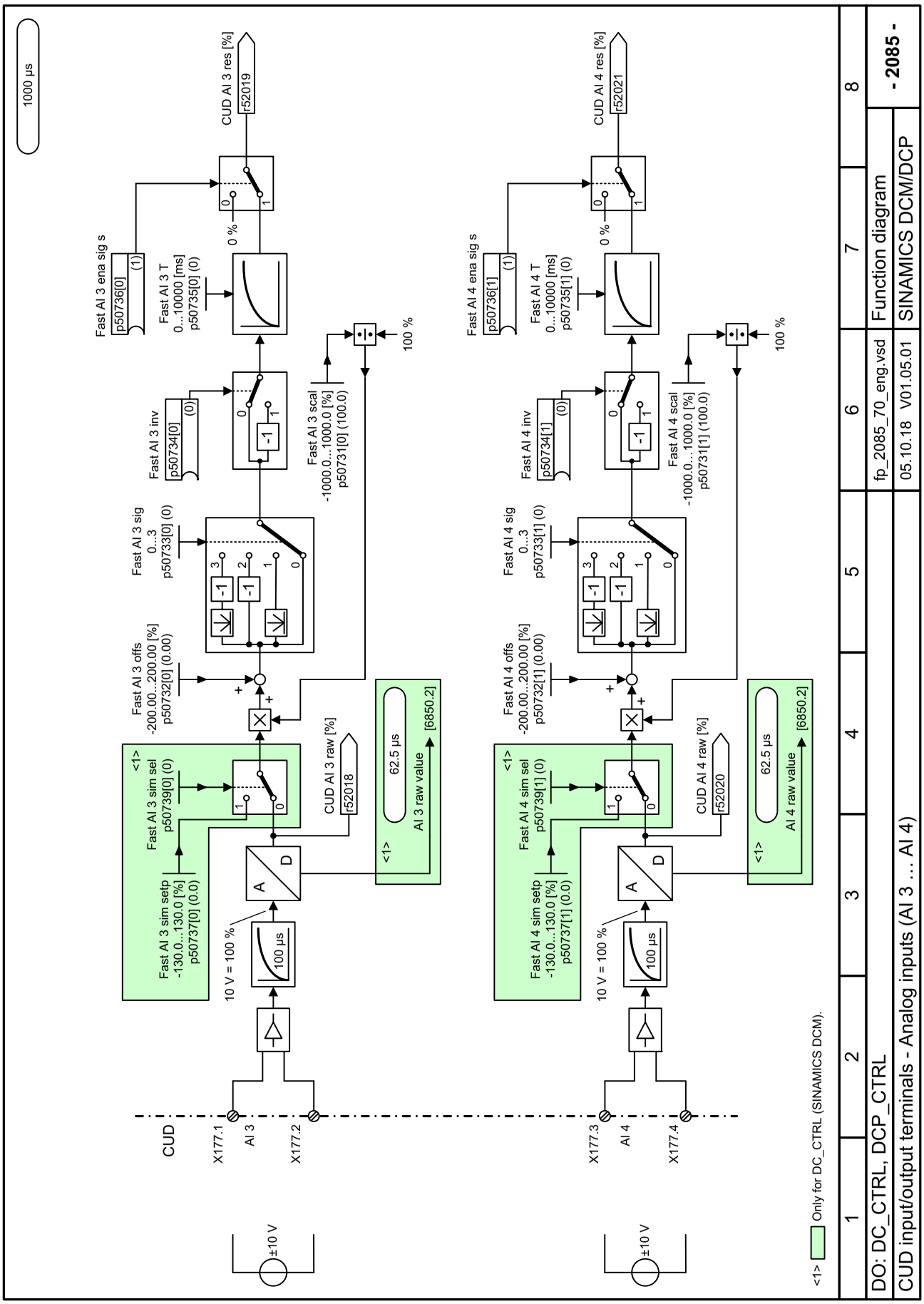
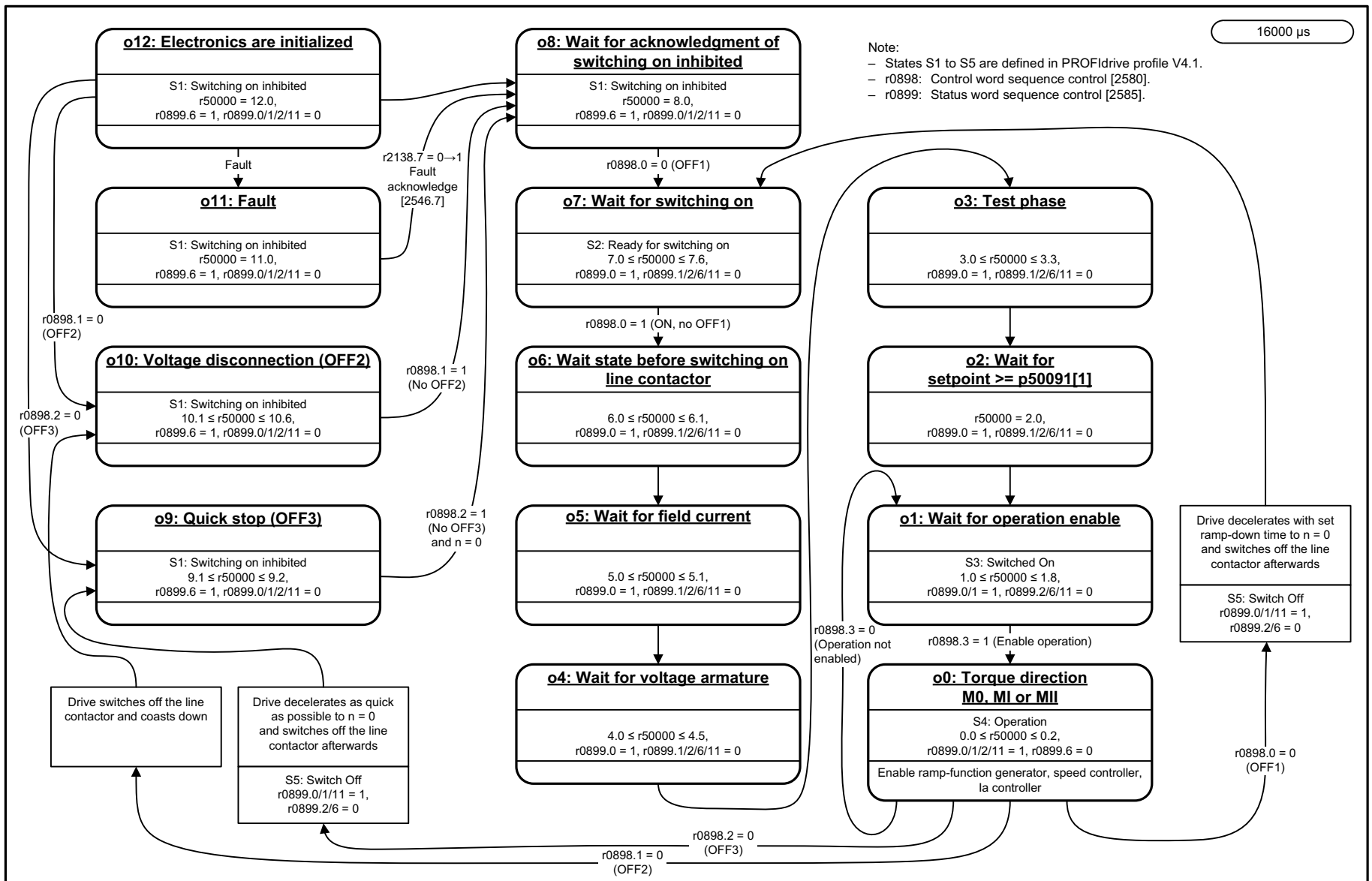


Fig. 3-55 2585 – Status word, sequence control

3.8 Sequence control

Function diagrams



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2650_13_eng.vsdx	Function diagram	- 2650 -
Sequence control - Sequencer (Part 1)					20.09.22 V01.05.01	SINAMICS DCM	

Fig. 3-56 2650 – Sequencer (Part 1)

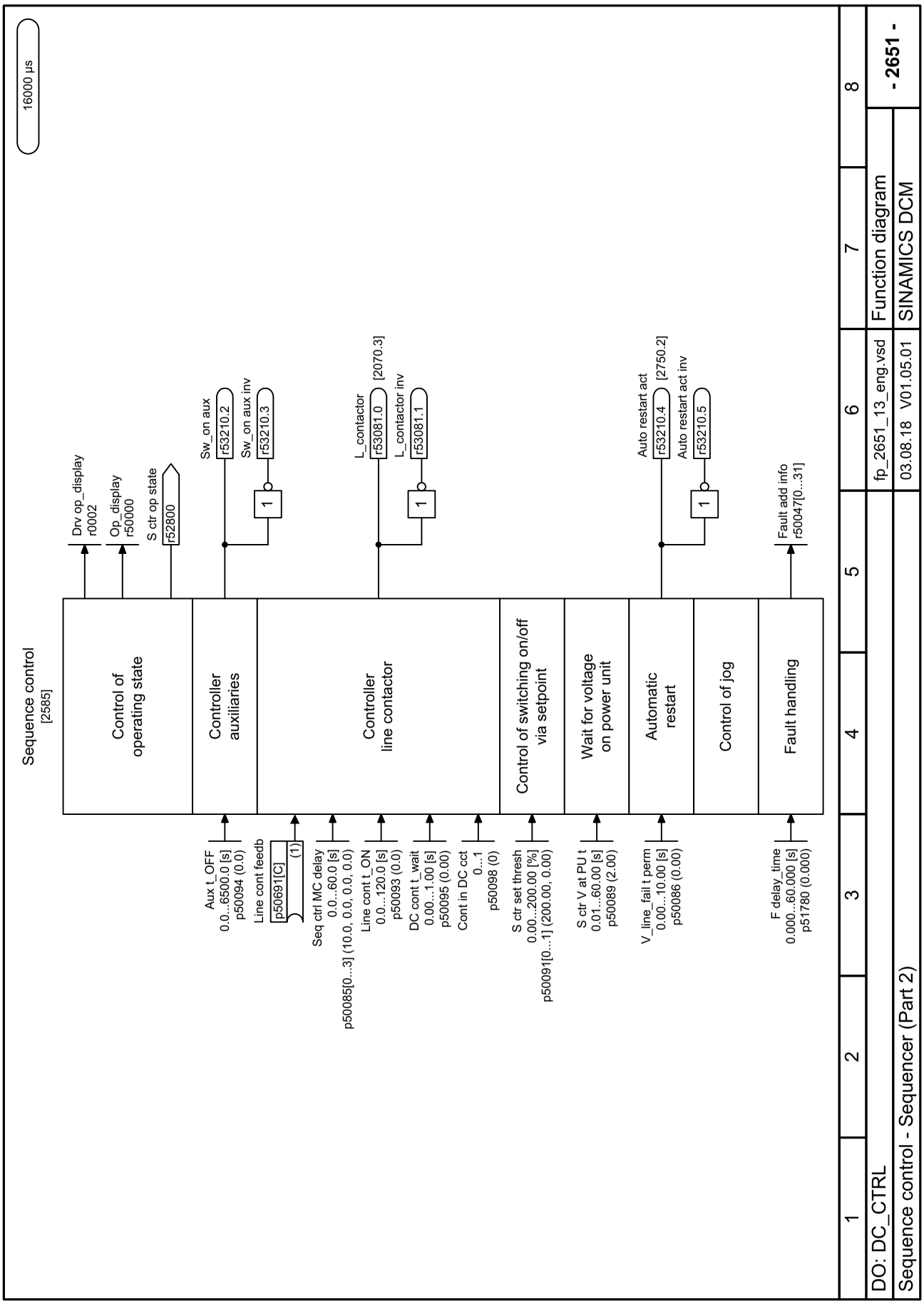


Fig. 3-57 2651 – Sequencer (Part 2)

16000 µs

Bit No.	Missing enable signal		
			Missing enable sig r0046
0	**1 = OFF1 enable missing**	(r0898.0 = 0)	r0046.0
1	**1 = OFF2 enable missing**	(r0898.1 = 0)	r0046.1
2	**1 = OFF3 enable missing**	(r0898.2 = 0)	r0046.2
3	**1 = Operation enable missing**	(r0898.3 = 0)	r0046.3
4	**Reserved**		
5	**Reserved**		
6	**Reserved**		
7	**Reserved**		
8	**Reserved**		
9	**Reserved**		
10	**1 = Ramp-function generator enable missing**	(r0898.4 = 0)	r0046.10
11	**1 = Ramp-function generator start missing**	(r0898.5 = 0)	r0046.11
12	**1 = Setpoint enable missing**	(r0898.6 = 0)	r0046.12
13	**Reserved**		
14	**Reserved**		
15	**Reserved**		
16	**1 = OFF1 enable internal missing**	(r50000 = 7.2 … 7.6)	r0046.16
17	**1 = OFF2 enable internal missing**	(r50000 = 10)	r0046.17
18	**1 = OFF3 enable internal missing**	(r50000 = 9.3)	r0046.18
19	**1 = Pulse enable internal missing**	(r50000 = 1.2 … 1.5)	r0046.19
20	**Reserved**		
21	**Reserved**		
22	**Reserved**		
23	**Reserved**		
24	**Reserved**		
25	**Reserved**		
26	**1 = Drive inactive or not operational**	(r50000 ≥ 1.0)	r0046.26
27	**Reserved**		
28	**1 = Brake open missing**	(r0898.14 = 0)	r0046.28
29	**Reserved**		
30	**1 = Speed controller inhibited**	(r0898.12 = 0)	r0046.30
31	**1 = Jog setpoint active**	(r0898.8 / r0898.9 = 0)	r0046.31

Logic operations

AND operation <1>

AND input 1 p2810[1] (0)
AND input 2 p2810[0] (0)
&
AND result r2811 r2811.0

OR operation <1>

OR input 1 p2816[1] (0)
OR input 2 p2816[0] (0)
≥1
OR result r2817 r2817.0

<1> Can be used freely as long as manufacturer-specific PROFIdrive-telegram 220 is not selected [2425.5], [2428.5].

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2655_13_eng.vsd	Function diagram	- 2655 -
Sequence control - Missing enable signals, logic operations					14.11.16 V01.05.01	SINAMICS DCM	

Fig. 3-58 2655 – Missing enable signals, logic operations

Background

Execution of an optimization run:

1) Select the requested optimization run in p50051.
2) Switch on drive (OFF1 0 →1; not for p50051 = 30).
3) Wait until optimization run has ended (drive switches to state o8 automatically).
   For p50051 = 30 applies: drive switches back in the same state as before starting the optimization run.
4) Check if optimization results are usable.

Characteristics of the optimization runs:

p50051 =

23: Optimization run for armature current control for inductive loads (Duration up to 1 min).
(→ p50110 (Ra), p50111 (La), p50191 (Ia_ctr set T), p51591 (L_armat red fact), p51596 (R_intph 12-pulse), p51594 (L_intph 12-pulse), p51595 (L_intph red fact), p50155 (Ia ctr Kp), p50156 (Ia ctr Tn))

24: Optimization run for closed-loop field current control (Duration up to 1 min).
(→ p50112 (R_field circuit), p50116 (L_field circuit), p50255 (I_field ctr Kp), p50256 (I_field ctr Tn))

25: Optimization run for closed-loop armature current control (Duration up to 1 min).
(→ p50110 (Ra), p50111 (La), p50191 (Ia_ctr set T), p51591 (L_armat red fact), p51596 (R_intph 12-pulse), p51594 (L_intph 12-pulse), p51595 (L_intph red fact), p50155 (Ia ctr Kp))

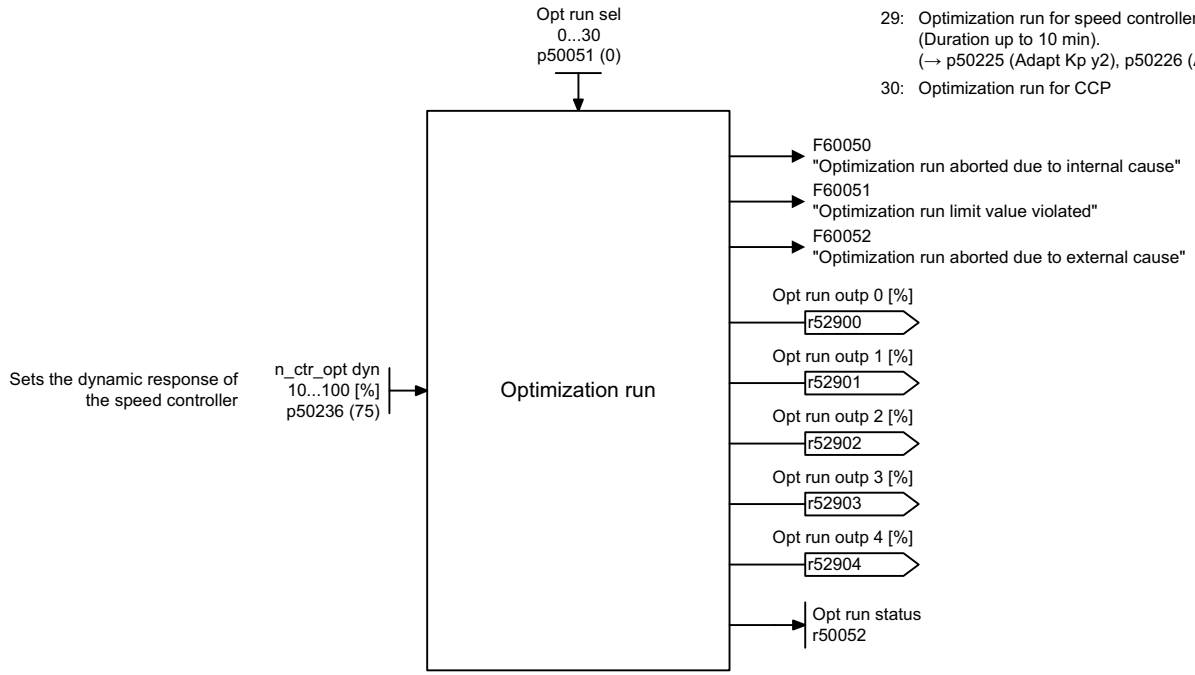
26: Optimization run for the speed controller and moment of inertia (Duration up to 1 min).
(→ p50225 (Adapt Kp y2), p50226 (Adapt Tn y2), p50228 (n_ctr n_set T), p50540 (n_ctr t_accel))

27: Optimization run for EMF-controller (incl. recording field characteristic)
(Duration up to 1 min).
(→ 50117 to p50139 (Field characteristic), p50275 (EMF ctr Kp), p50276 (EMF ctr Tn))

28: Optimization run for friction compensation (Duration up to 1 min).
(→ p50520 to 50530 (basic values for friction compensation))

29: Optimization run for speed controllers and moment of inertia for drives that are capable of oscillation
(Duration up to 10 min).
(→ p50225 (Adapt Kp y2), p50226 (Adapt Tn y2), p50228 (n_ctr n_set T), p50540 (n_ctr t_accel))

30: Optimization run for CCP



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_2660_13_eng.vsd	Function diagram	- 2660 -
Sequence control - Optimization runs					13.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-59 2660 – Optimization runs

3.9 Brake control

Function diagrams

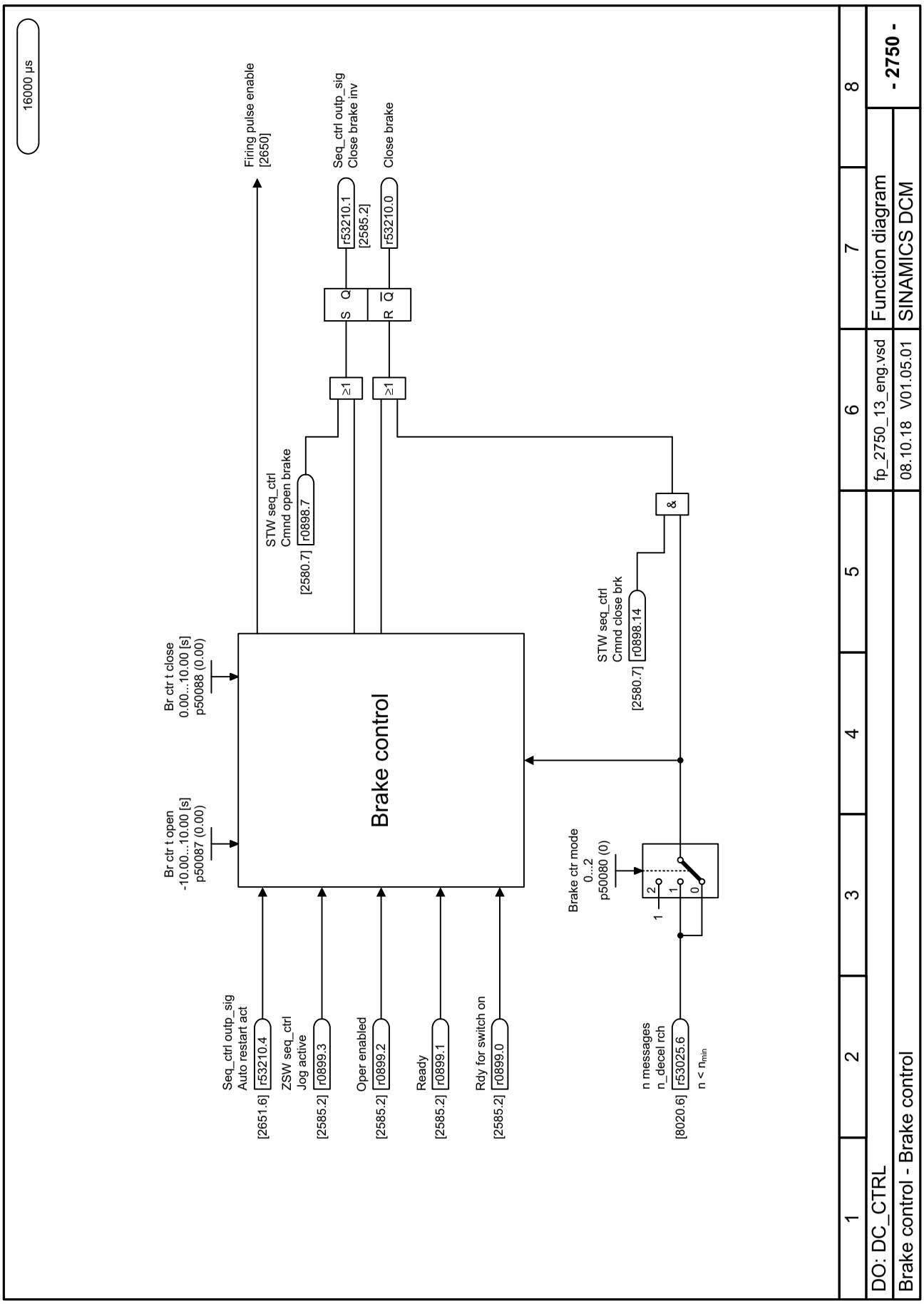
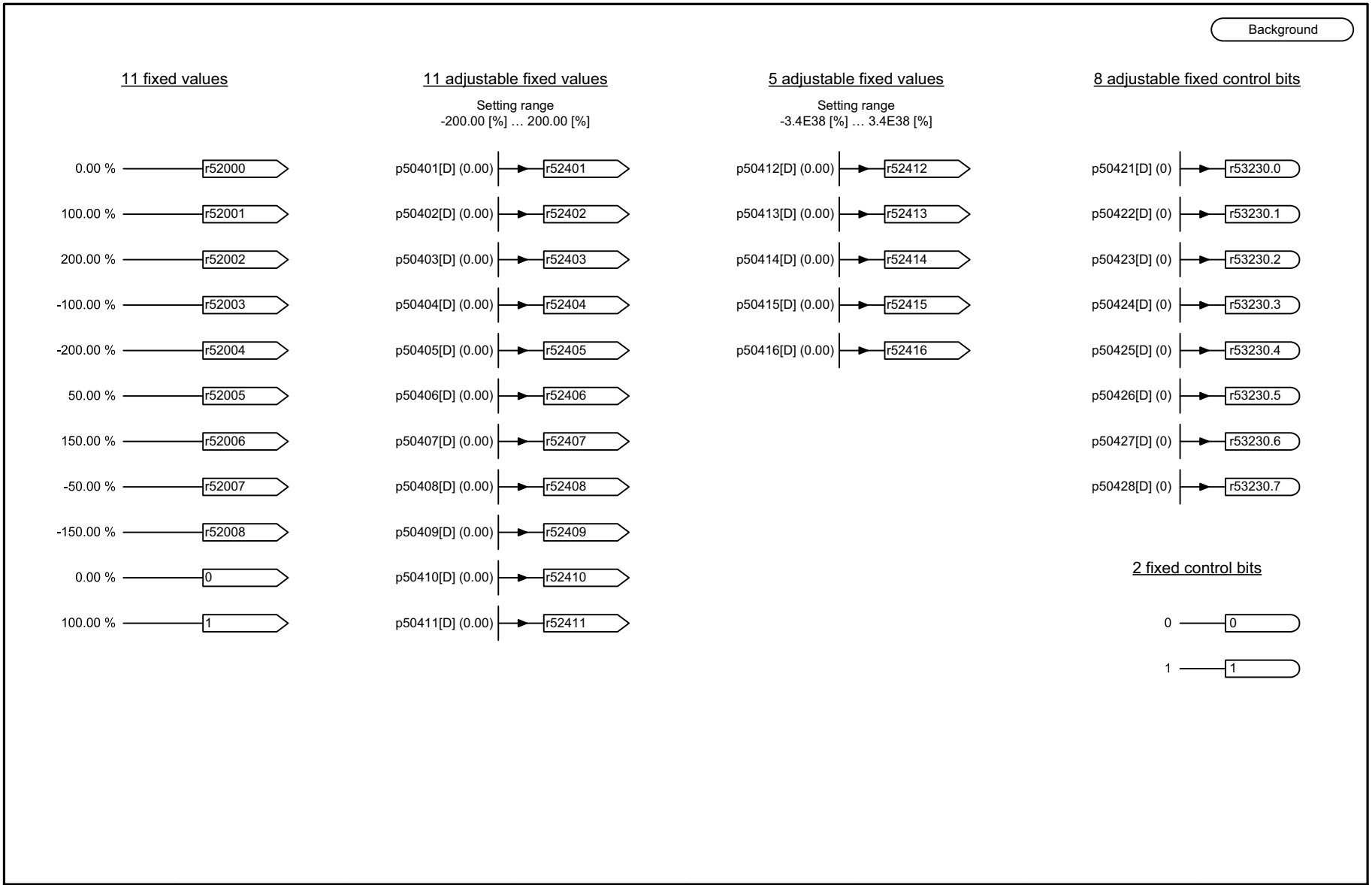


Fig. 3-60 2750 – Brake control

3.10 Setpoint channel

Function diagrams



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3100_13_eng.vsd	Function diagram	- 3100 -
Setpoint channel - Fixed values (part 1)					08.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-61 3100 – Fixed values (Part 1)

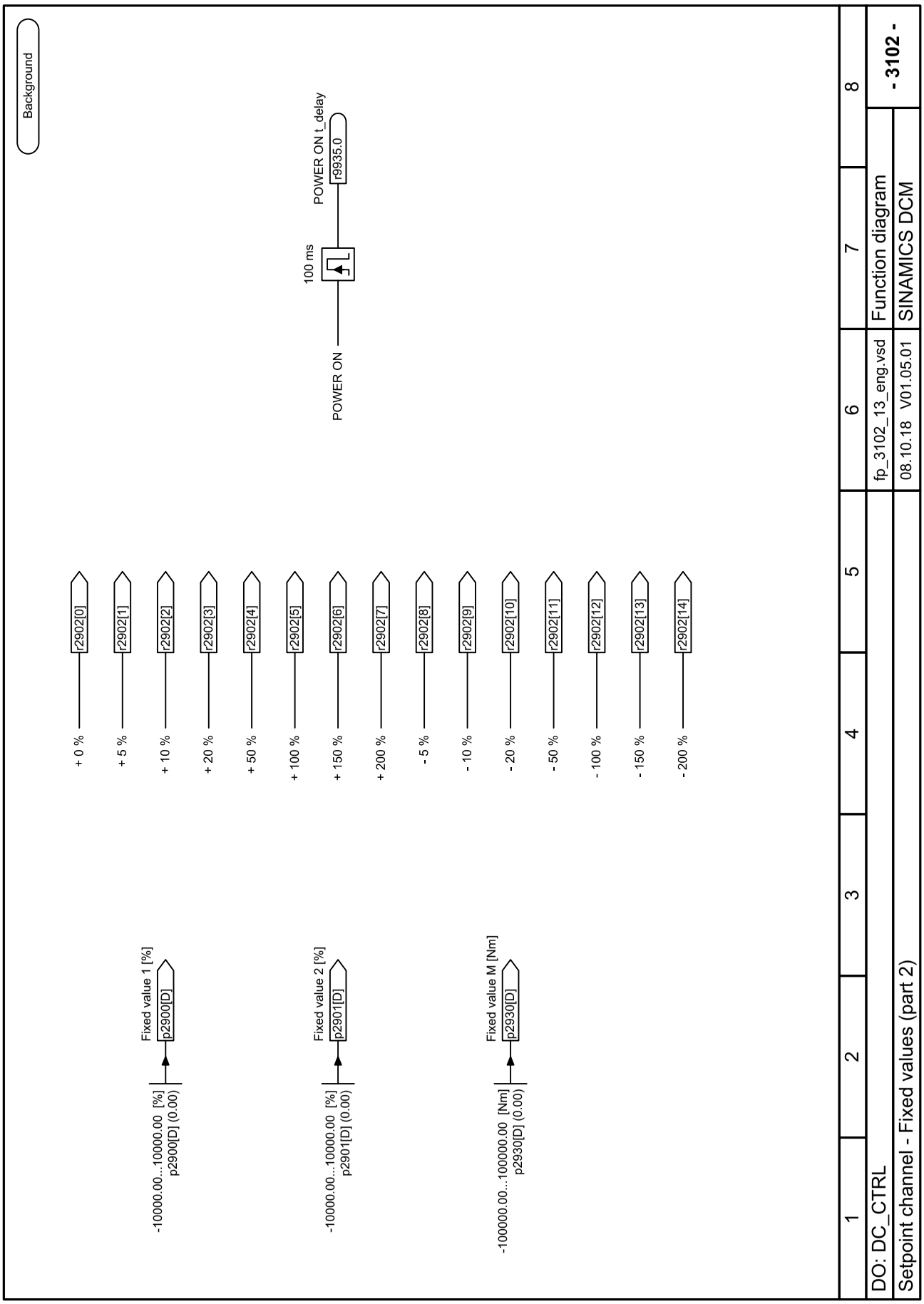


Fig. 3-62 3102 – Fixed values (Part 2)

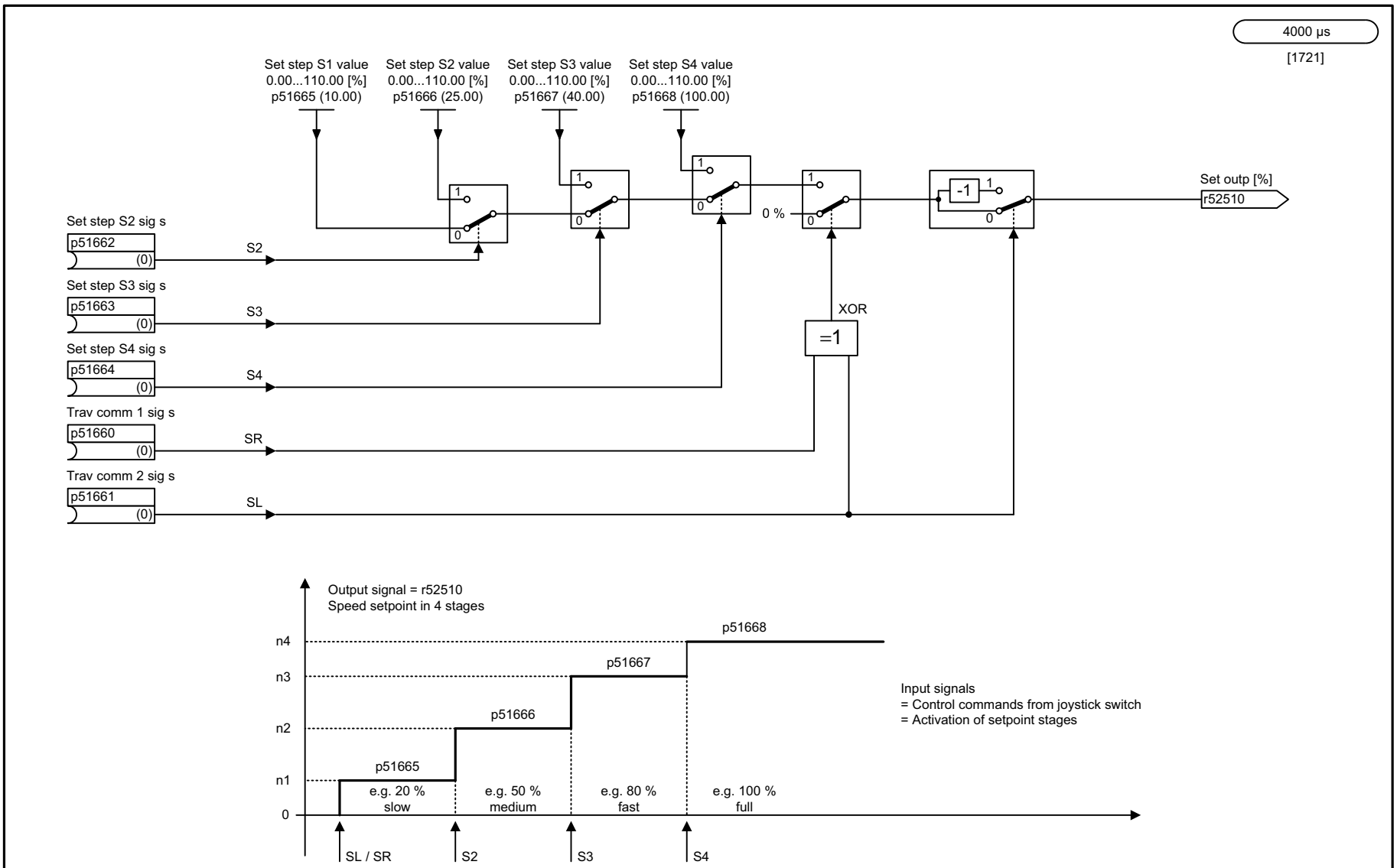
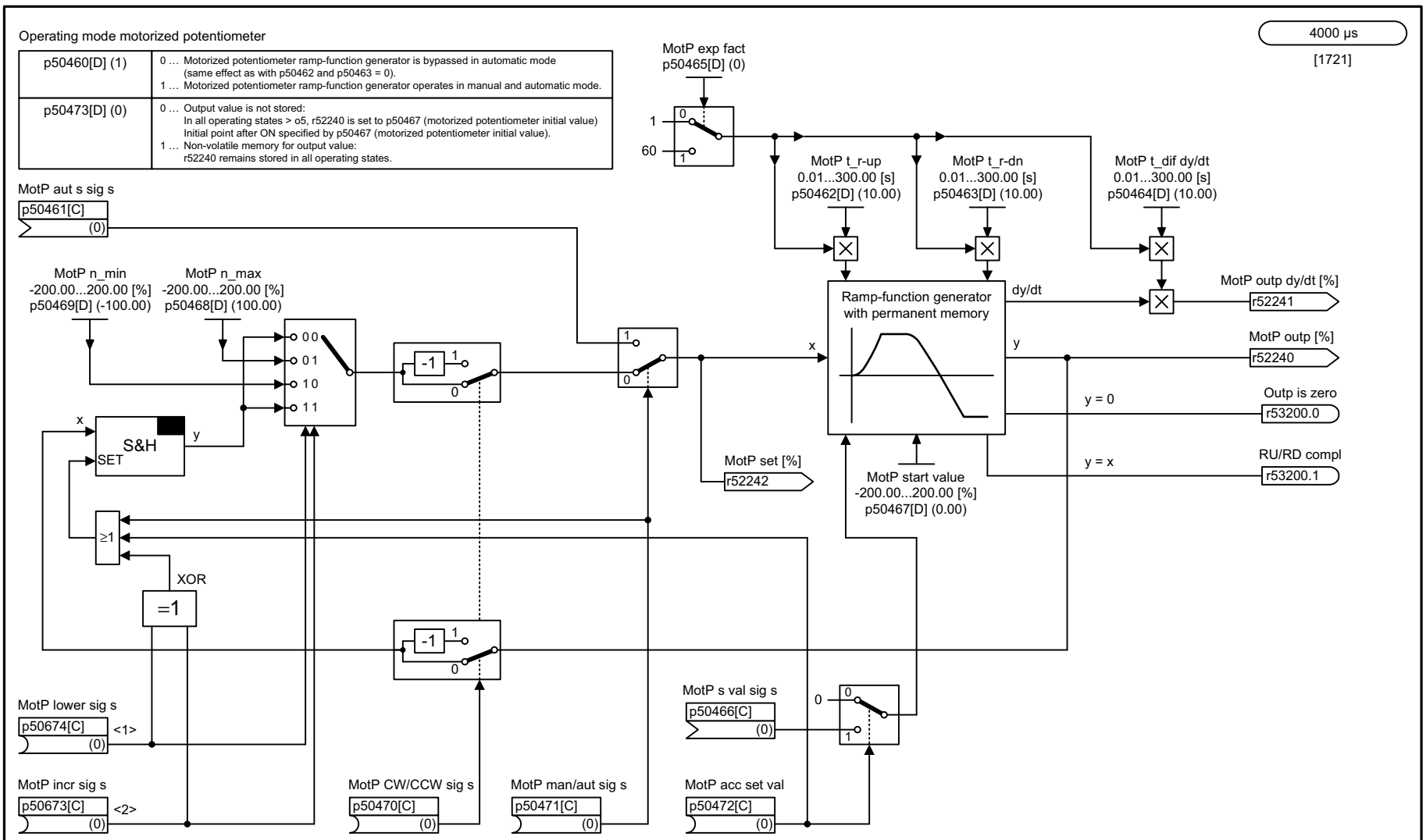


Fig. 3-63 3105 – 4-stage master switch

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3105_13_eng.vsd	Function diagram	- 3105 -
Setpoint channel - 4-stage joystick switch					26.09.18 V01.05.01	SINAMICS DCM	

Operating mode motorized potentiometer

p50460[D] (1)	0 … Motorized potentiometer ramp-function generator is bypassed in automatic mode (same effect as with p50462 and p50463 = 0). 1 … Motorized potentiometer ramp-function generator operates in manual and automatic mode.
p50473[D] (0)	0 … Output value is not stored: In all operating states > o5, r52240 is set to p50467 (motorized potentiometer initial value) Initial point after ON specified by p50467 (motorized potentiometer initial value). 1 … Non-volatile memory for output value: r52240 remains stored in all operating states.



<1> Mirrored onto and by p01035.
<2> Mirrored onto and by p01036.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3110_13_eng.vsd	Function diagram	- 3110 -
Setpoint channel - Motorized potentiometer					26.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-64 3110 – Motorized potentiometer

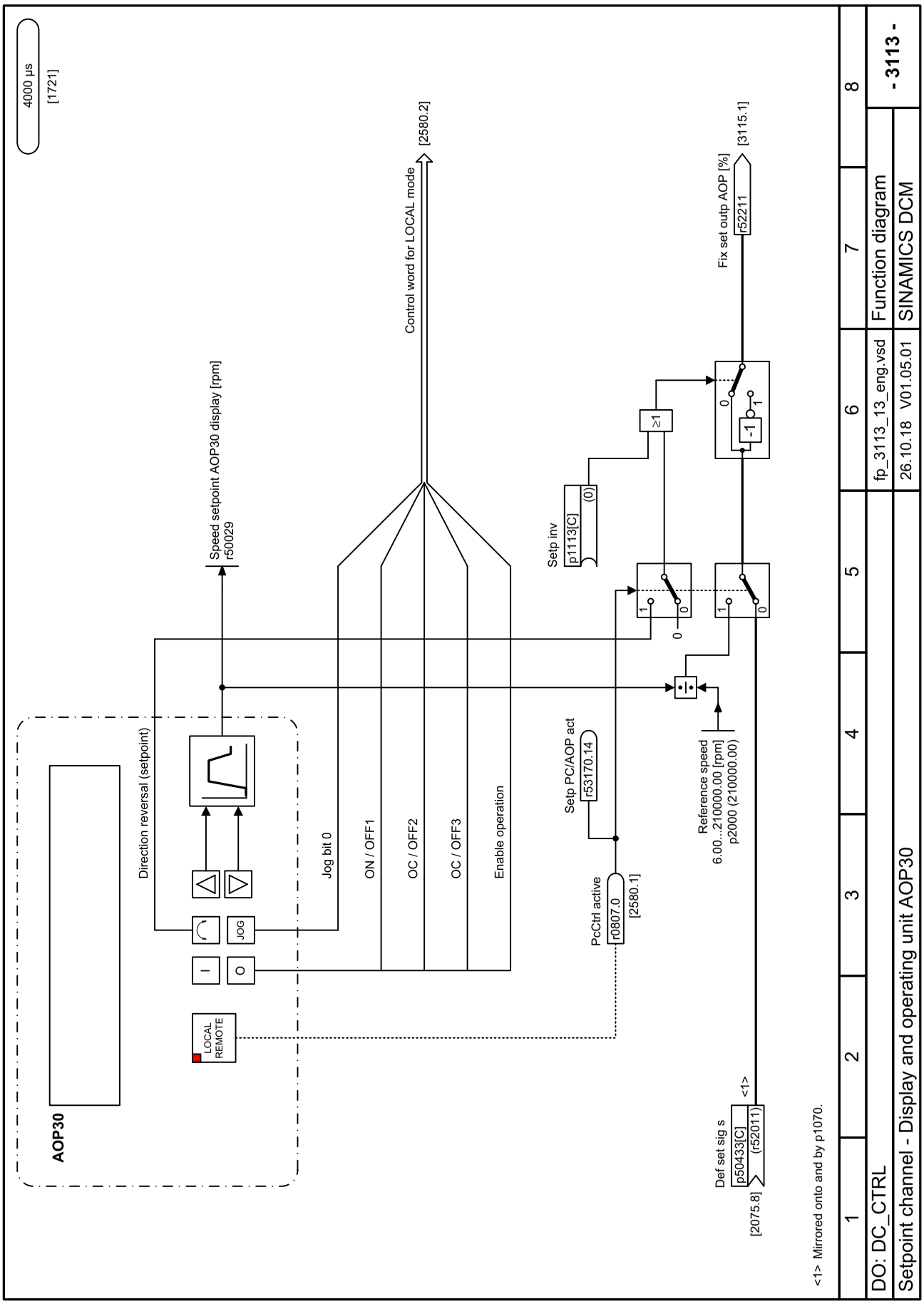


Fig. 3-65 3113 – AOP30 display and control unit

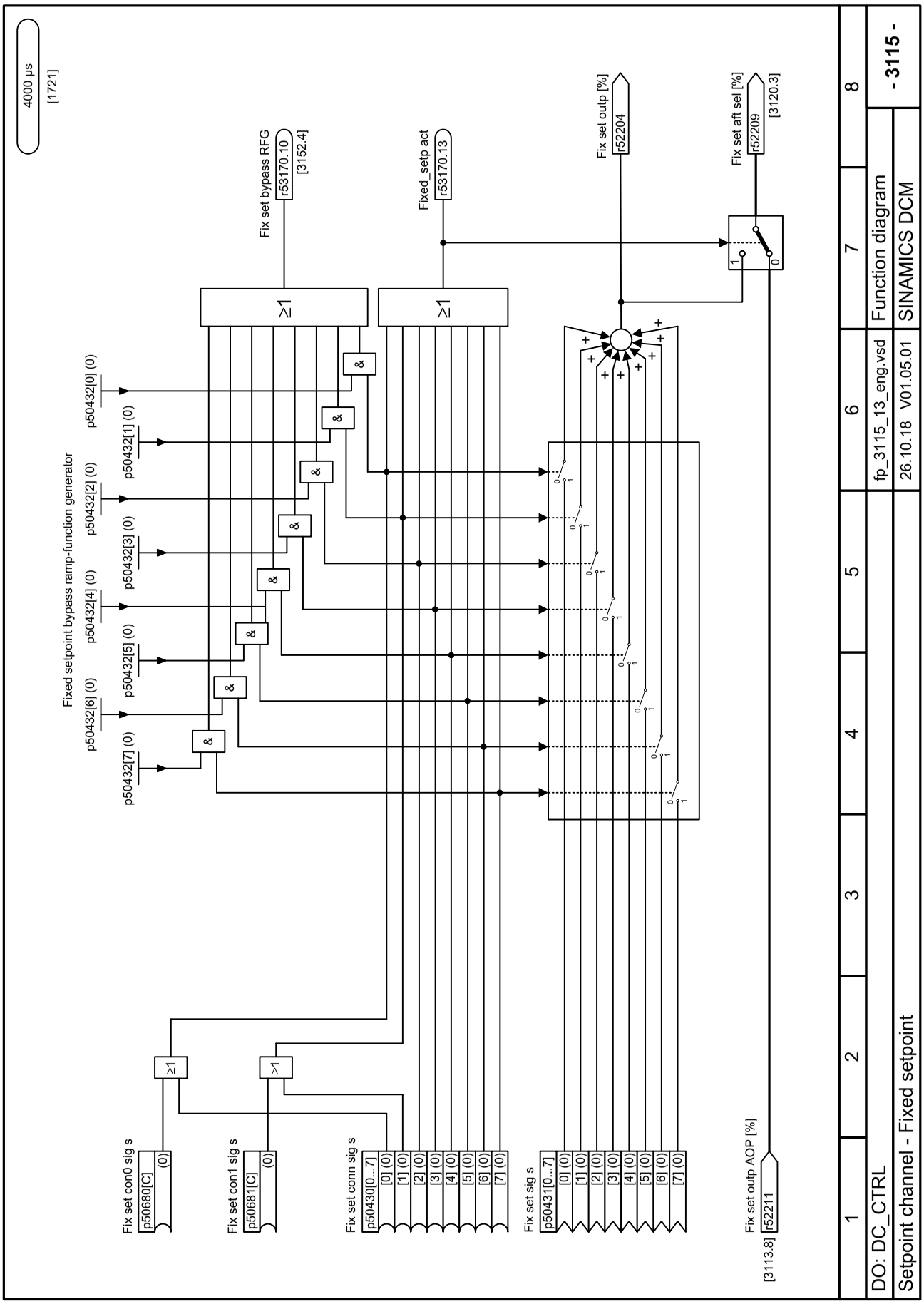


Fig. 3-66 3115 – Fixed setpoint

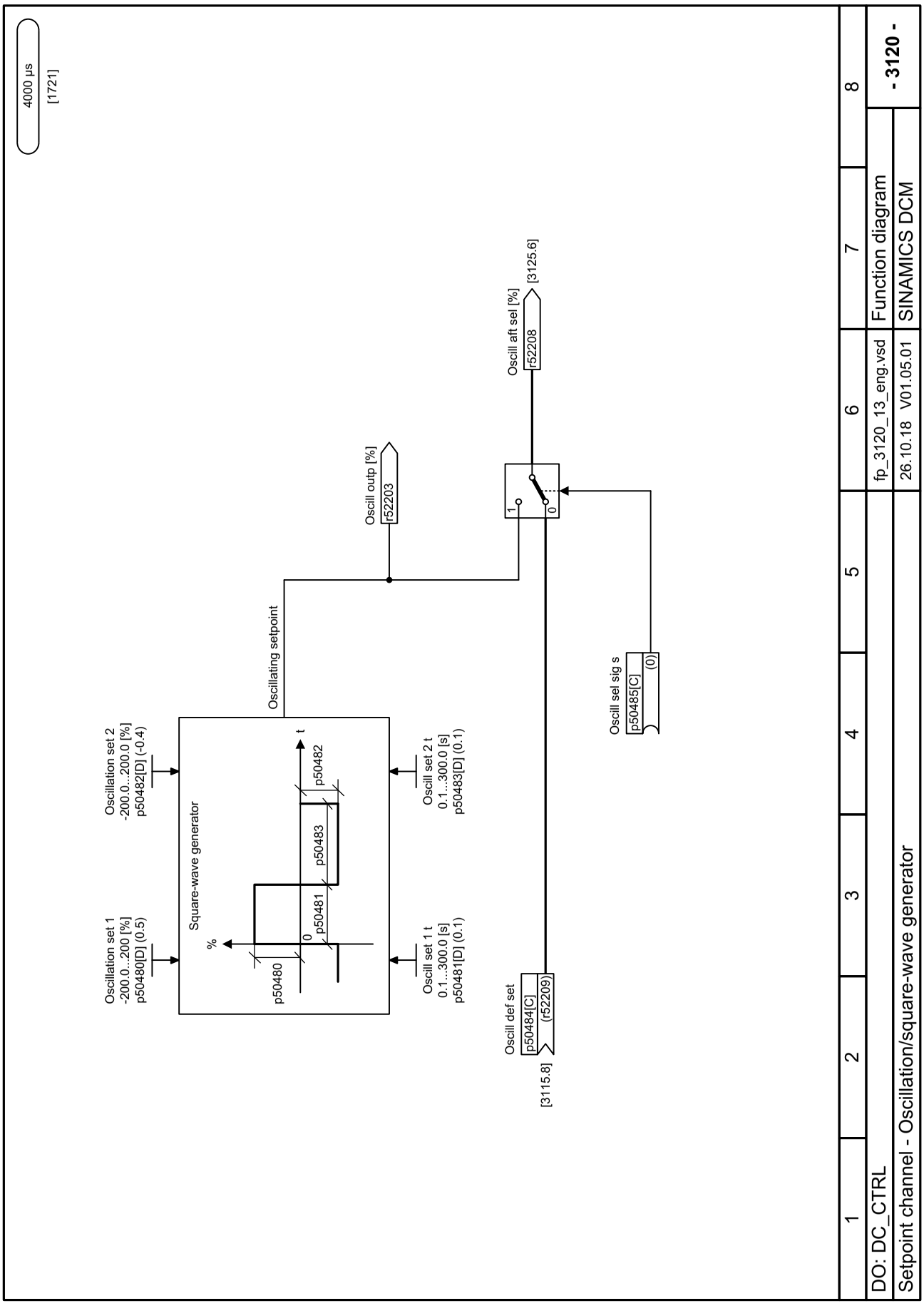
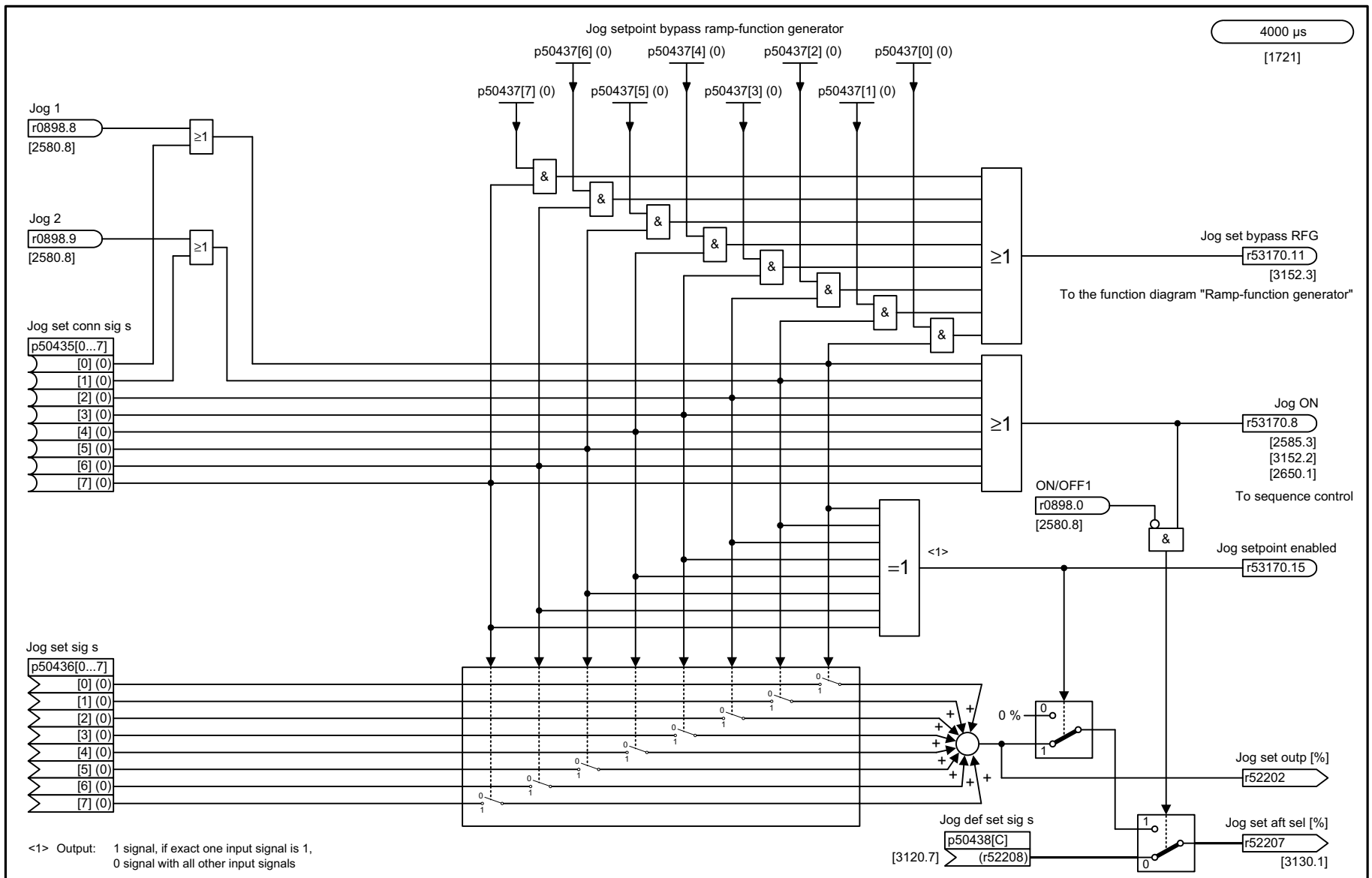
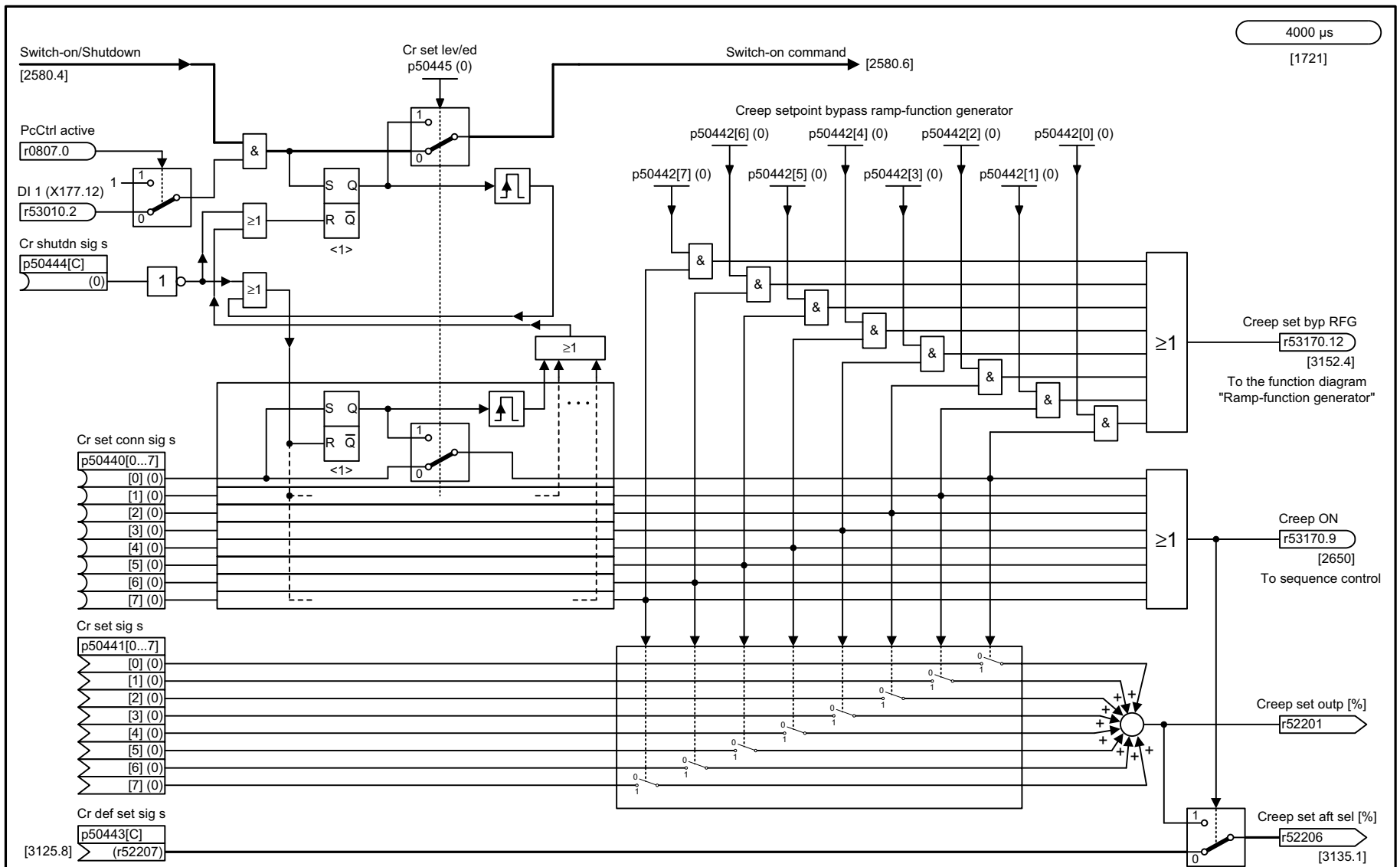


Fig. 3-67 3120 – Oscillation/square-wave generator



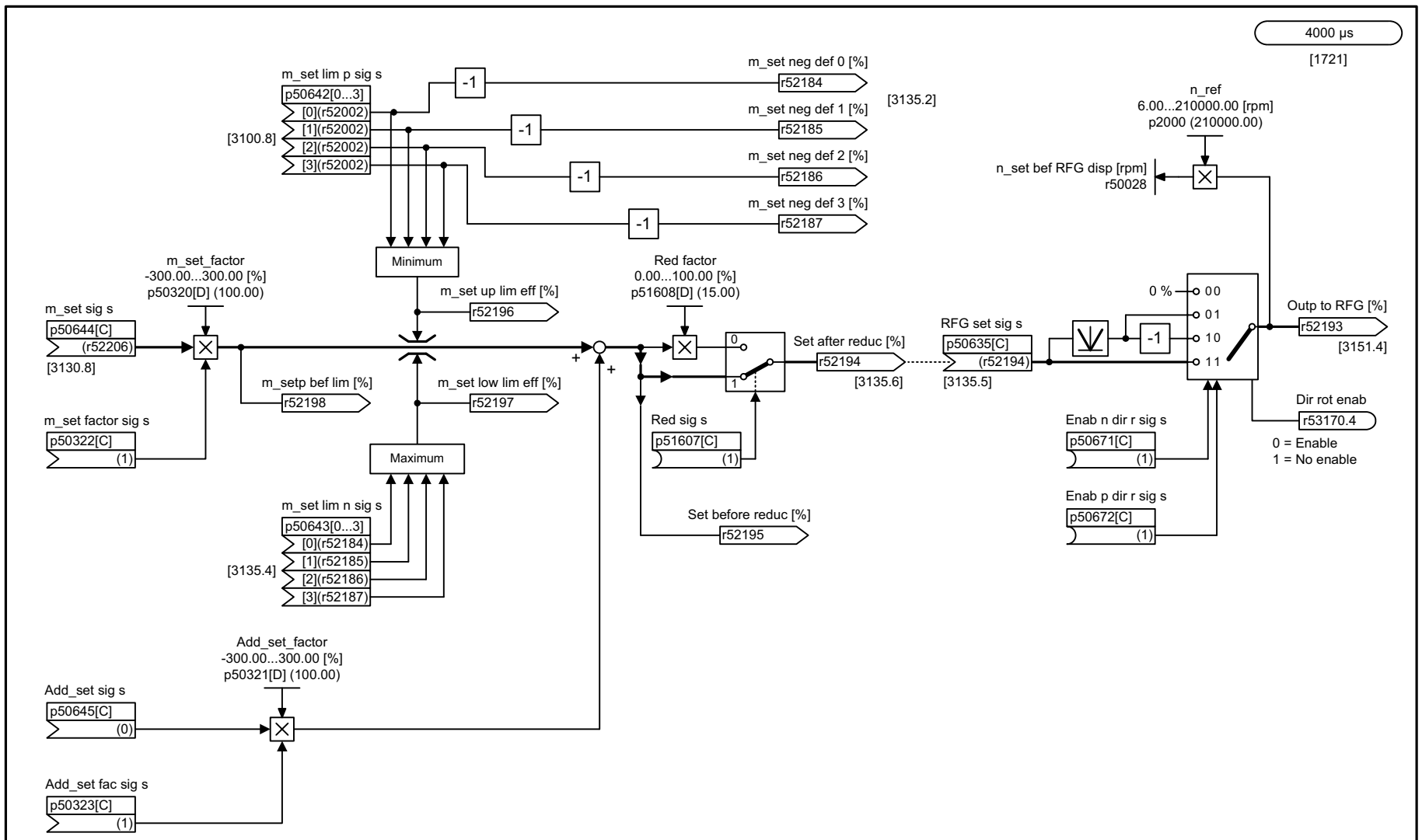
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3125_13_eng.vsdx	Function diagram	- 3125 -
Setpoint channel - Jog setpoint					08.12.22 V01.05.01	SINAMICS DCM	

Fig. 3-68 3125 – Jog setpoint



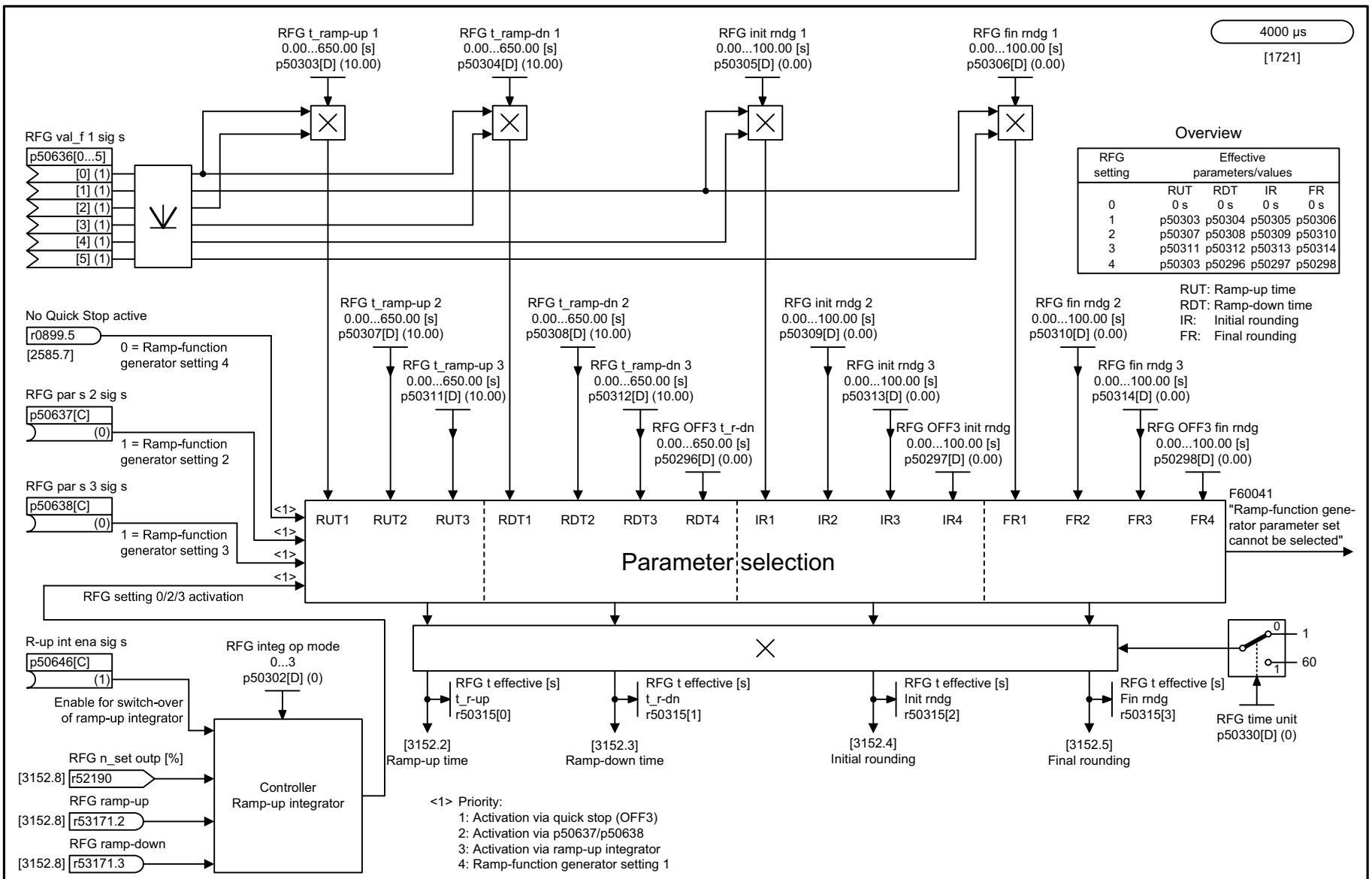
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3130_13_eng.vsd	Function diagram	- 3130 -
Setpoint channel - Creeping setpoint					26.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-69 3130 – Creep setpoint



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3135_13_eng.vsd	Function diagram	- 3135 -
Setpoint channel - Setpoint preprocessing					26.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-70 3135 – Setpoint processing



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3150_13_eng.vsd	Function diagram	- 3150 -
Setpoint channel - Ramp-function generator (part 1)					27.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-71 3150 – Ramp-function generator (Part 1)

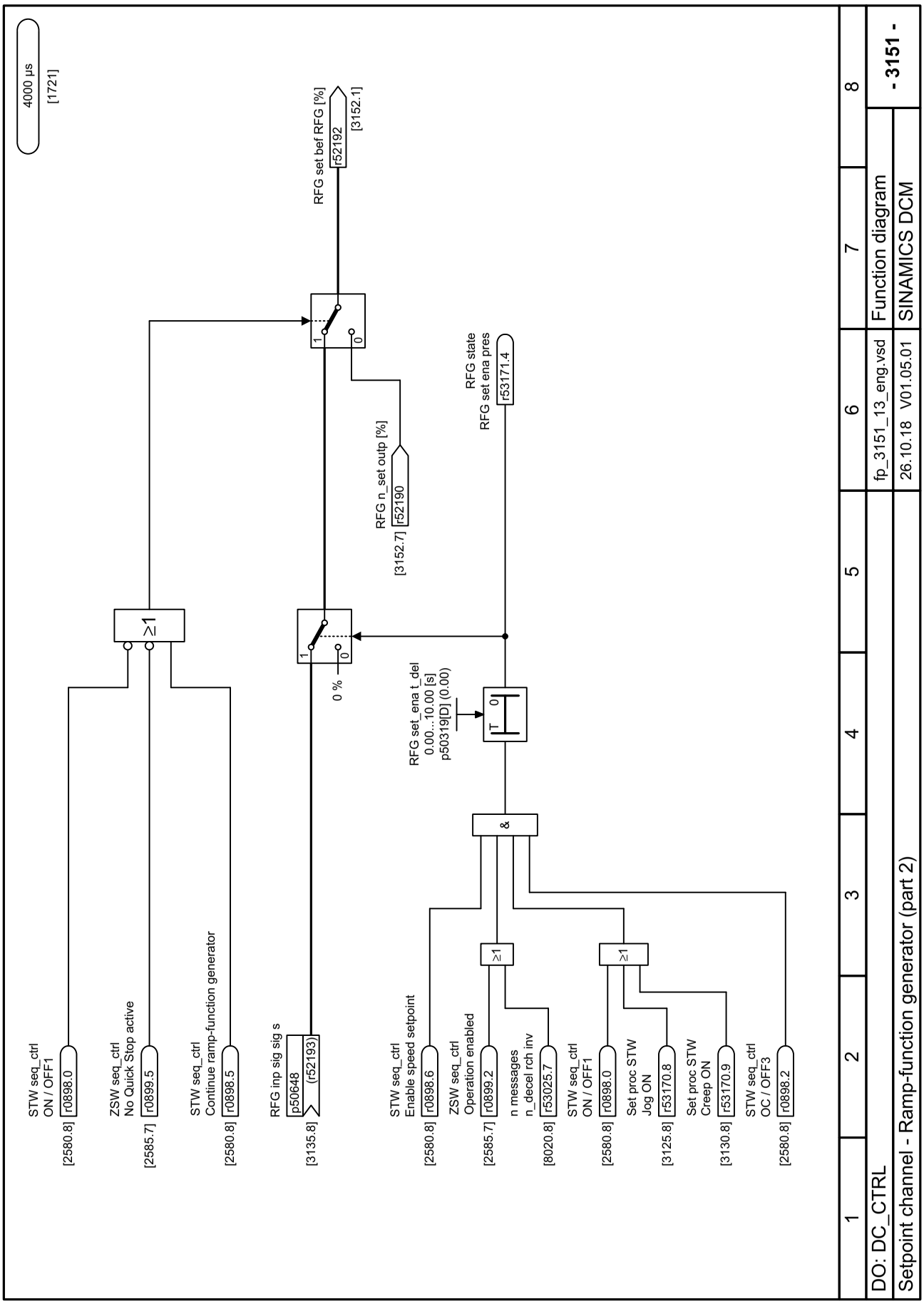
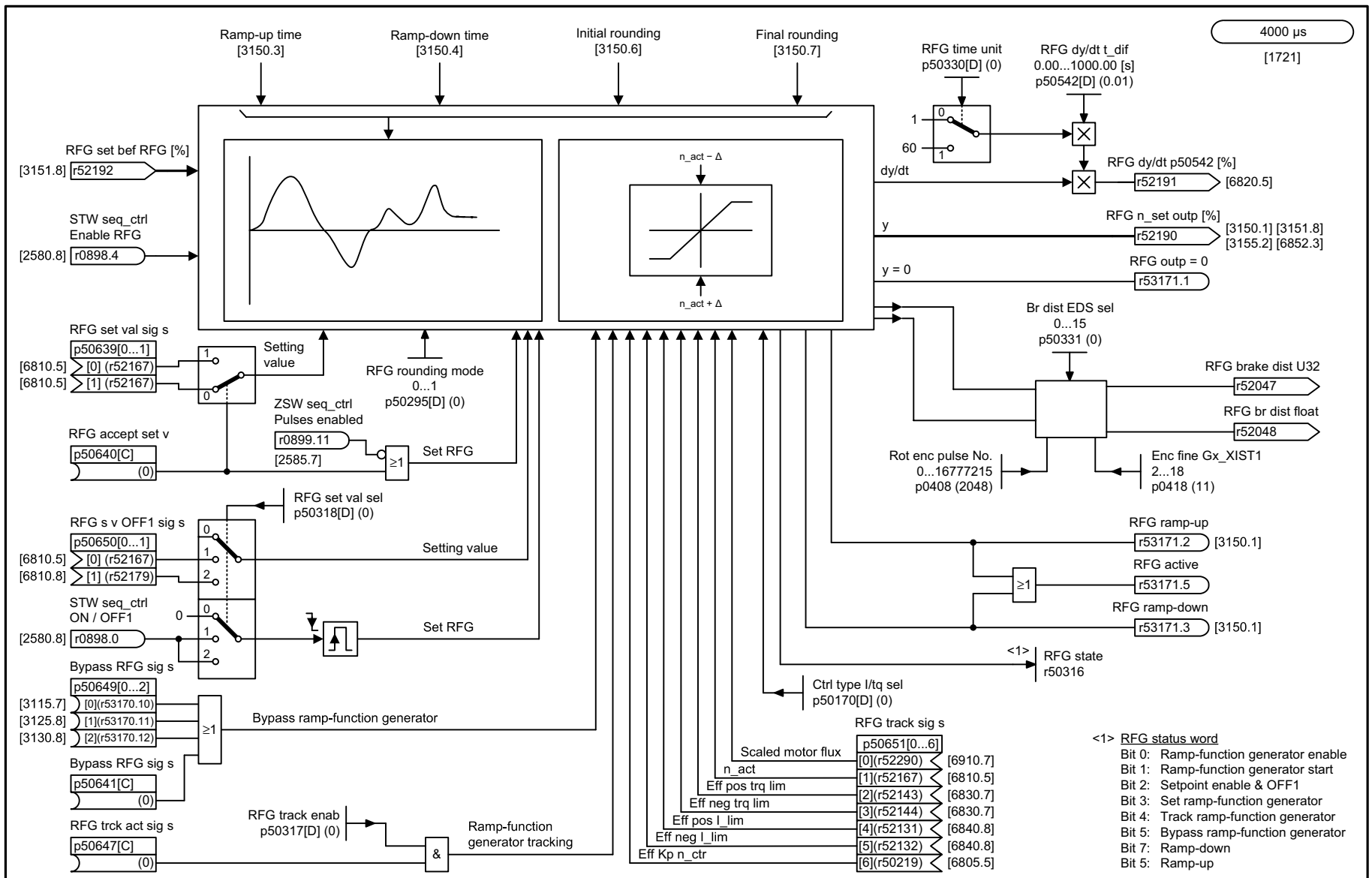


Fig. 3-72 3151 – Ramp-function generator (Part 2)



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_3152_13_eng.vsd	Function diagram	- 3152 -
Setpoint channel - Ramp-function generator (part 3)					26.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-73 3152 – Ramp-function generator (Part 3)

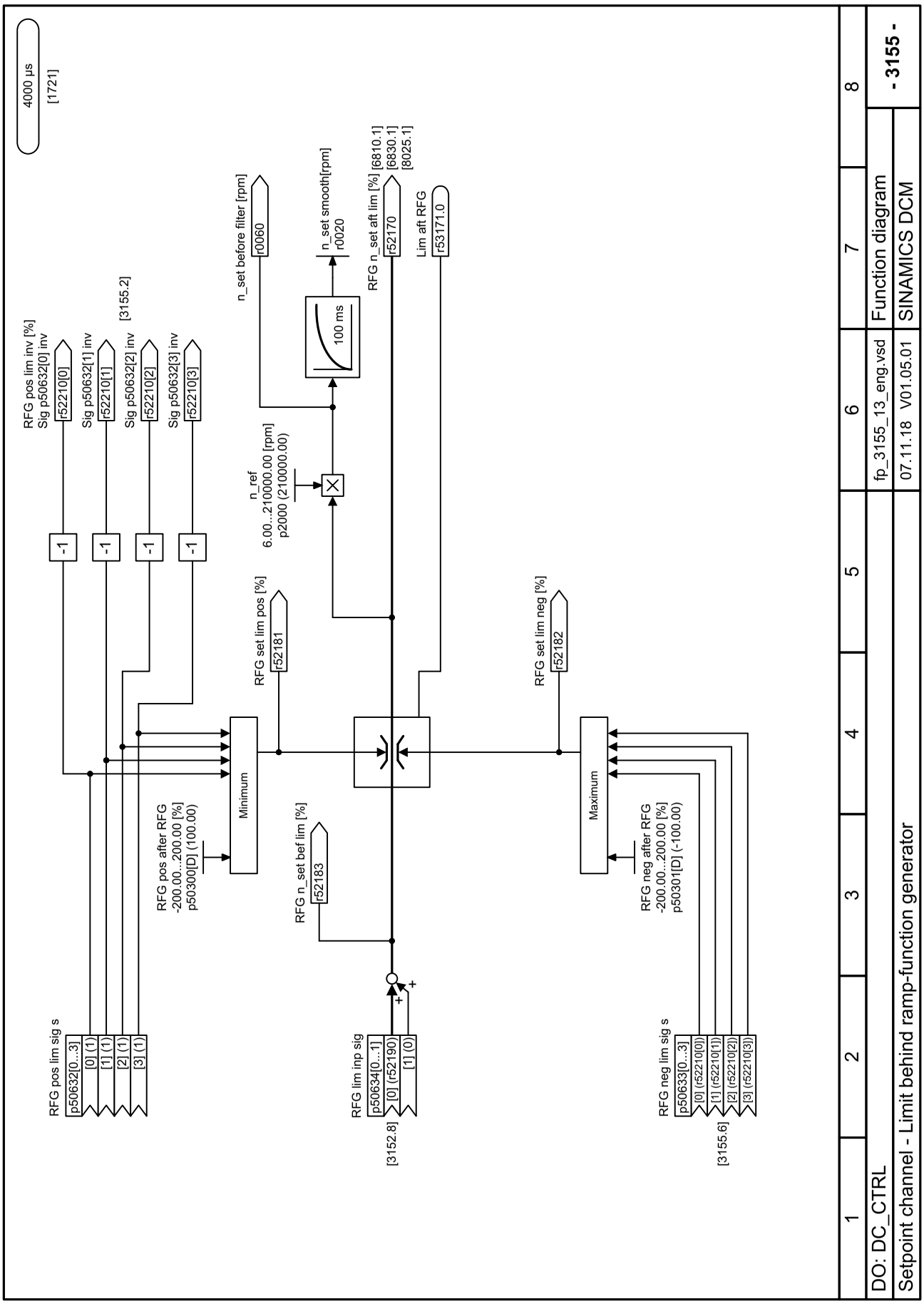
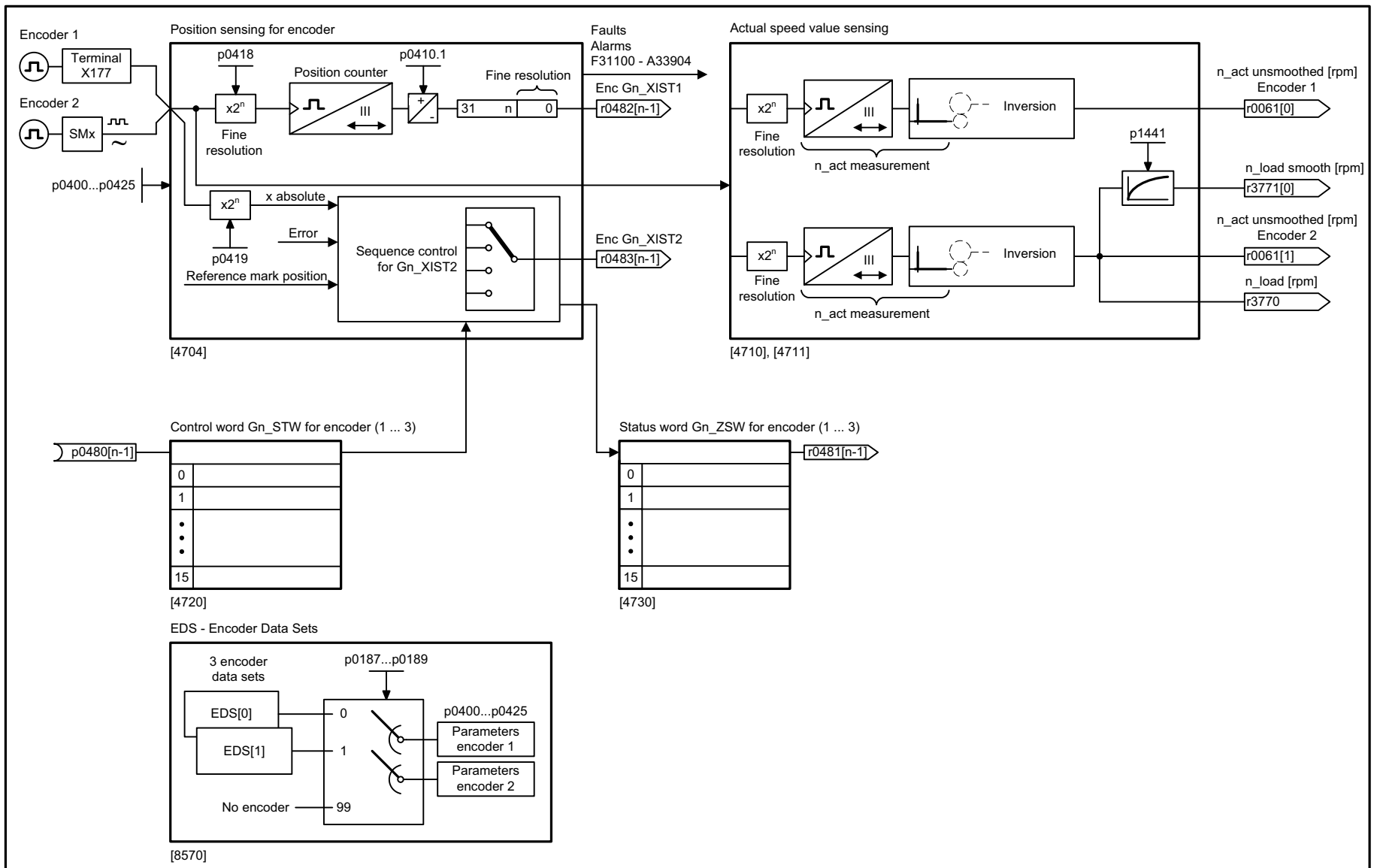


Fig. 3-74 3155 – Limit after ramp-function generator

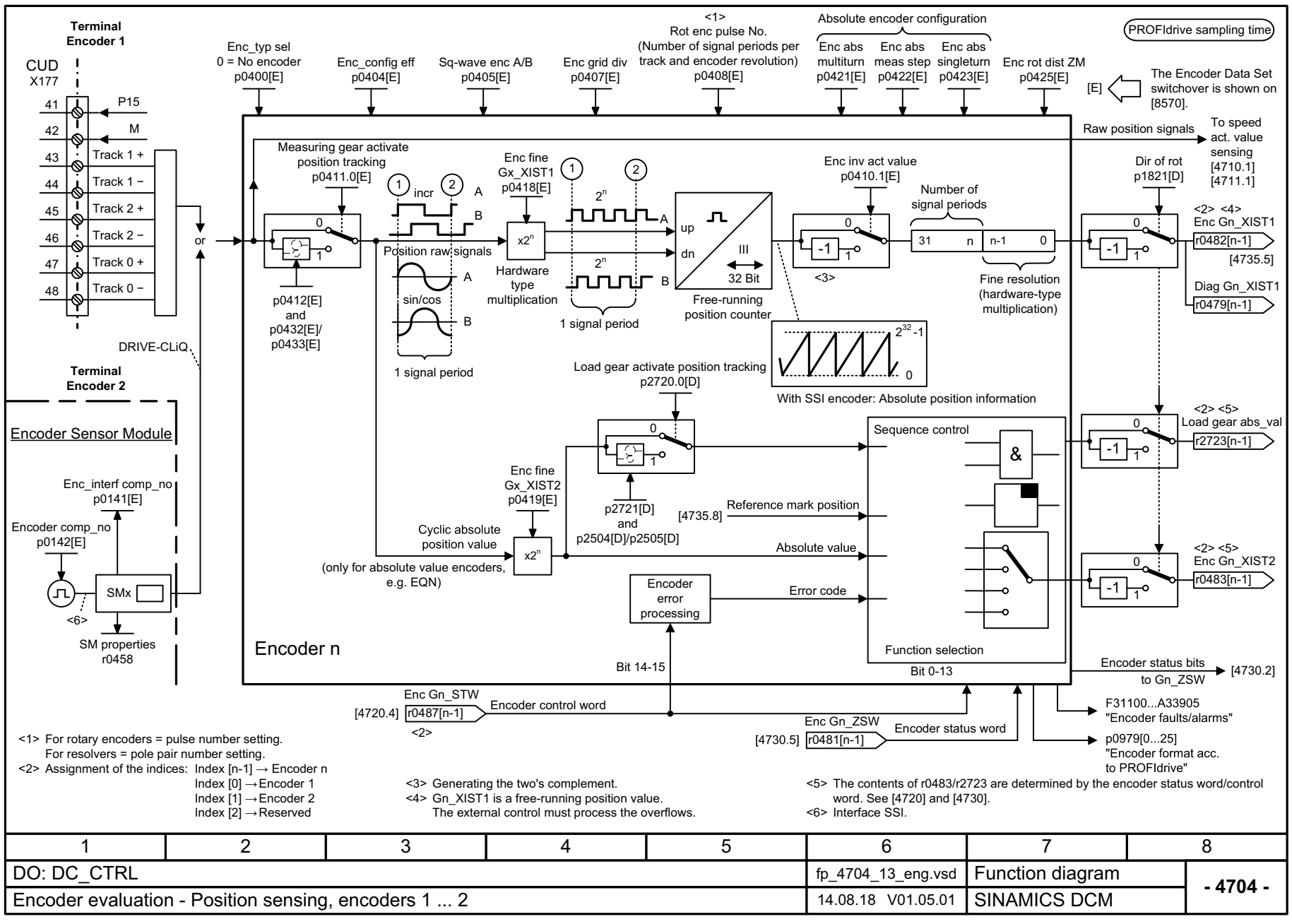
3.11 Encoder evaluation

Function diagrams



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_4700_13_eng.vsd	Function diagram	- 4700 -
Encoder evaluation - Overview					27.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-75 4700 – Overview



<1> For rotary encoders = pulse number setting.
For resolvers = pole pair number setting.
<2> Assignment of the indices: Index [n-1] → Encoder n
Index [0] →Encoder 1
Index [1] →Encoder 2
Index [2] →Reserved

<3> Generating the two's complement.
<4> Gn_XIST1 is a free-running position value.
The external control must process the overflows.

<5> The contents of r0483/r2723 are determined by the encoder status word/control word. See [4720] and [4730].
<6> Interface SSI.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_4704_13_eng.vsd	Function diagram	- 4704 -
Encoder evaluation - Position sensing, encoders 1 ... 2					14.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-76 4704 – Position sensing, encoders 1 ... 2

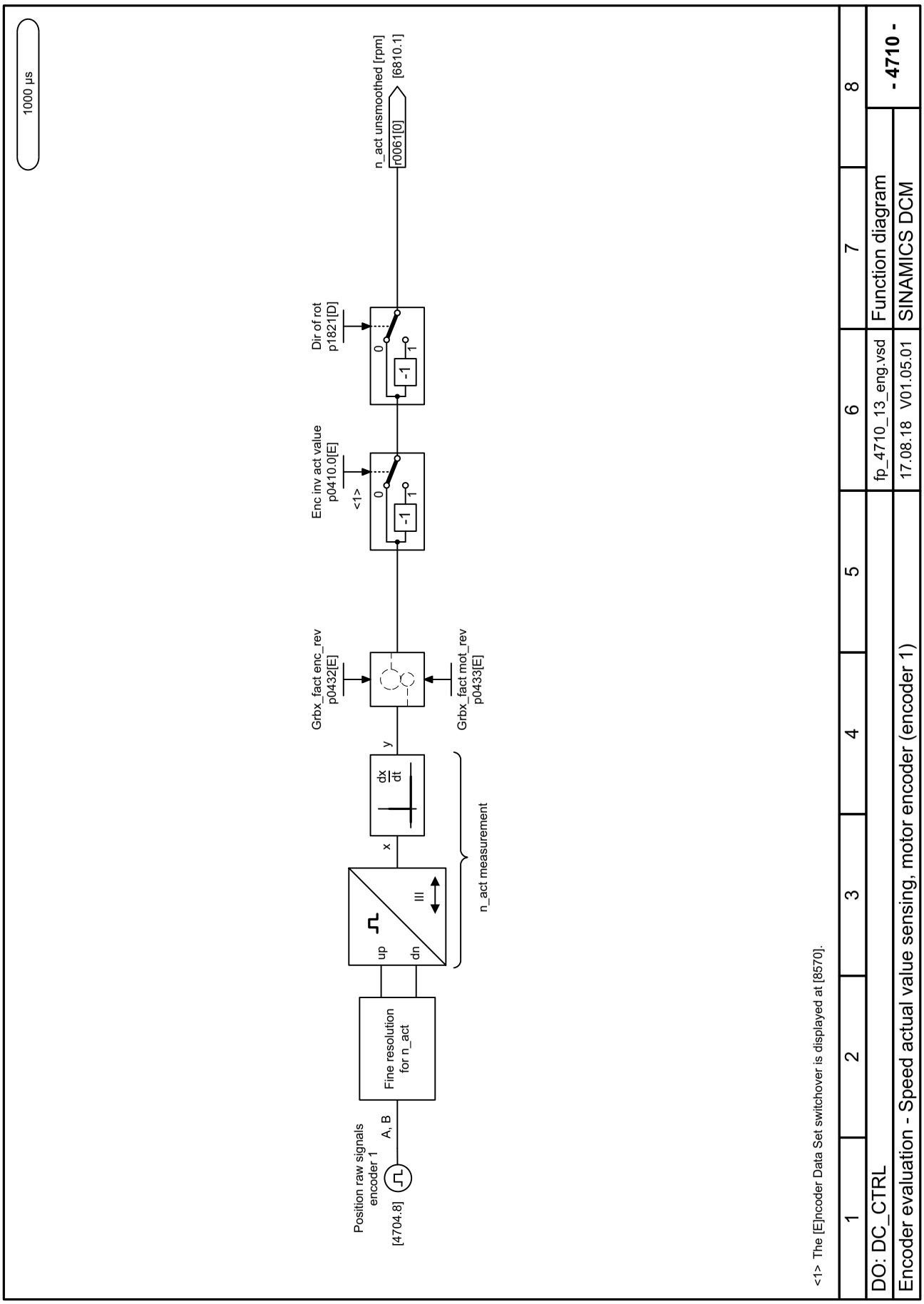


Fig. 3-77 4710 – Speed actual value sensing, motor encoder (encoder 1)

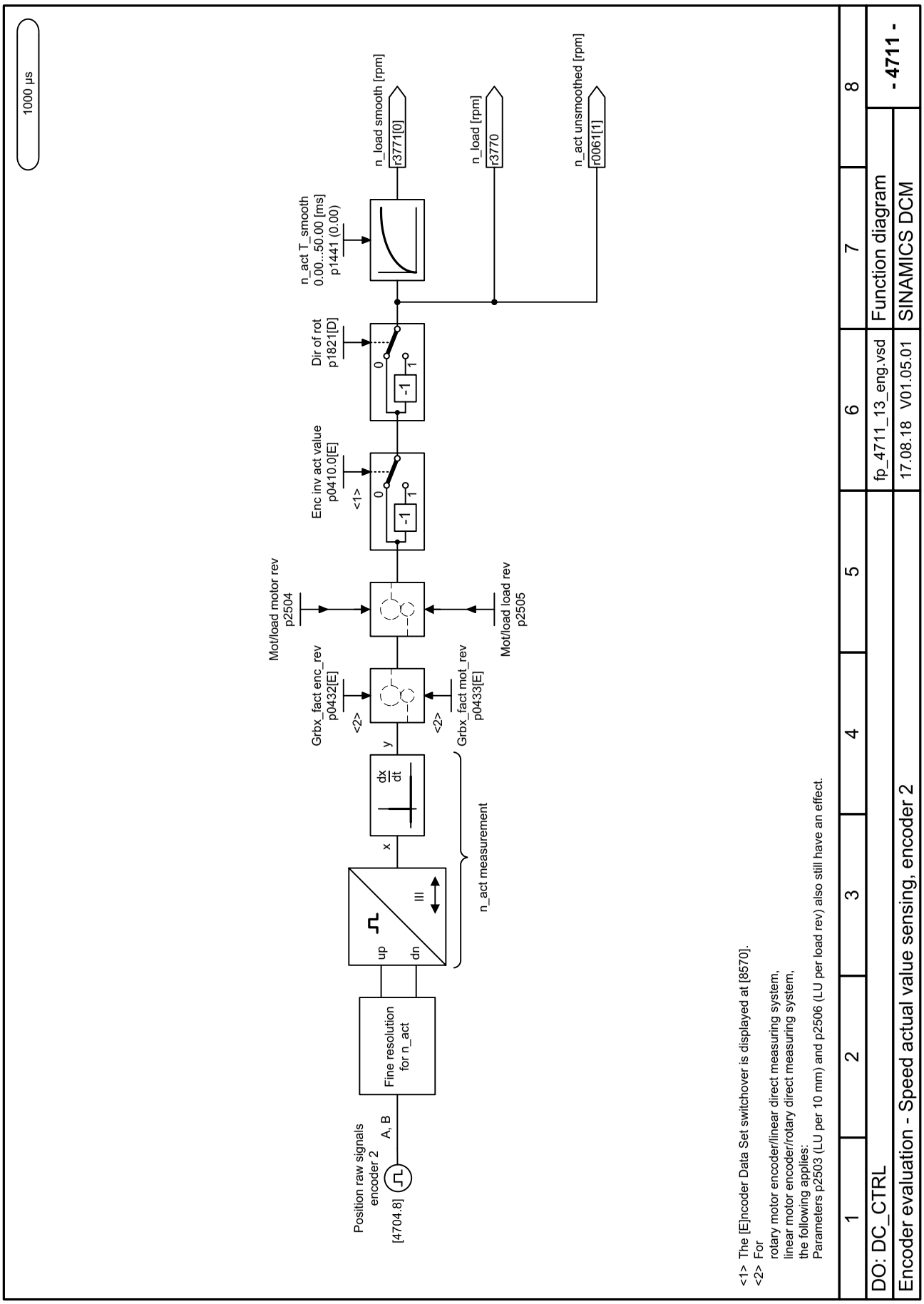
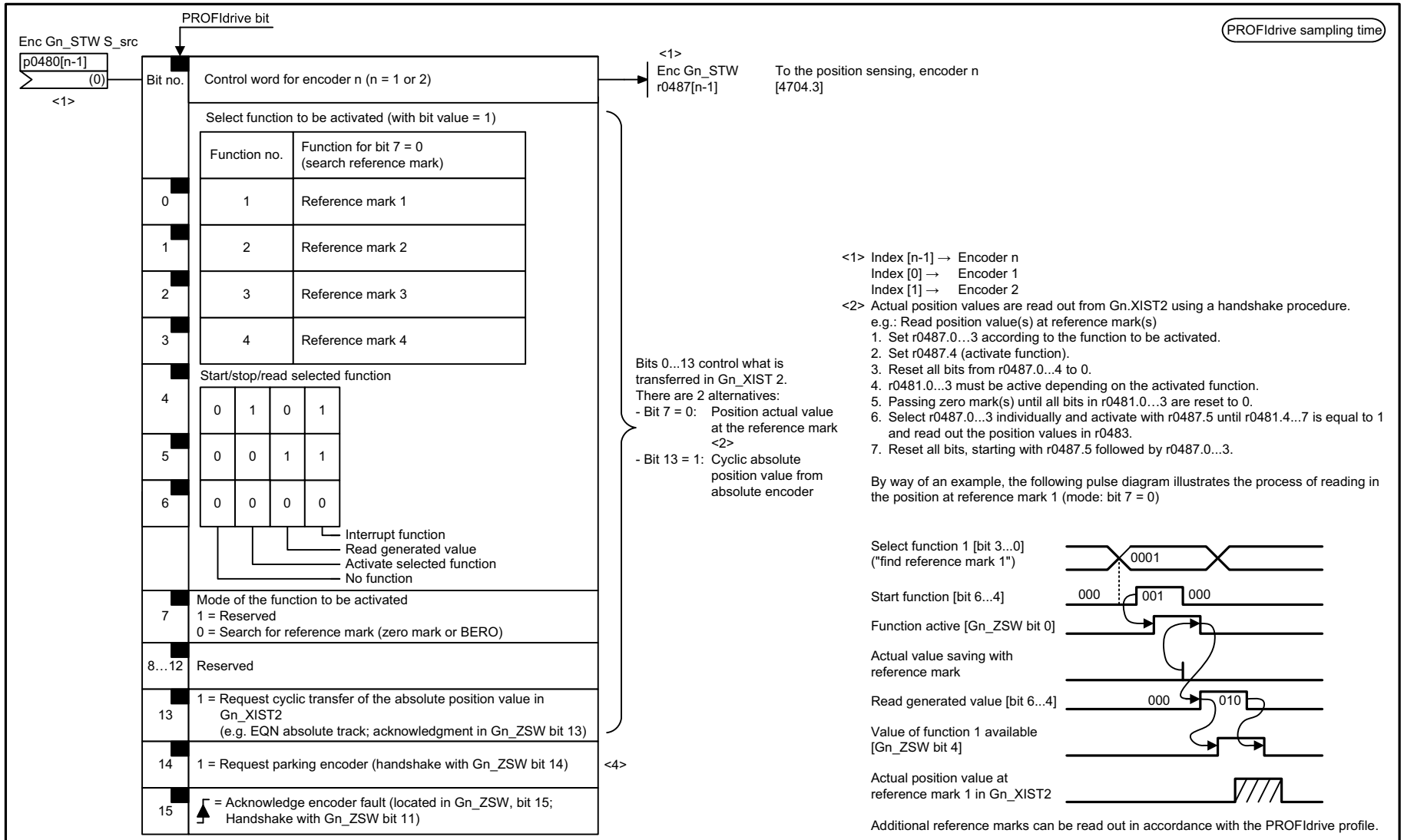
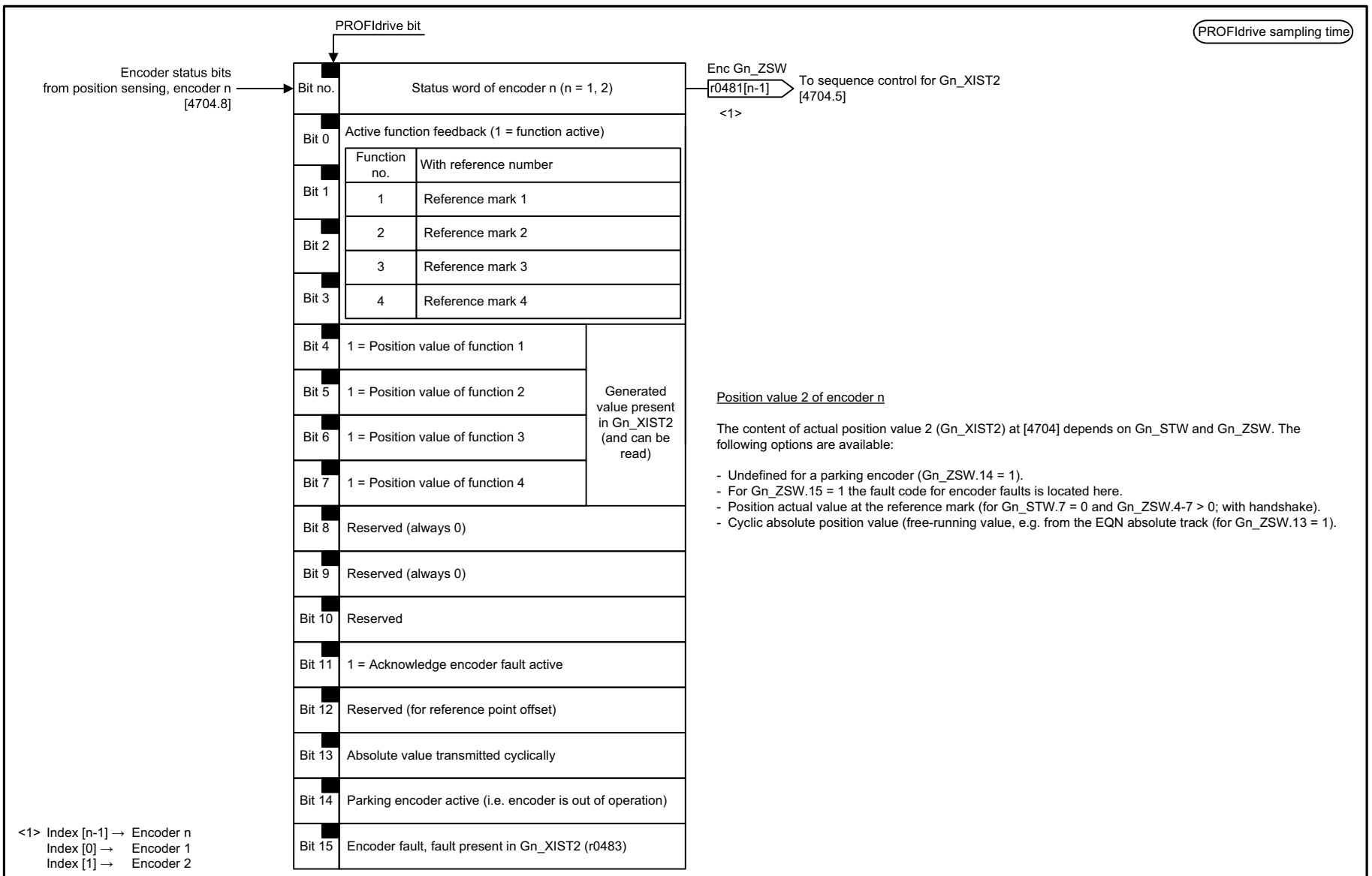


Fig. 3-78 4711 – Speed actual value sensing, encoder 2



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_4720_13_eng.vsd	Function diagram	- 4720 -
Encoder evaluation - Encoder interface, receive signals, encoders 1 ... 2					22.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-79 4720 – Encoder interface, receive signals, encoders 1 ... 2



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_4730_13_eng.vsd	Function diagram	- 4730 -
Encoder evaluation - Encoder interface, send signals, encoders 1 ... 2					22.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-80 4730 – Encoder interface, send signals, encoders1 ... 2

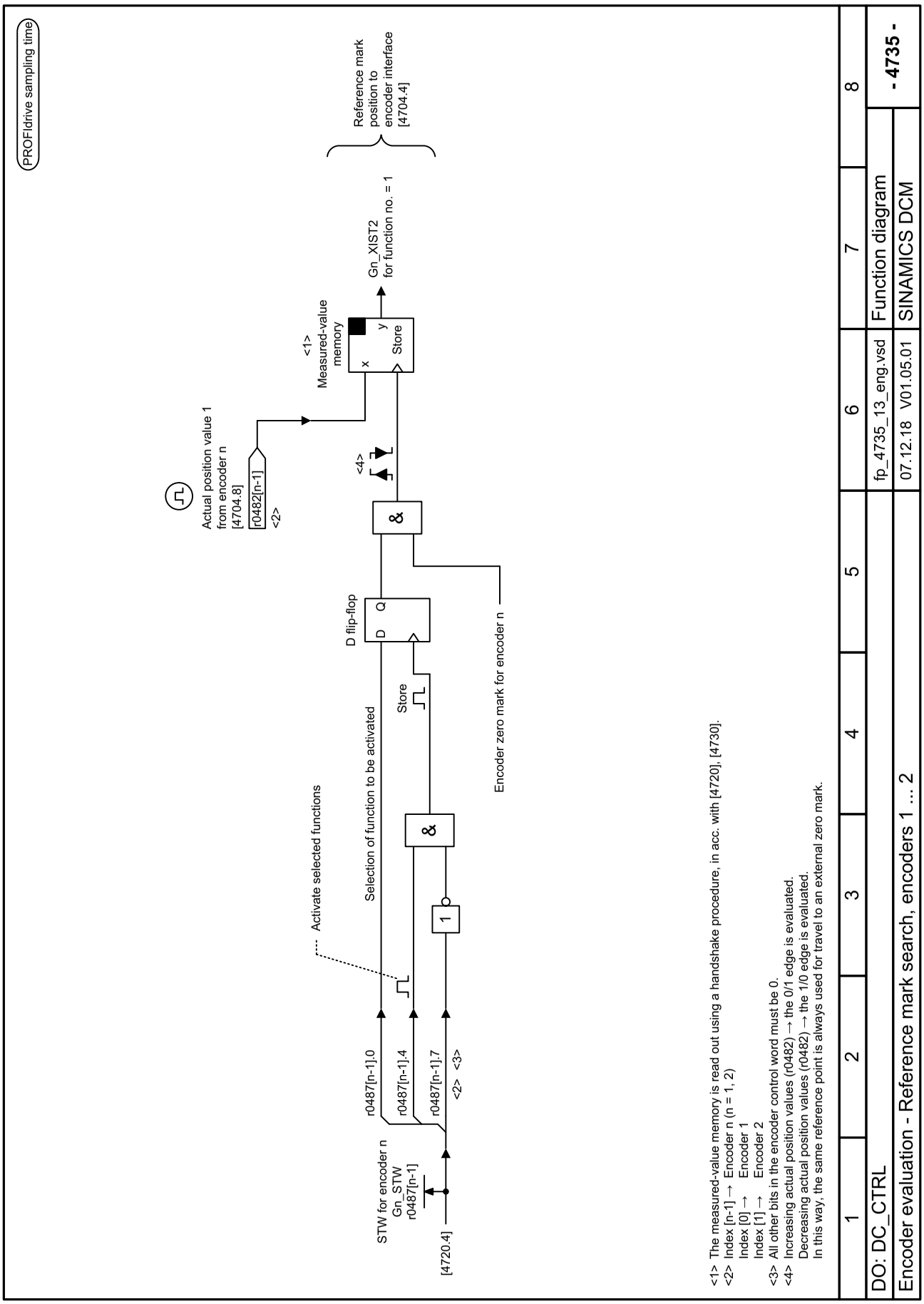


Fig. 3-81 4735 – Reference mark search, encoders 1 ... 2

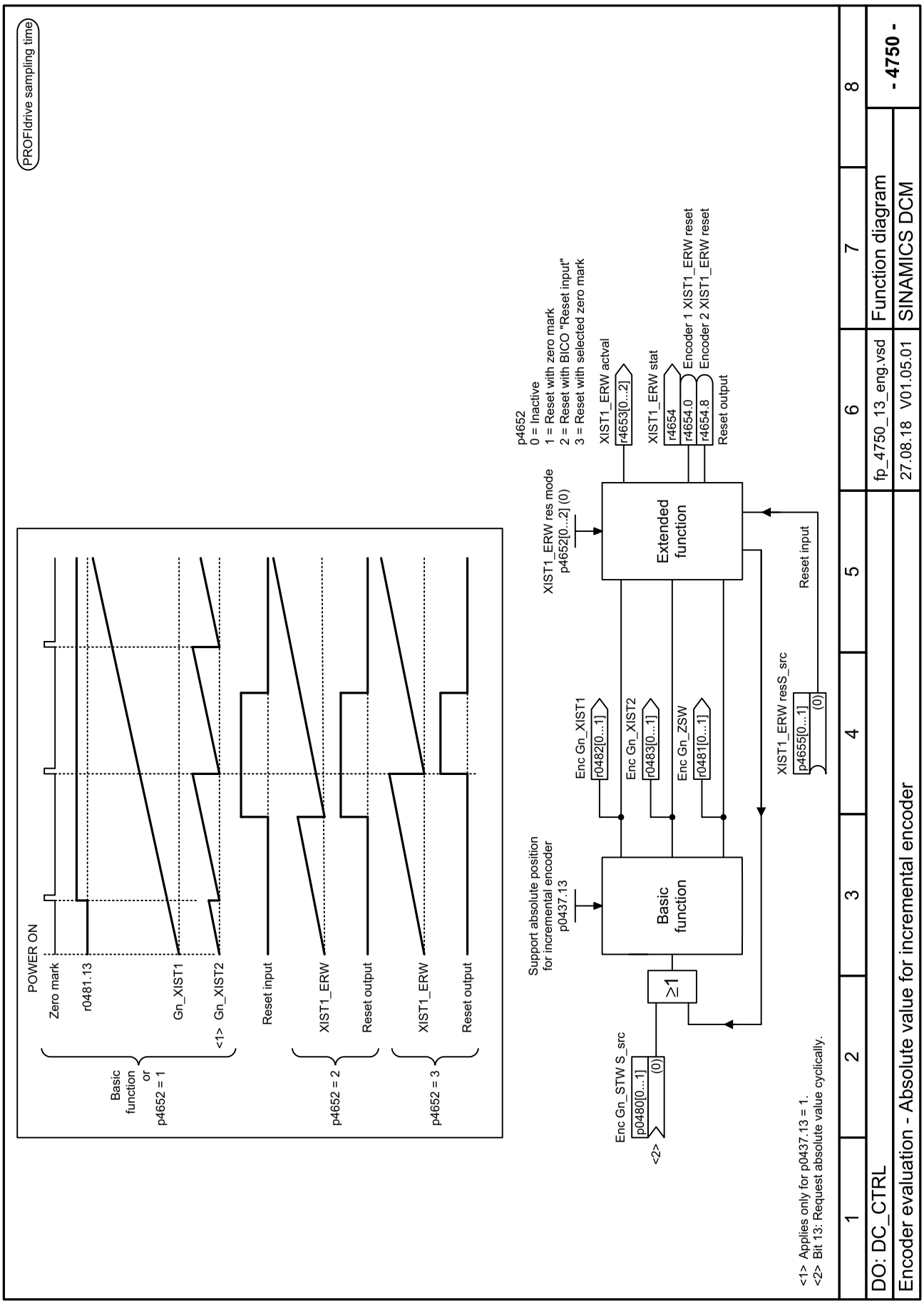


Fig. 3-82 4750 – Absolute value for incremental encoder

3.12 Armature circuit control

Function diagrams

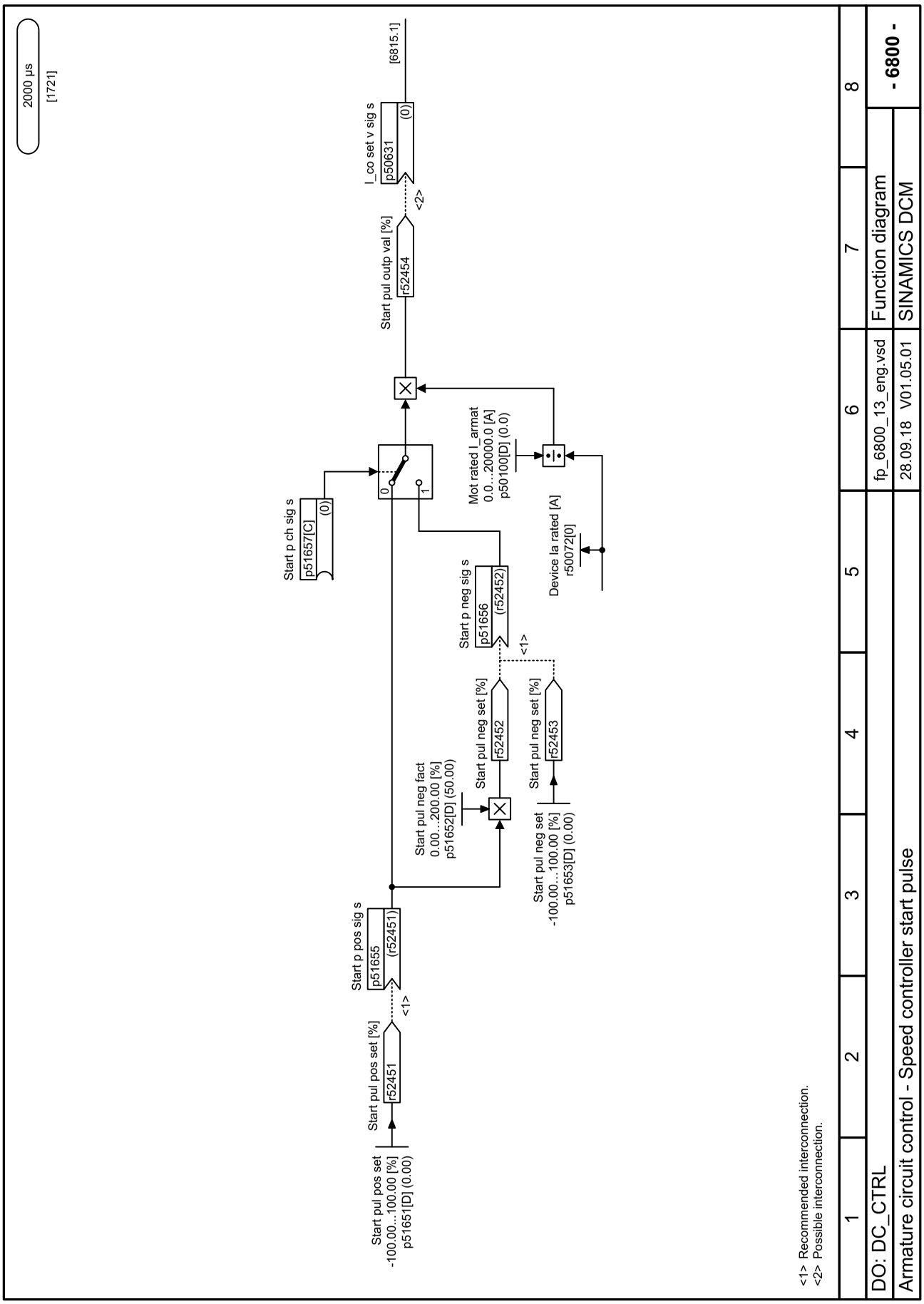
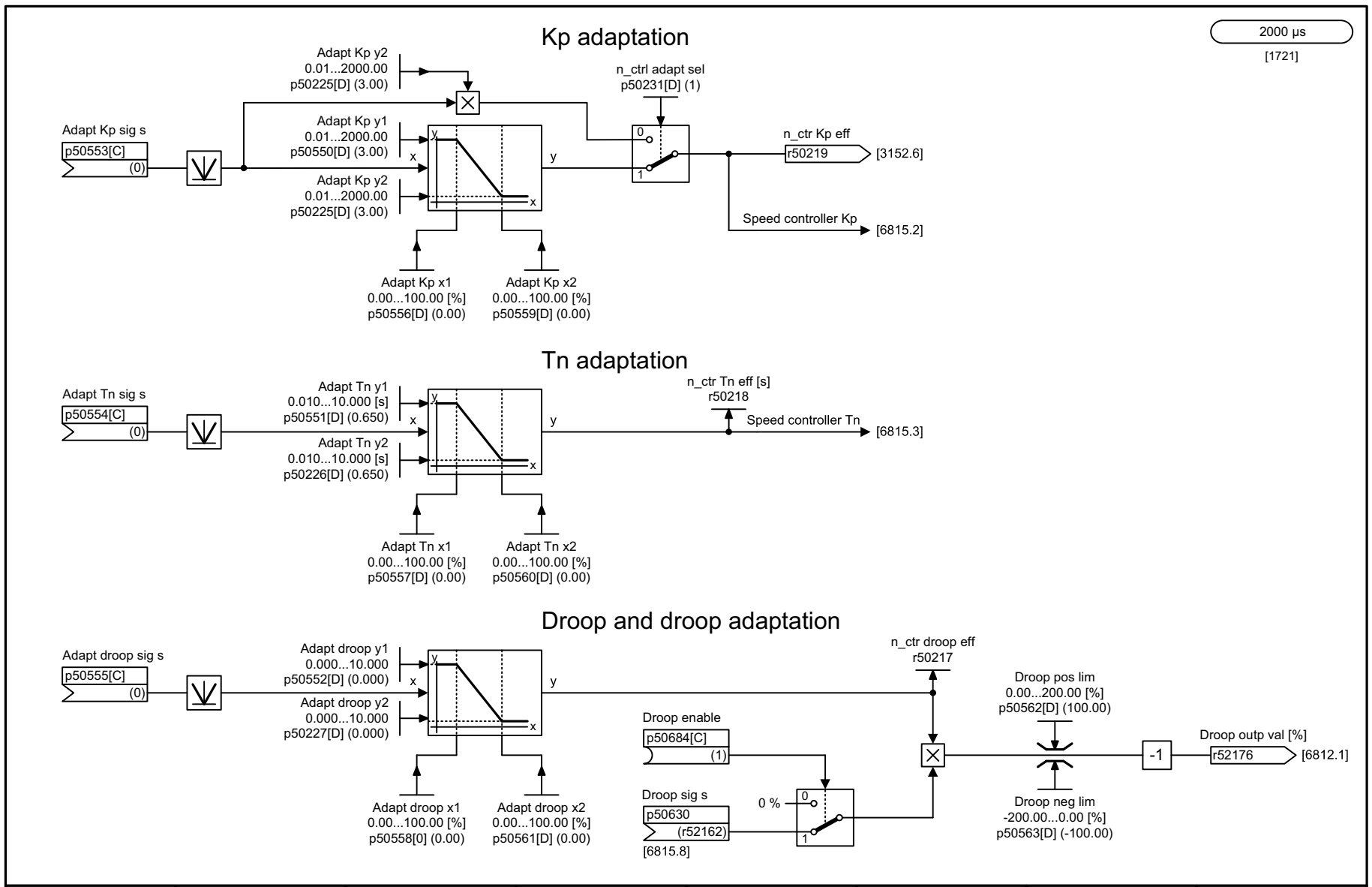


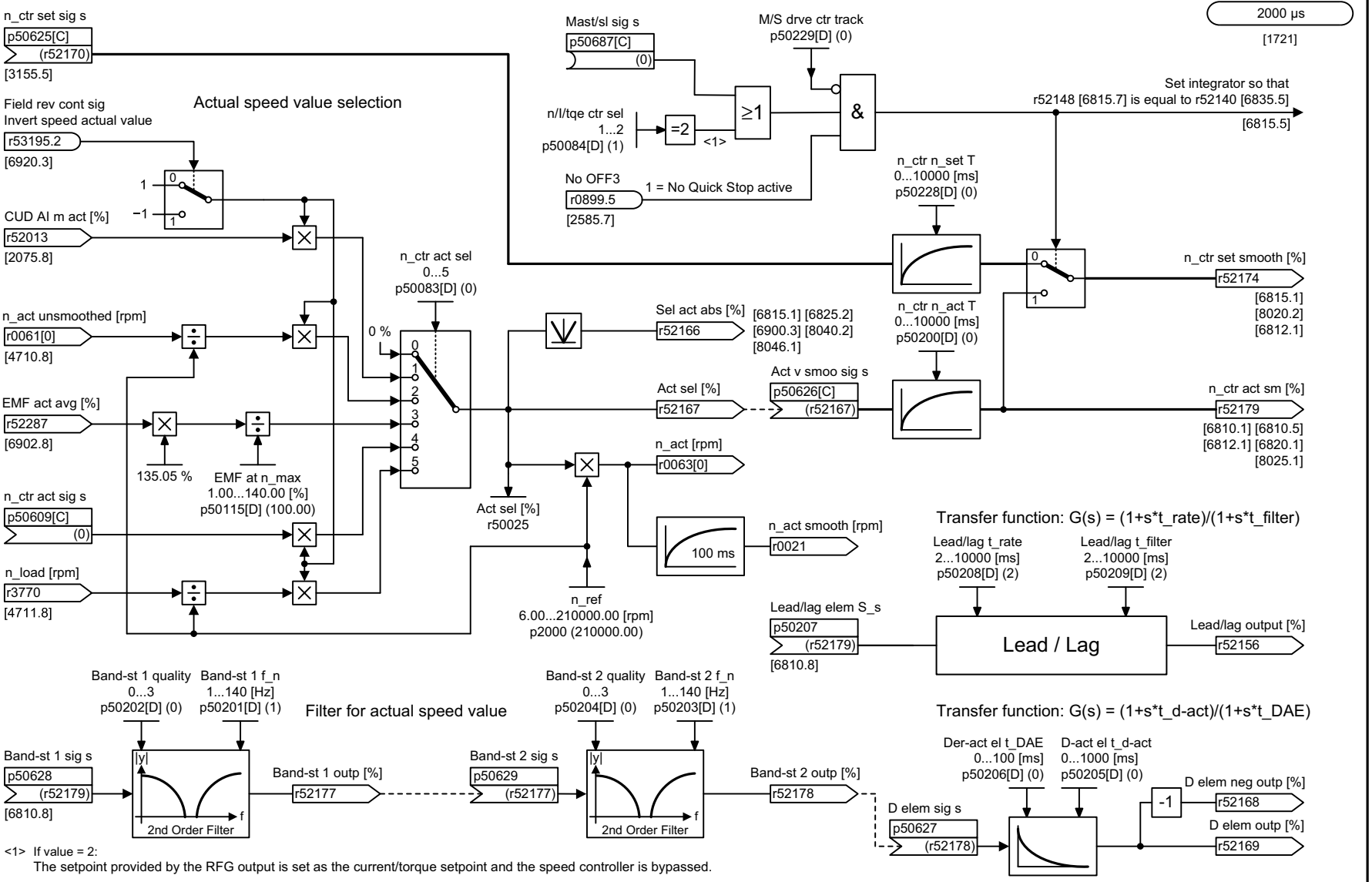
Fig. 3-83 6800 – Speed controller start pulse



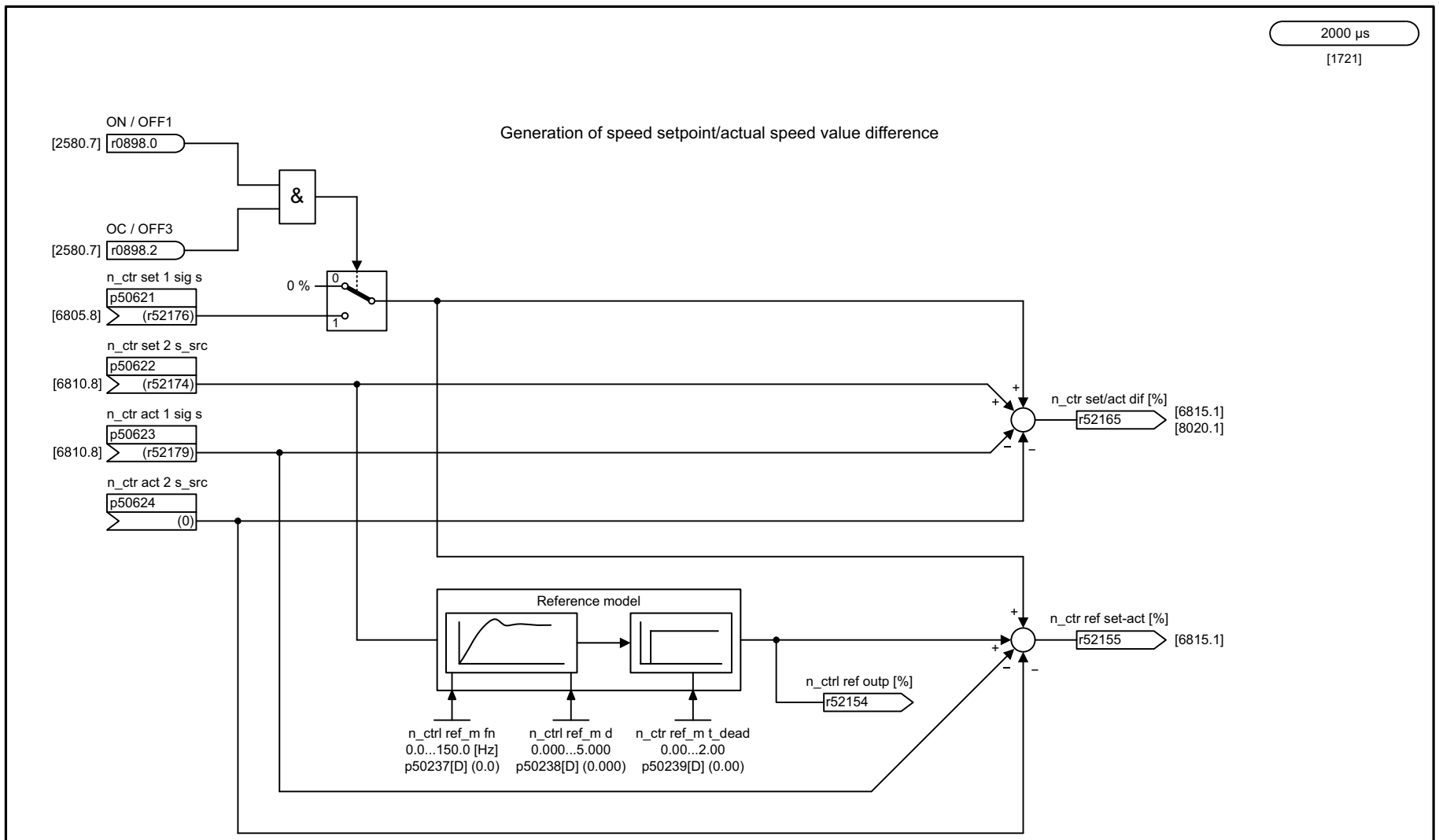
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6805_13_eng.vsd	Function diagram	- 6805 -
Armature circuit control - Speed controller (part 1)					18.04.18 V01.05.01	SINAMICS DCM	

Fig. 3-84 6805 – Speed controller (Part 1)

Fig. 3-85 6810 – Speed controller (Part 2)



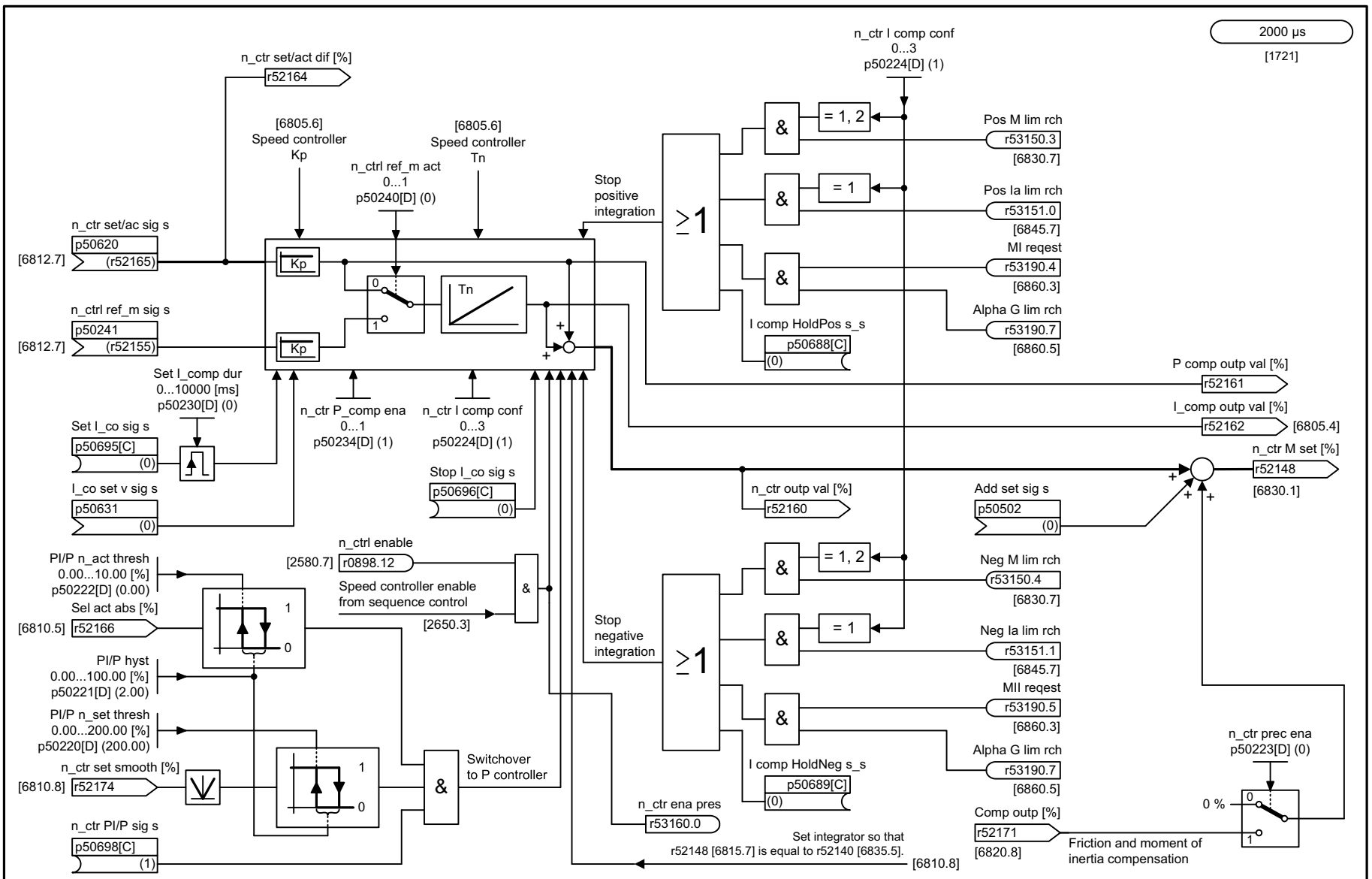
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6810_13_eng.vsdx	Function diagram	- 6810 -
Armature circuit control - Speed controller (part 2)					20.09.22 V01.05.01	SINAMICS DCM	



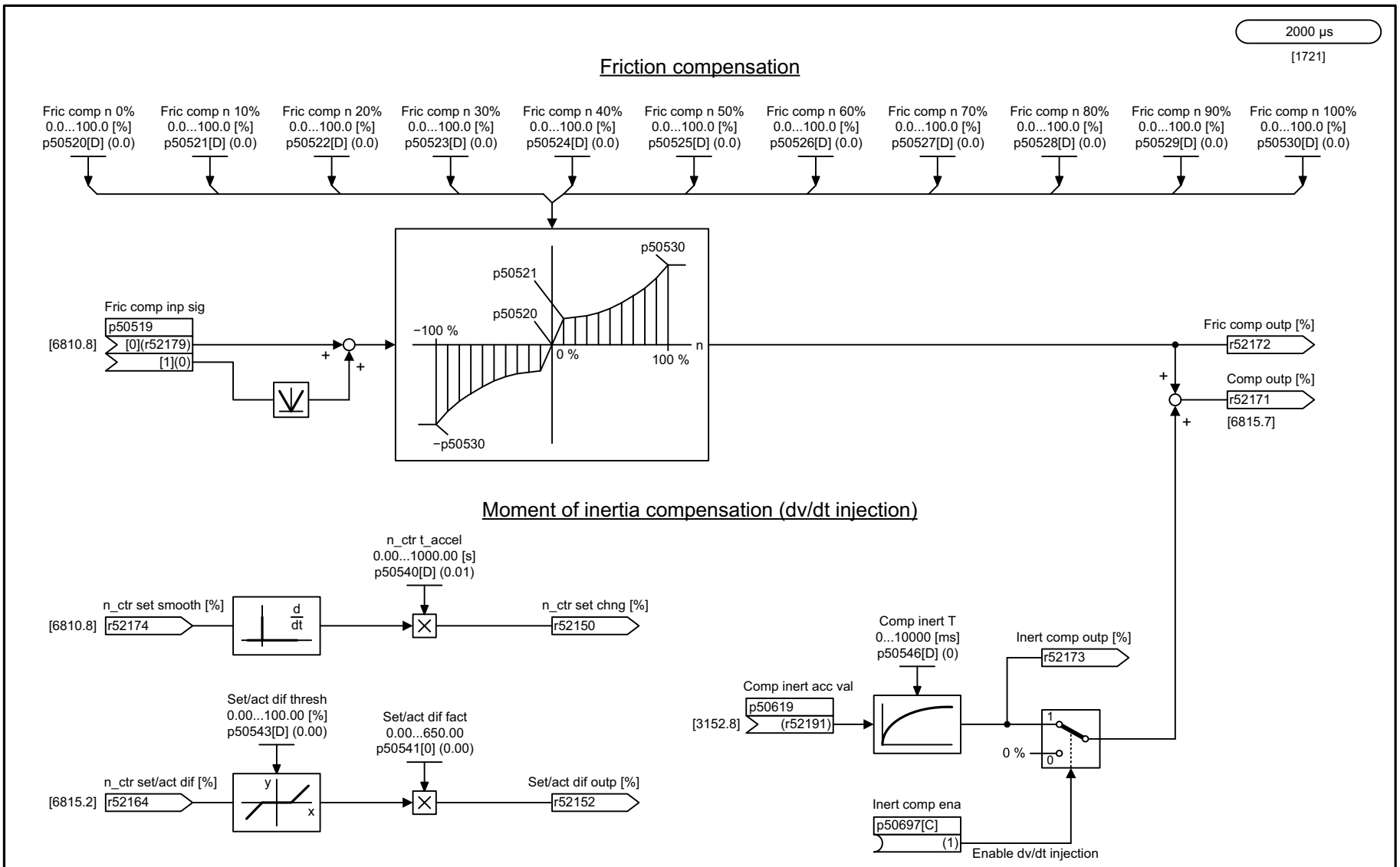
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6812_13_eng.vsdx	Function diagram	- 6812 -
Armature circuit control - Speed controller (part 3)					01.12.22 V01.05.01	SINAMICS DCM	

Fig. 3-86 6812 – Speed controller (Part 3)

Fig. 3-87 6815 – Speed controller (Part 4)



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6815_13_eng.vsd	Function diagram	- 6815 -
Armature circuit control - Speed controller (part 4)					30.10.18 V01.05.01	SINAMICS DCM	



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6820_13_eng.vsd	Function diagram	- 6820 -
Armature circuit control - Friction/moment of inertia compensation					31.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-88 6820 – Friction/moment of inertia compensation

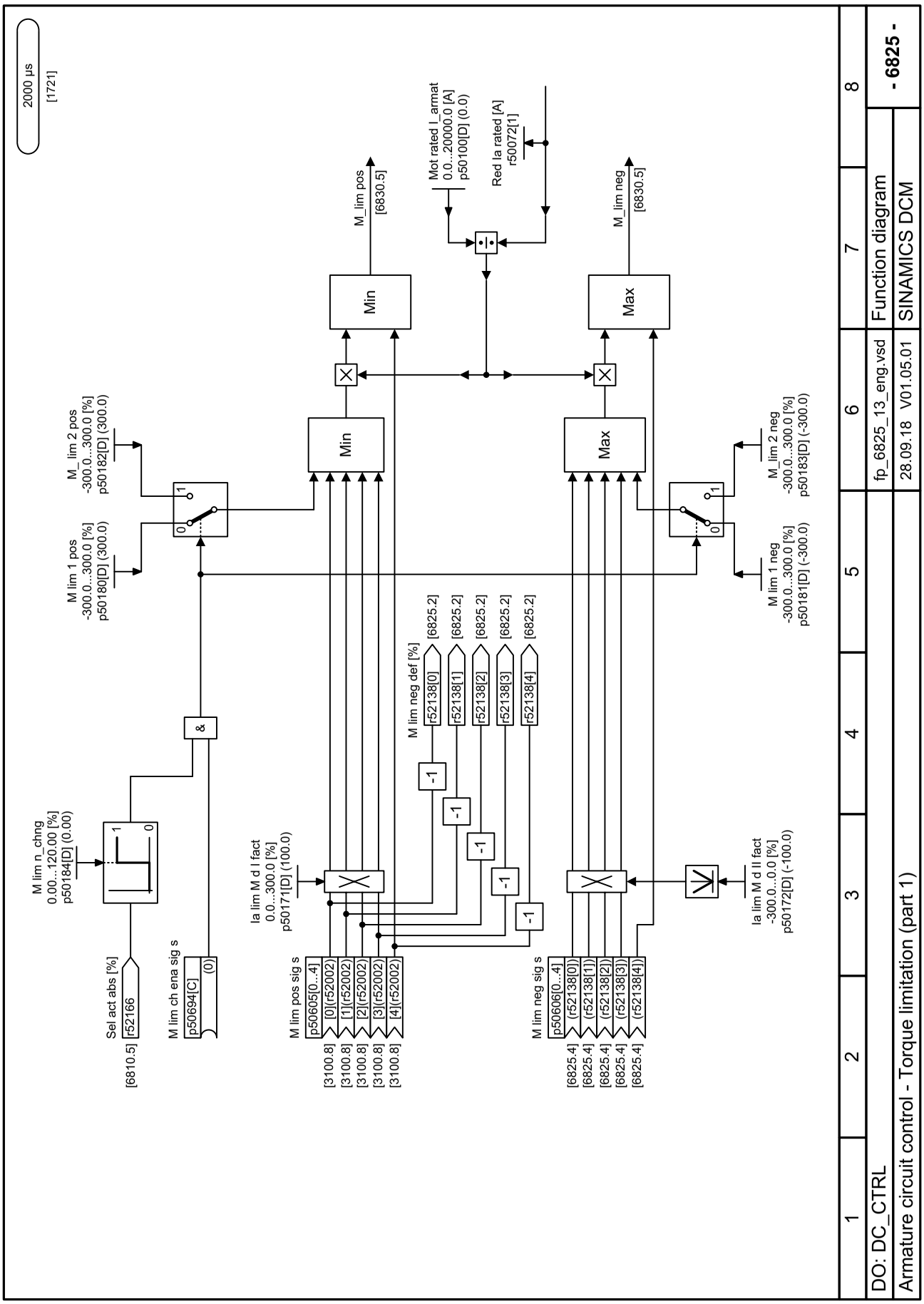
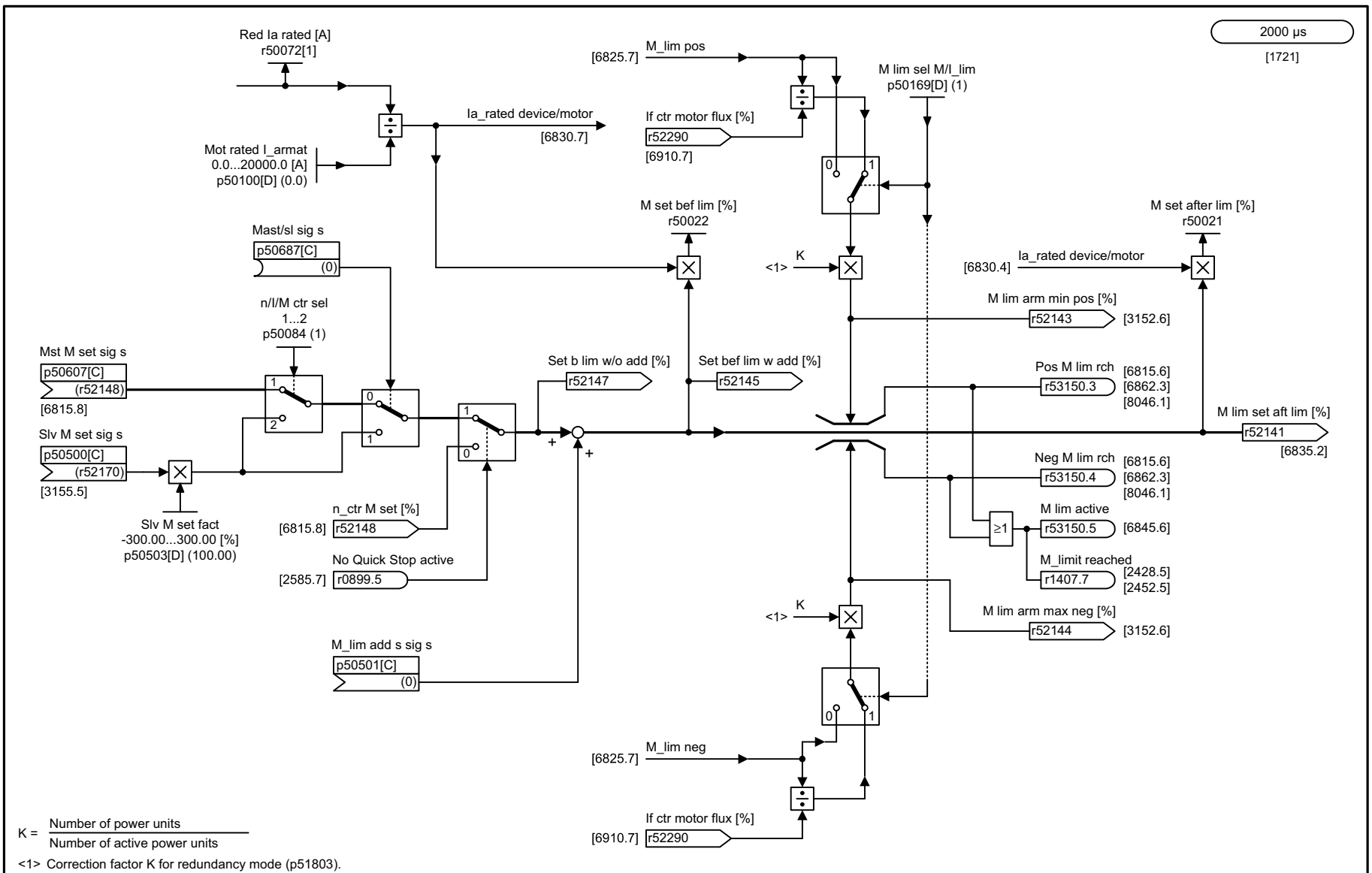


Fig. 3-89 6825 – Torque limitation (Part 1)



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6830_13_eng.vsdx	Function diagram	- 6830 -
Armature circuit control - Torque limitation (part 2)					08.12.22 V01.05.01	SINAMICS DCM	

Fig. 3-90 6830 – Torque limitation (Part 2)

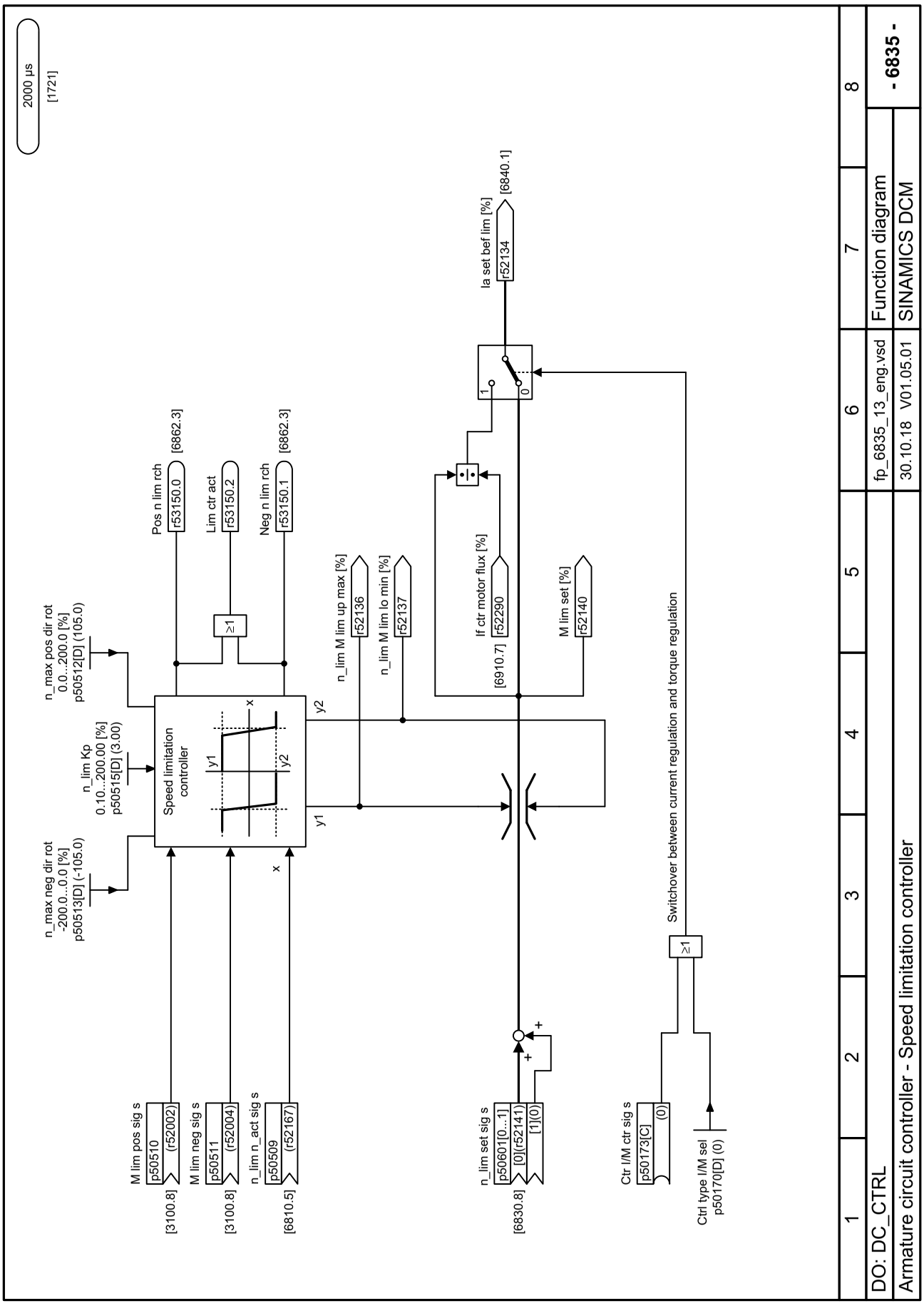
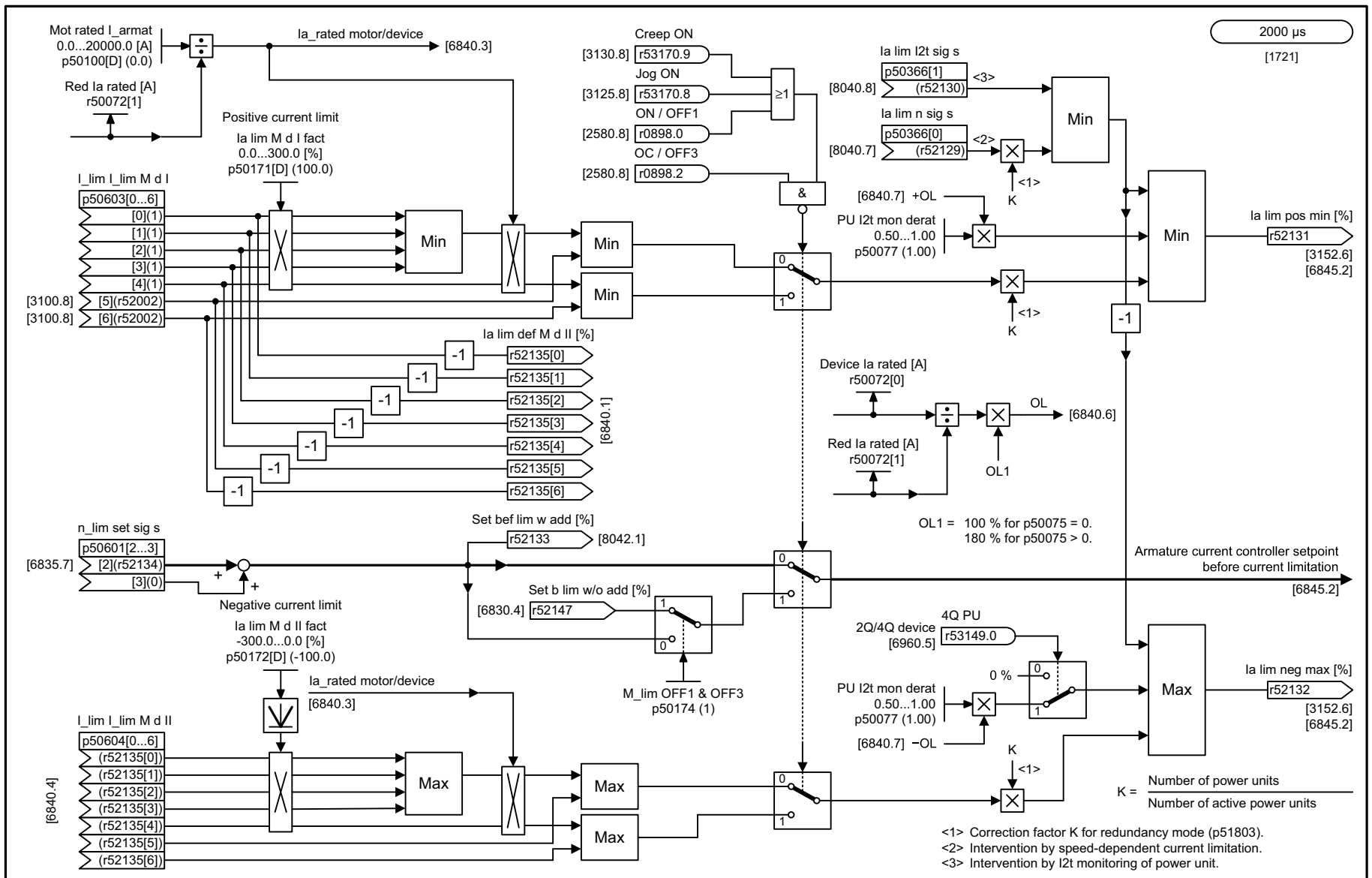


Fig. 3-91 6835 – Speed limiting controller



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6840_13_eng.vsd	Function diagram	- 6840 -
Armature circuit control - Current limitation (part 1)					30.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-92 6840 – Current limiting (Part 1)

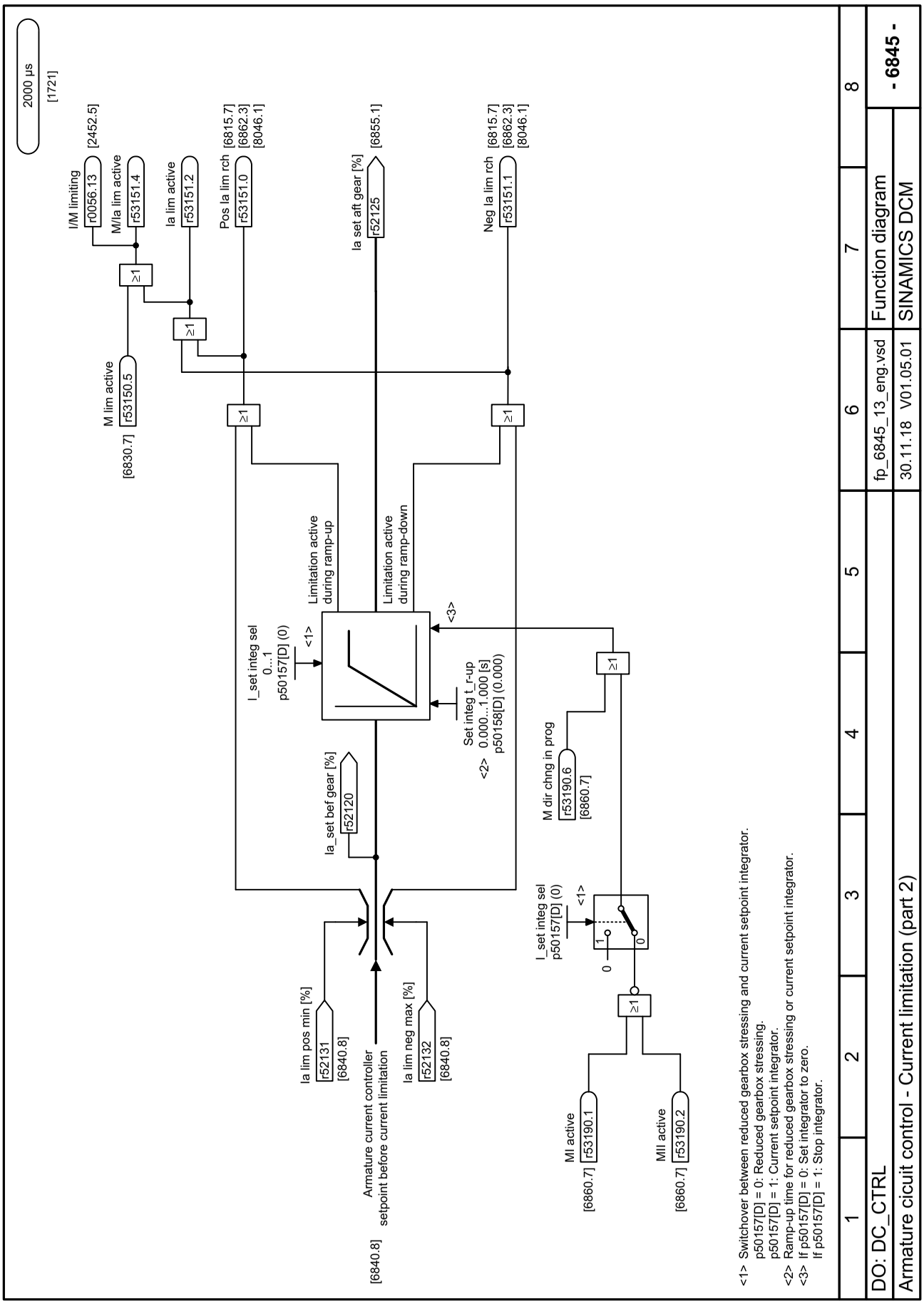


Fig. 3-93 6845 – Current limiting (Part 2)

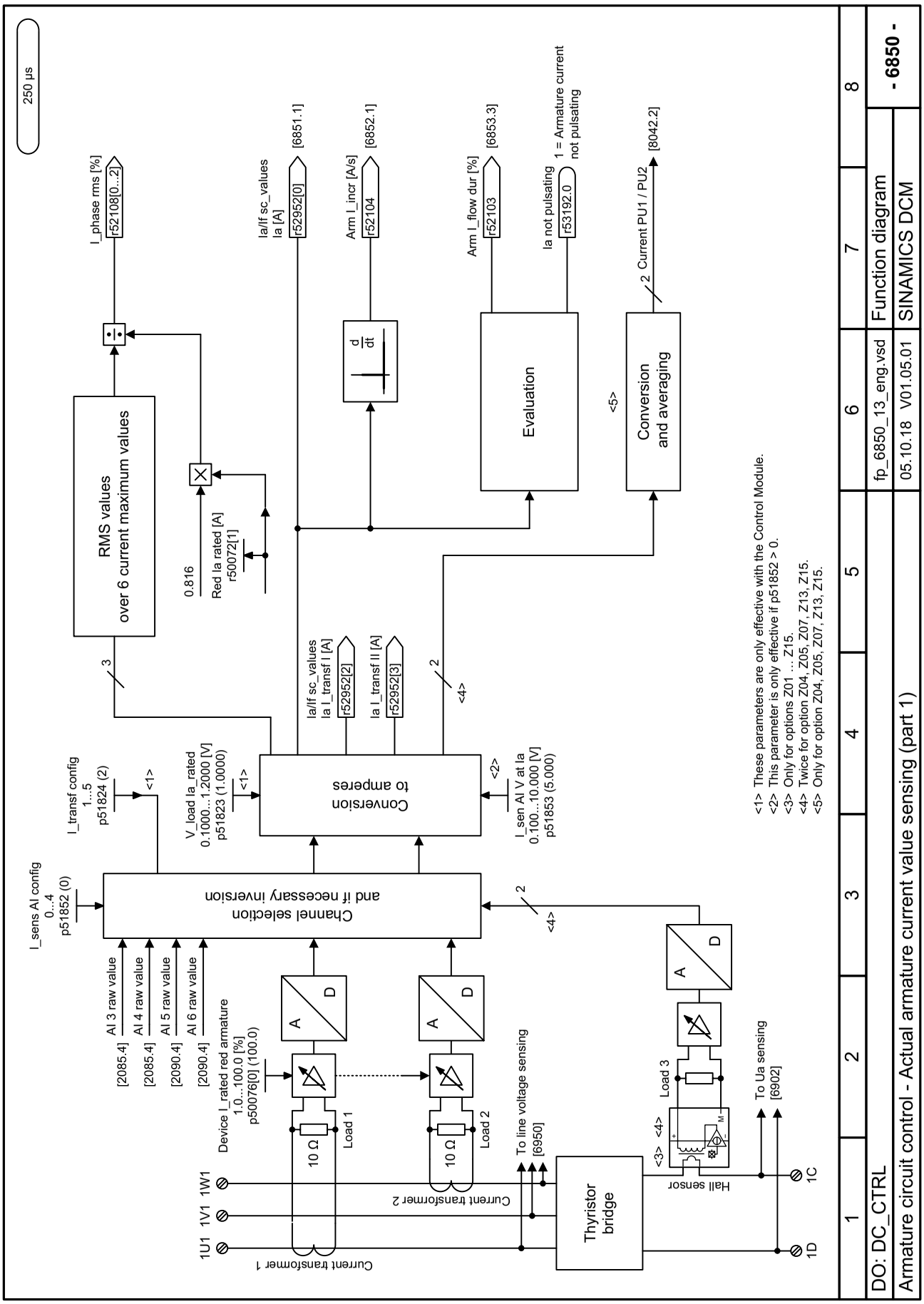


Fig. 3-94 6850 – Actual armature current value sensing (Part 1)

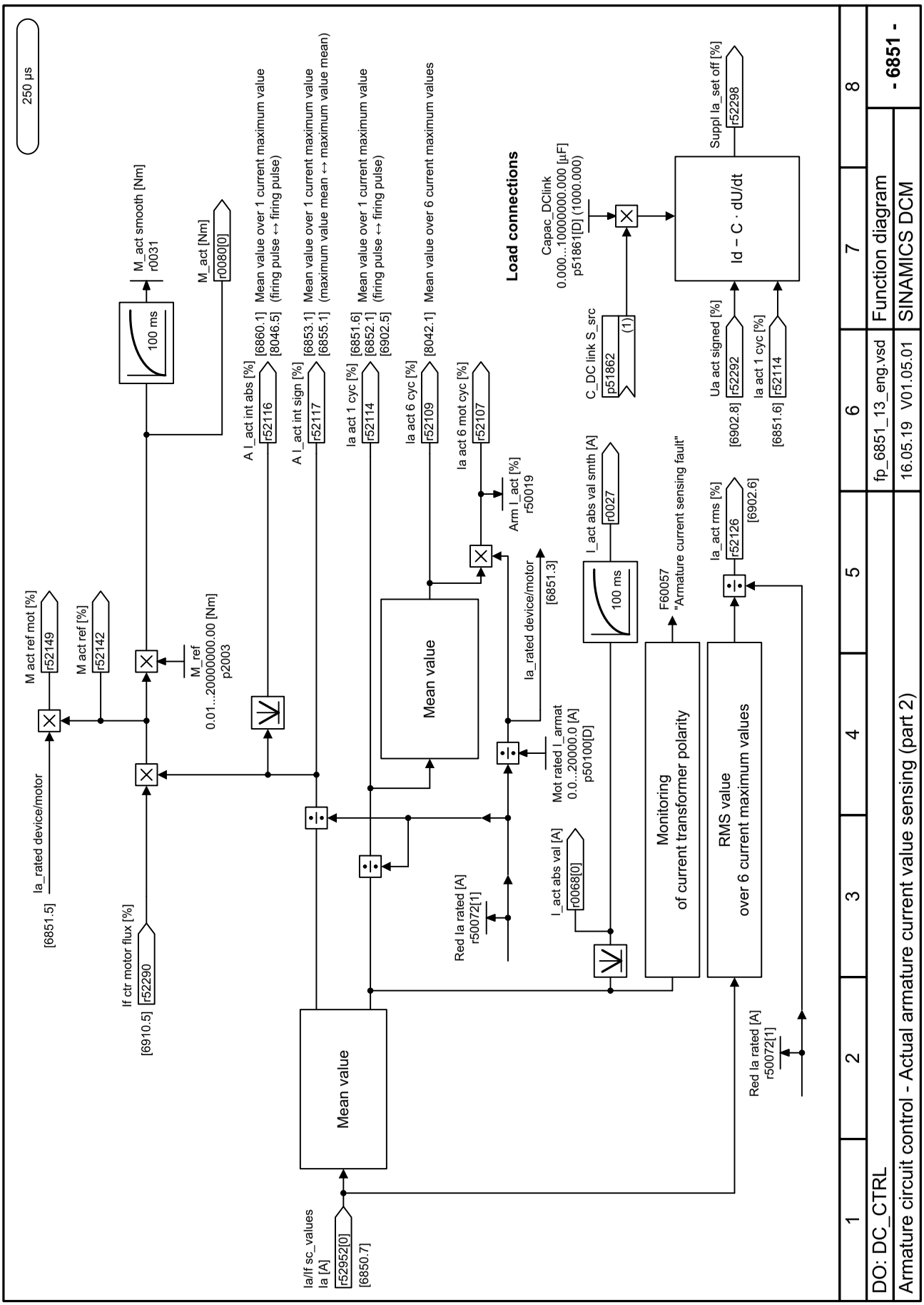
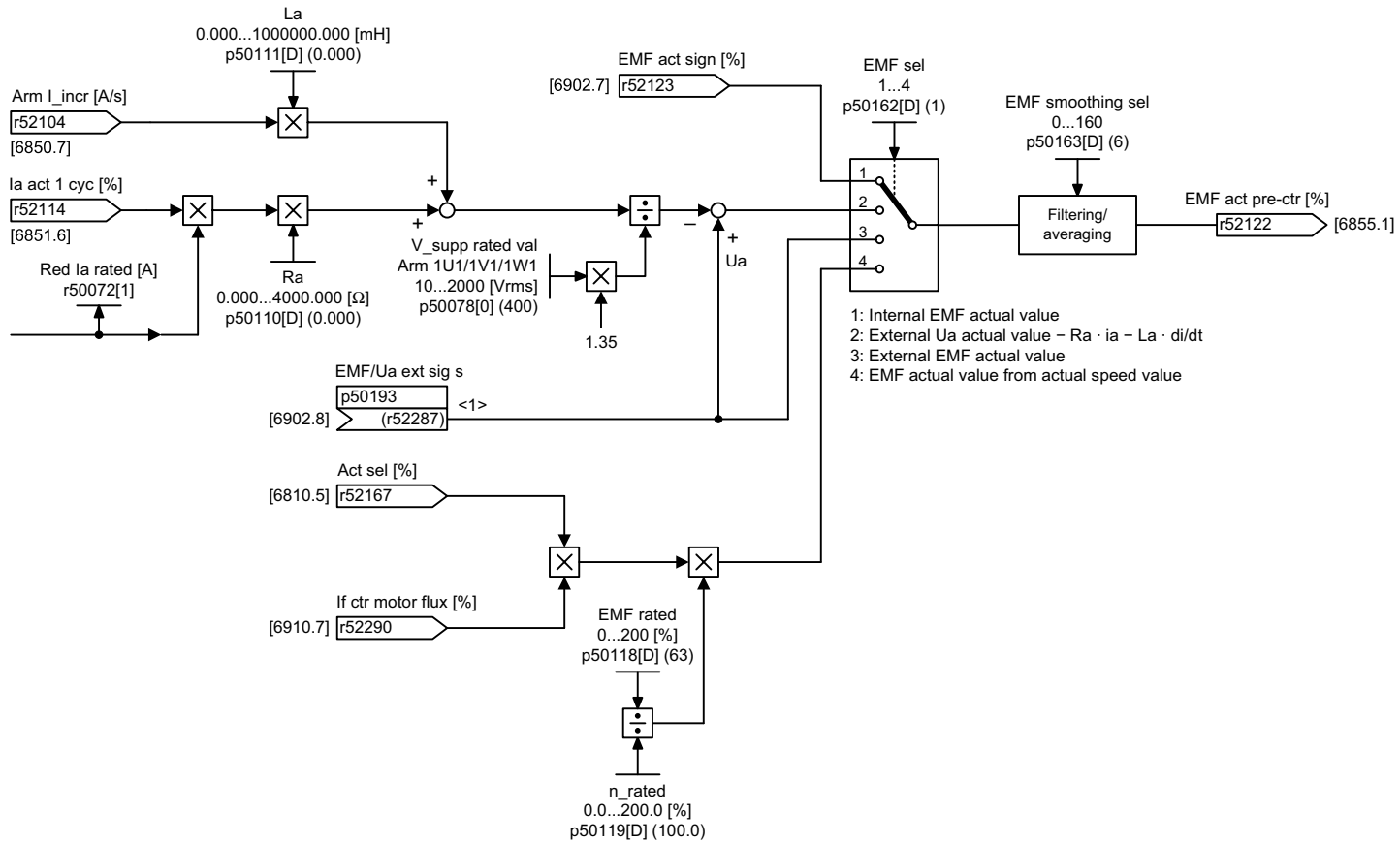


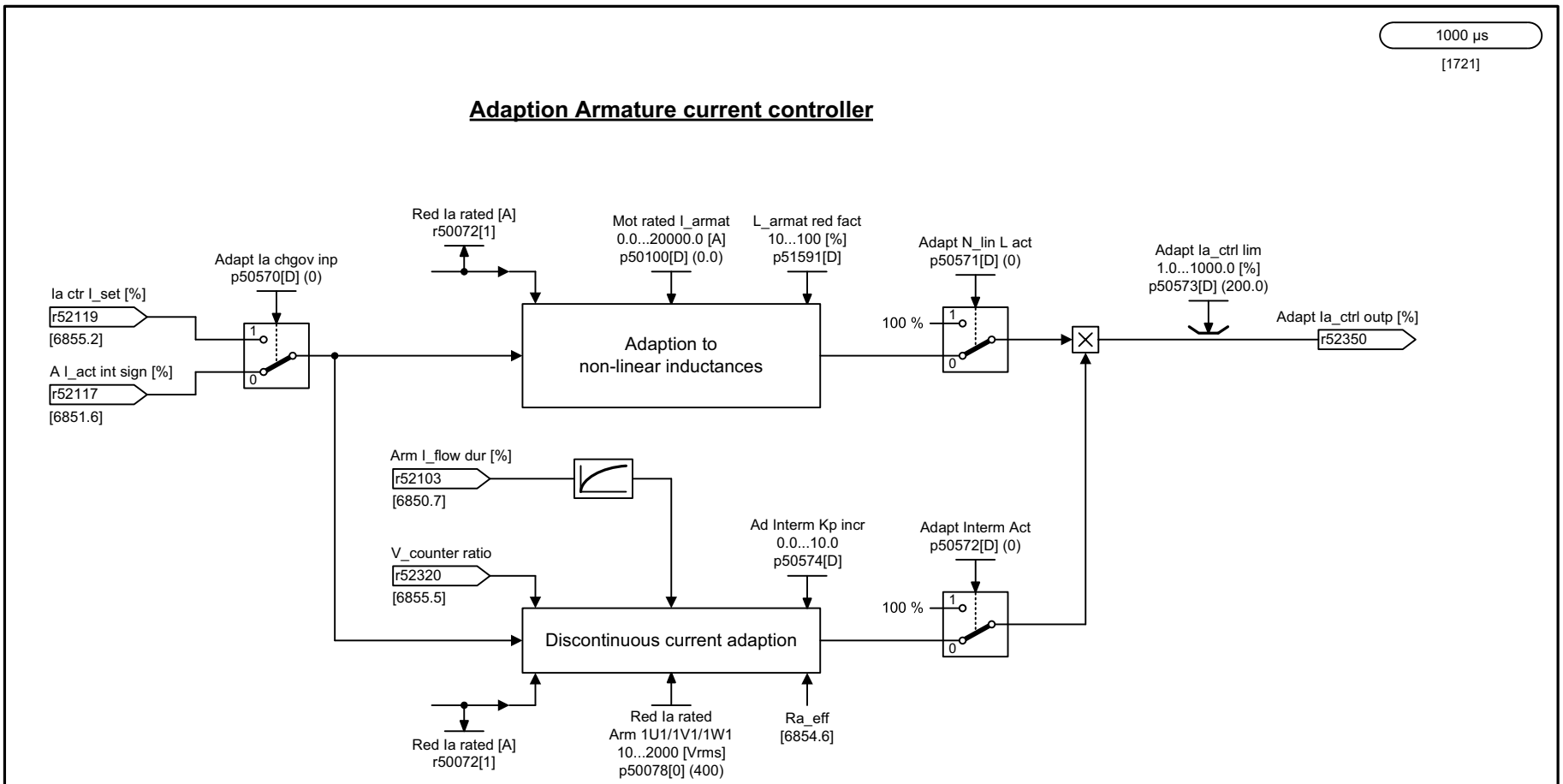
Fig. 3-95 6851 – Actual armature current value sensing (Part 2)



<1> The signal source for the external Ua or EMF actual value must be set here.
Notice:
The factory setting r52287 (internal EMF) must only be left unchanged when p50162 = 3.
When p50162 = 2, this setting leads to extreme current fluctuations.

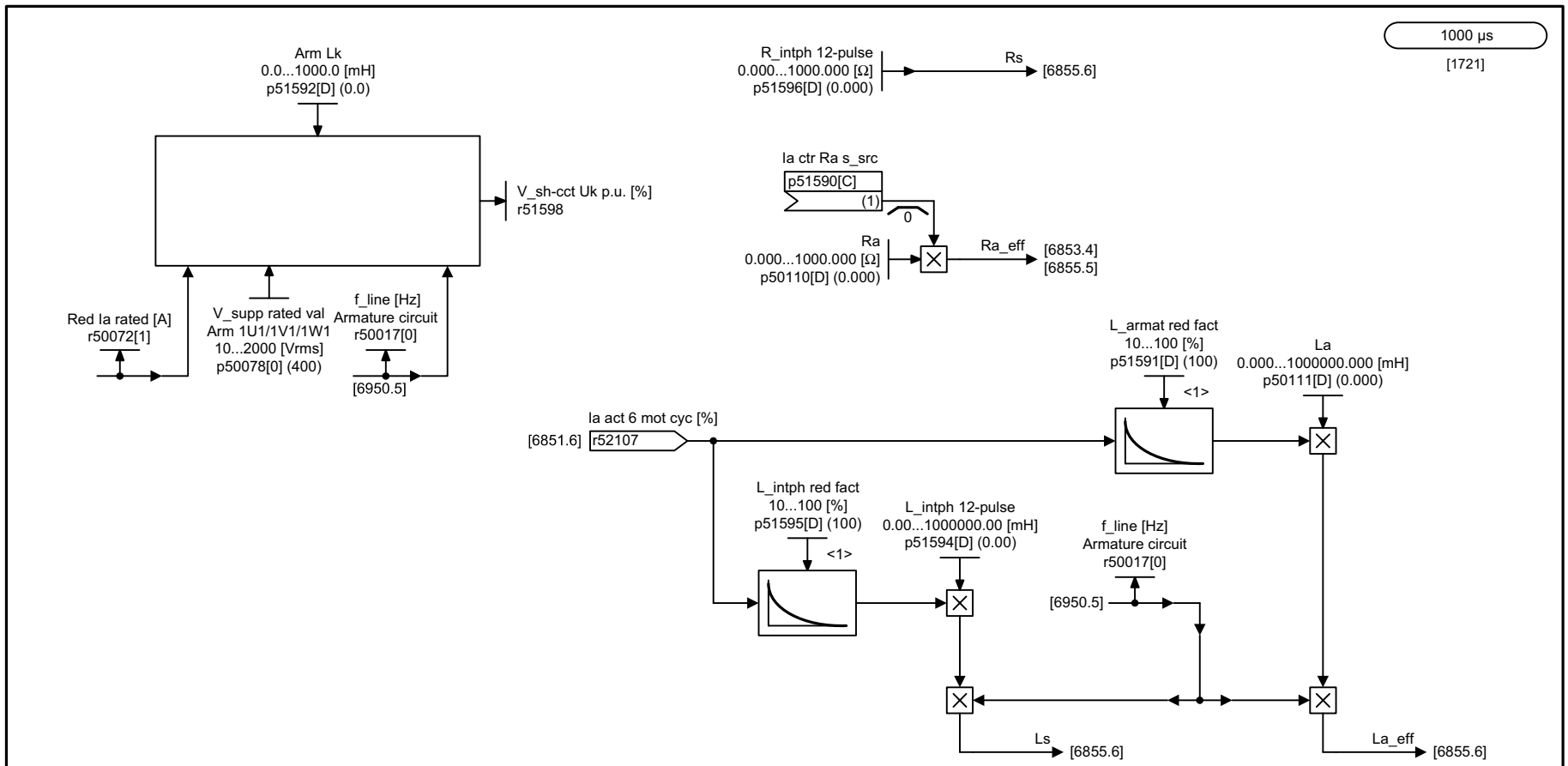
1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6852_13_eng.vsd	Function diagram	- 6852 -
Armature circuit control - Selection of EMF actual value for armature current pre-control					03.12.18 V01.05.01	SINAMICS DCM	

Fig. 3-96 6852 – Selection of EMF actual value for armature current pre-control



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6853_13_eng.vsd	Function diagram	- 6853 -
Armature circuit control - Armature current controller adaption					28.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-97 6853 – Armature current controller adaptation



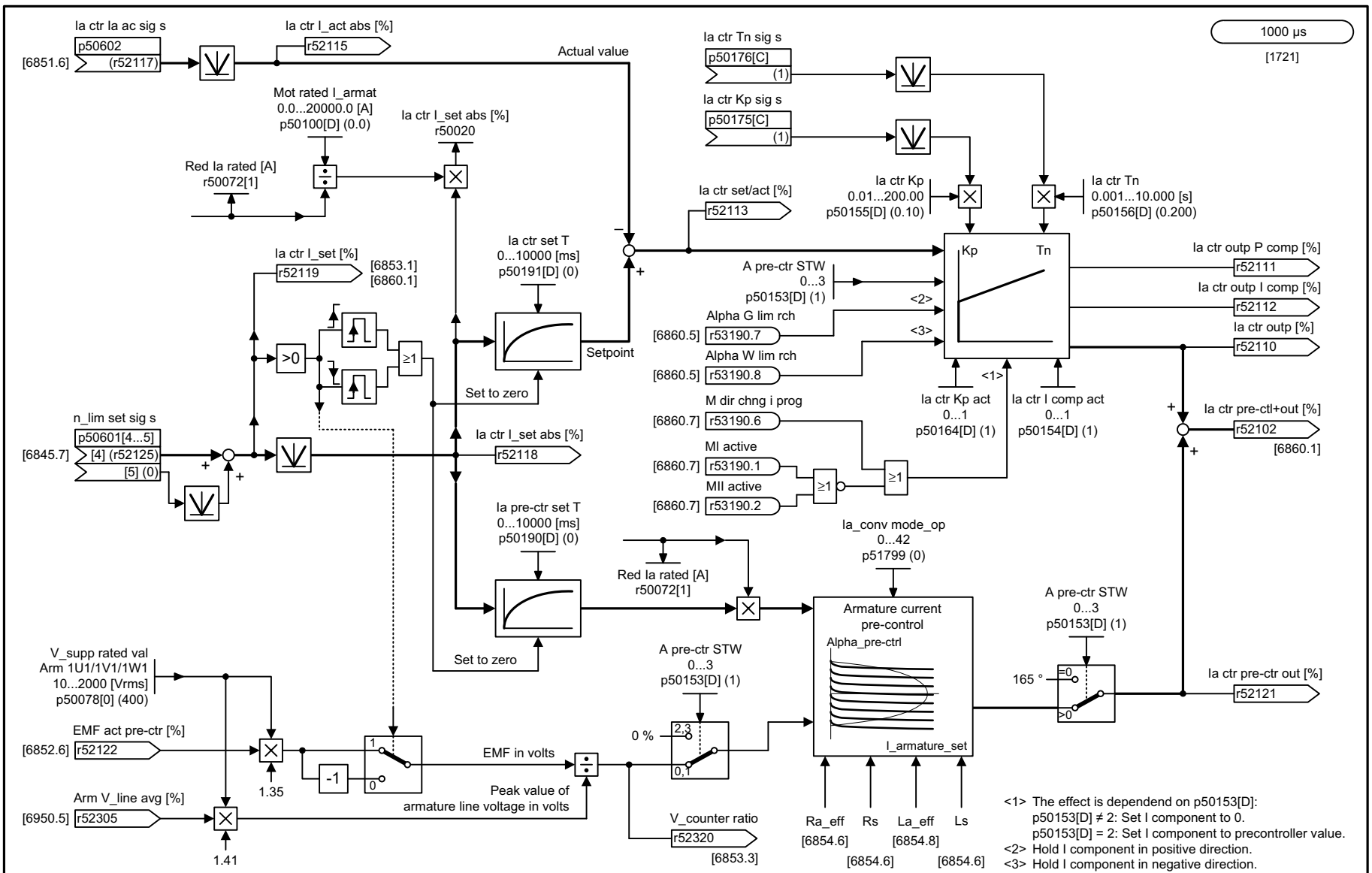
Explanations:
Ra: Resistance of the armature circuit of the motor.
La: Inductance of the armature circuit of the motor.
Rs: Resistance of the interface transformer/smoothing reactor in 12-pulse mode.
Ls: Inductance of the interface transformer/smoothing reactor in 12-pulse mode.
Lk: Commutation inductance.

<1> Reduction factors p51591, p51595:
The percentage value to which the inductance drops at a current dictated by p50100 (motor rated armature current).
(For non-current-dependent inductances, this value is 100 %.)

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6854_13_eng.vsd	Function diagram	- 6854 -
Armature circuit control - Armature circuit model parameters					28.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-98 6854 – Armature circuit model parameters

Fig. 3-99 6855 – Armature current control



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6855_13_eng.vsdx	Function diagram	- 6855 -
Armature circuit control - Armature current regulation					29.08.22 V01.05.01	SINAMICS DCM	

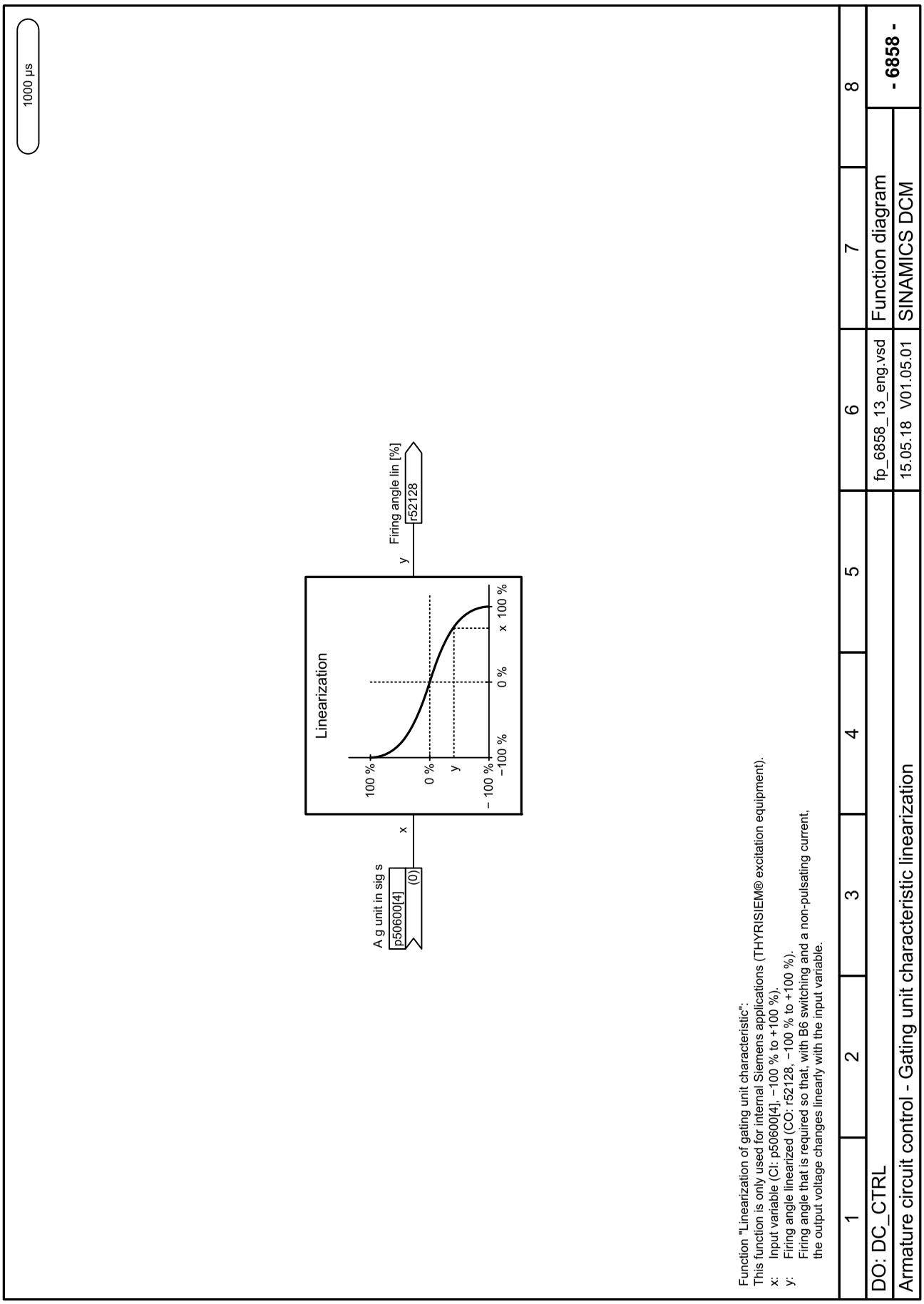
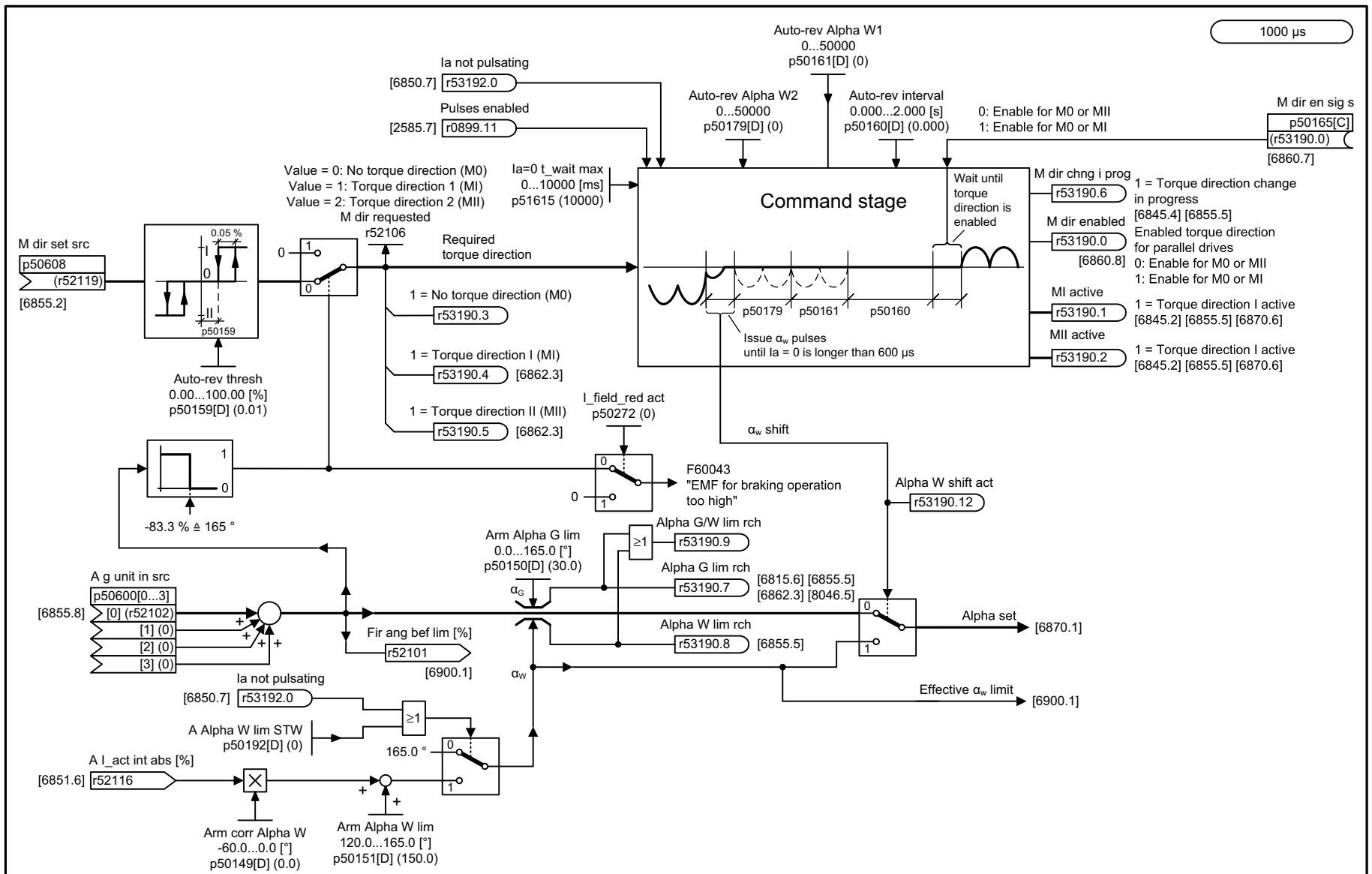


Fig. 3-100 6858 – Gating unit characteristic linearization

Fig. 3-101 6860 – Auto-reversing stage



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6860_13_eng.vsd	Function diagram	- 6860 -
Armature circuit control - Command stage					30.10.18 V01.05.01	SINAMICS DCM	

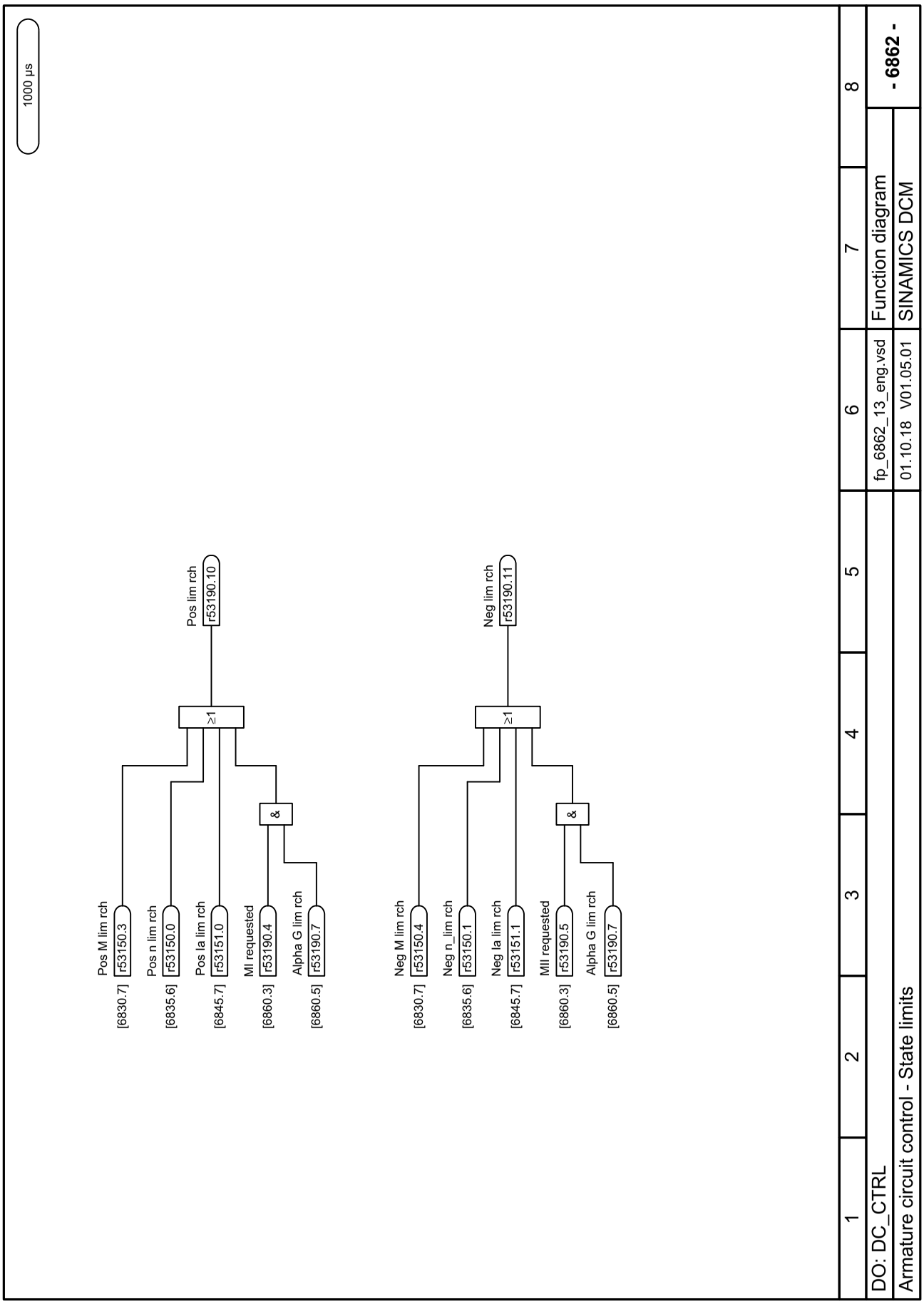


Fig. 3-102 6862 – State limits

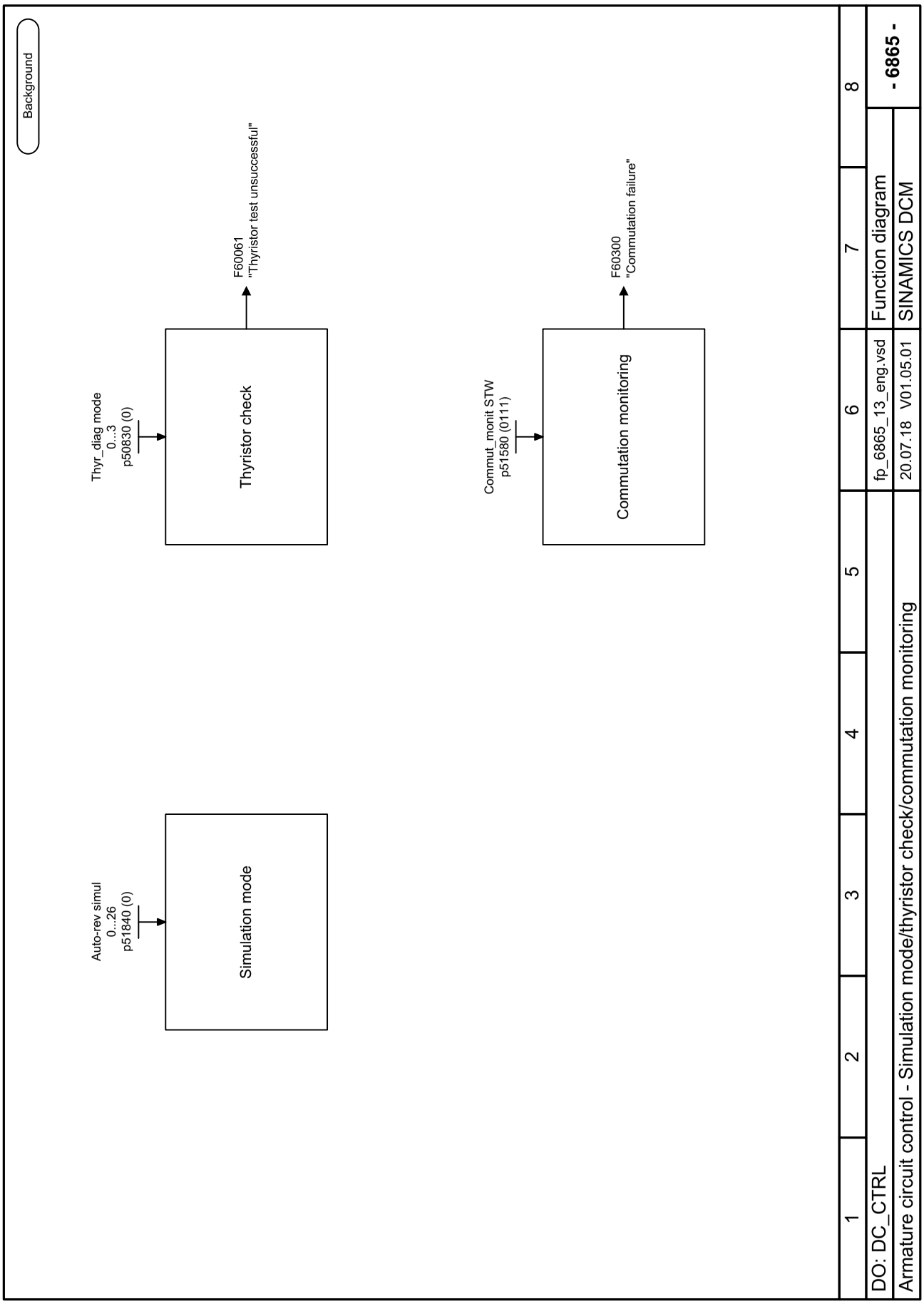
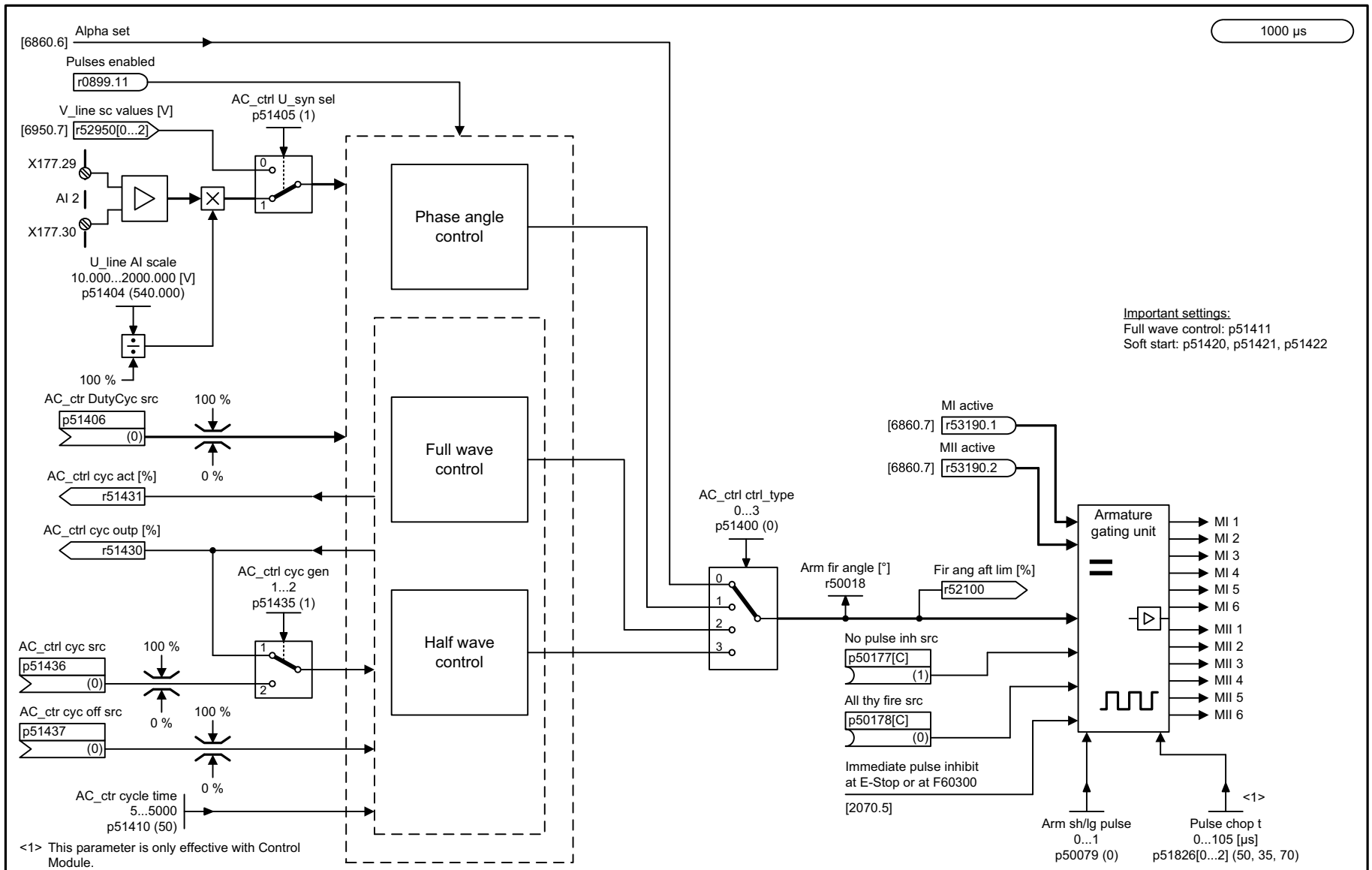


Fig. 3-103 6865 – Simulation mode/thyristor check/commutation monitoring



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6870_13_eng.vsd	Function diagram	- 6870 -
Armature circuit control - AC power controller and armature gating unit					30.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-104 6870 – Three-phase AC power controller and armature gating unit

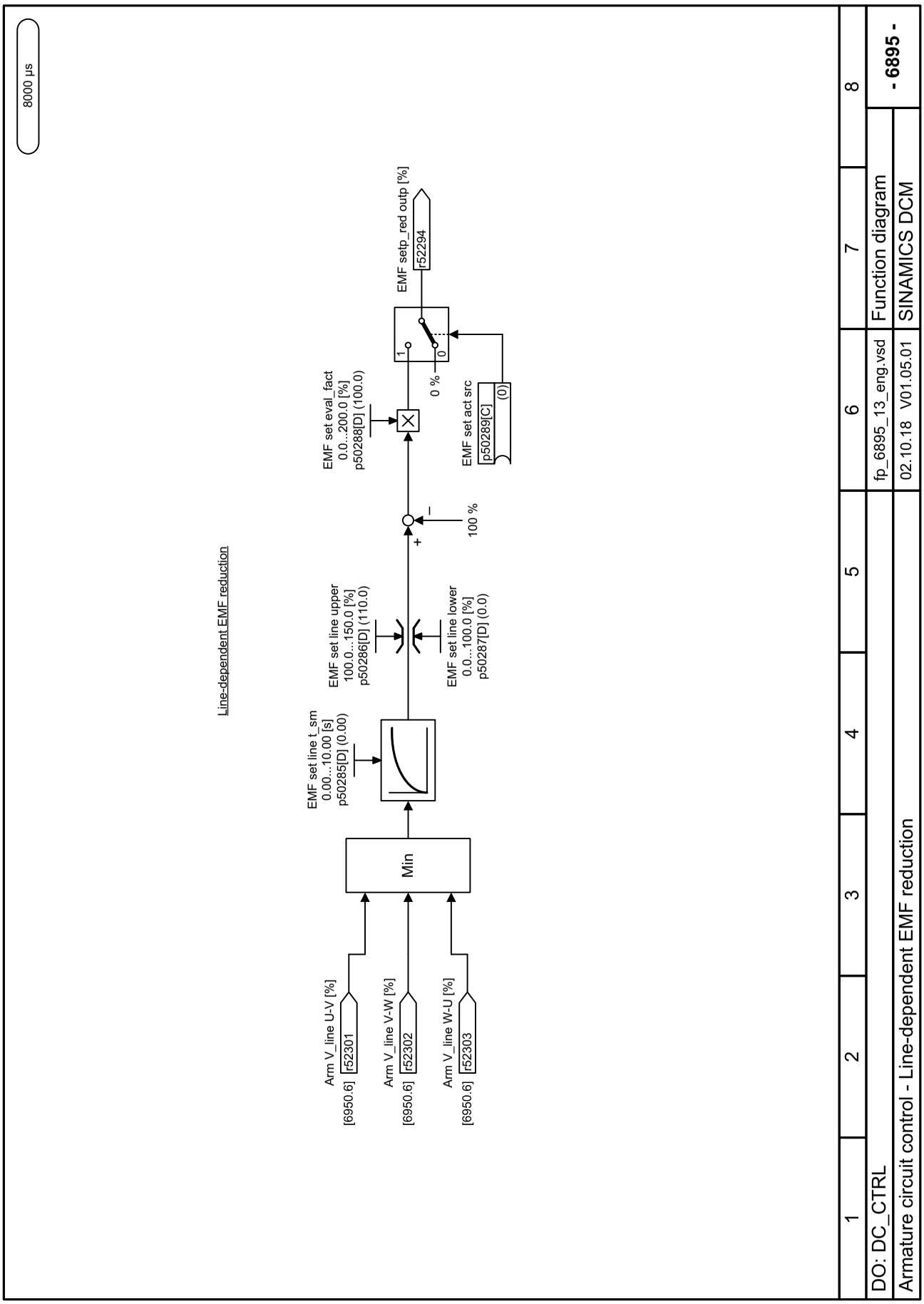
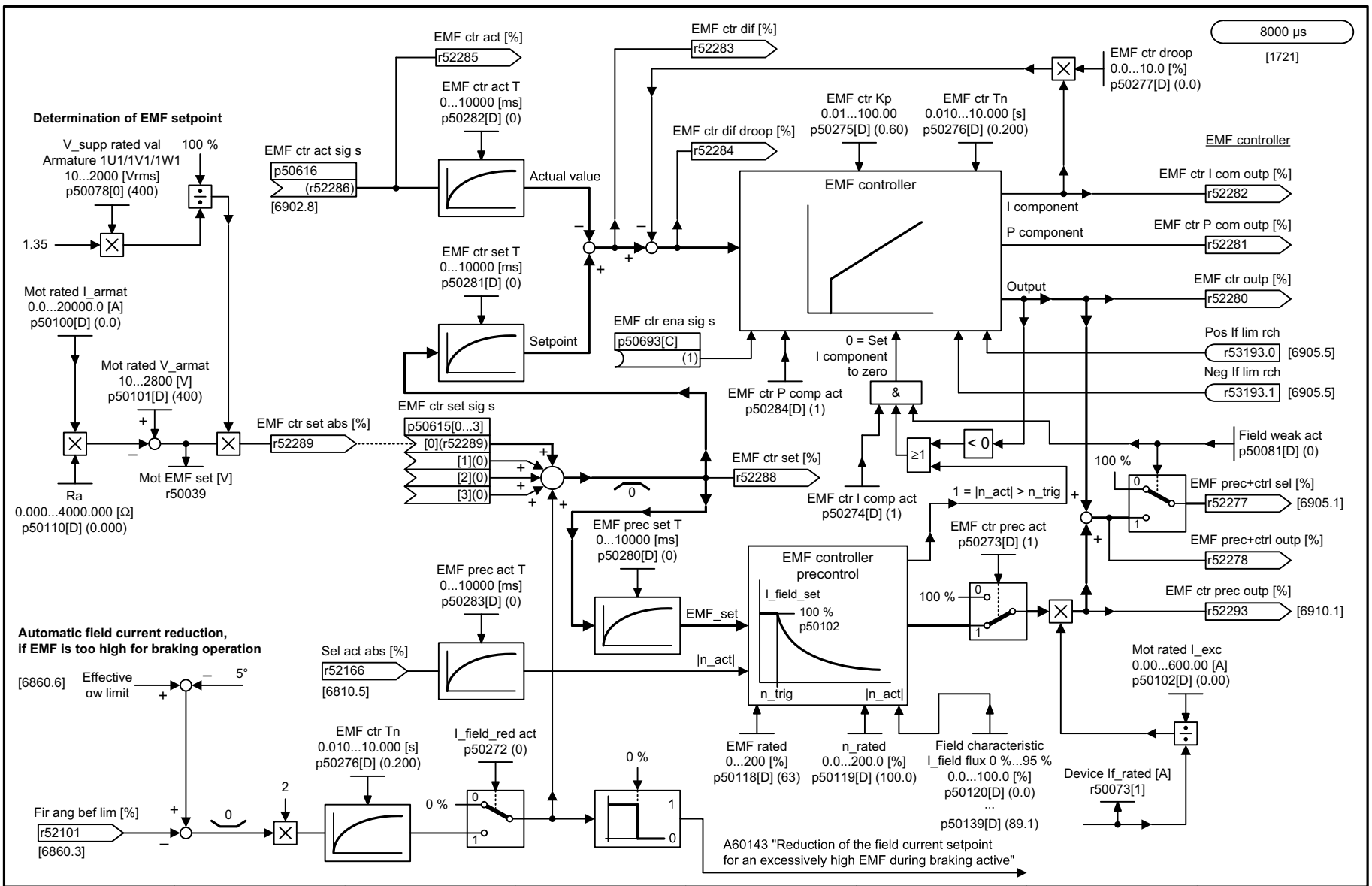


Fig. 3-105 6895 – Line-dependent EMF reduction

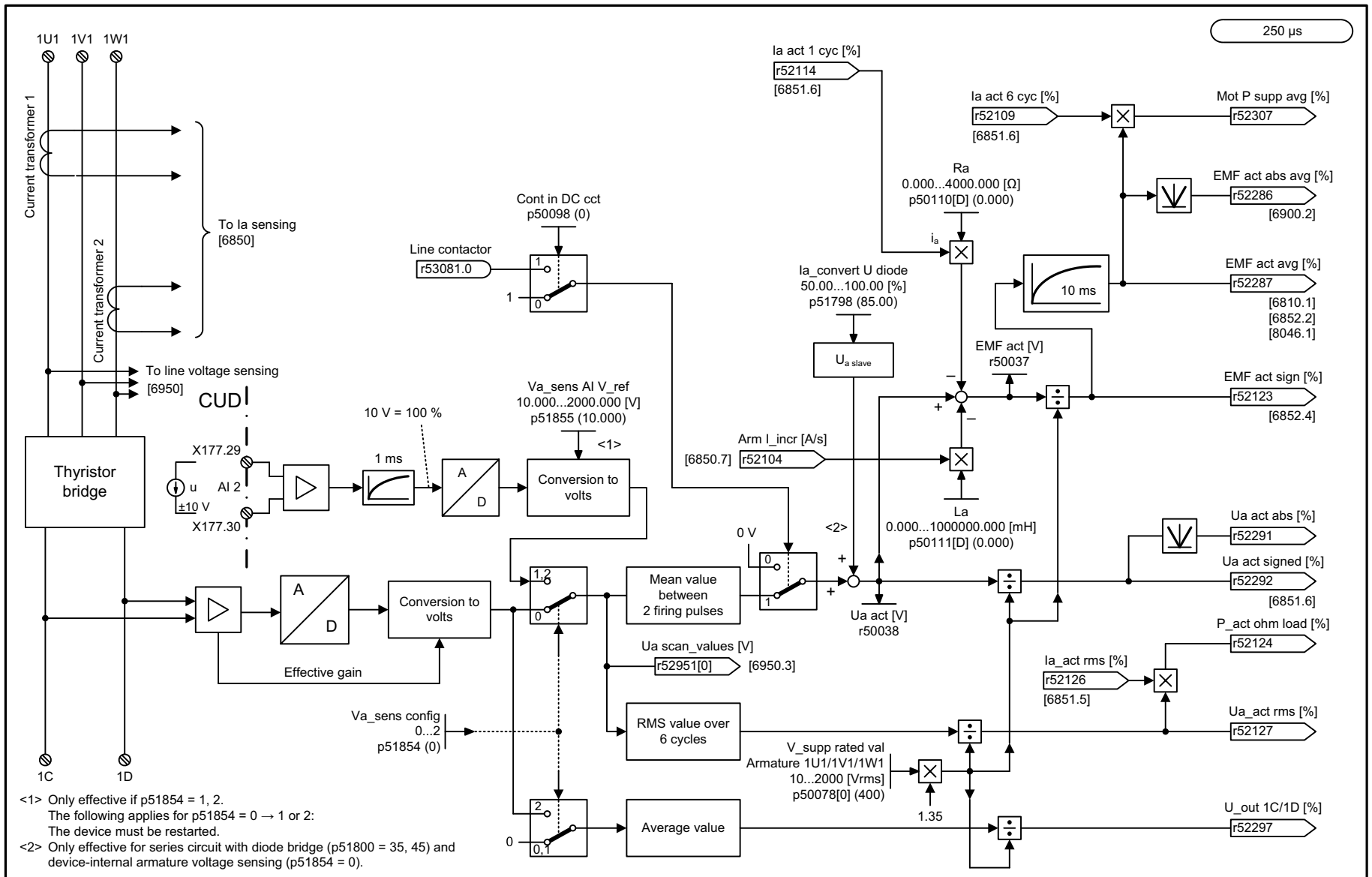
3.13 Field circuit control

Function diagrams



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6900_13_eng.vsd	Function diagram	- 6900 -
Field circuit control - EMF control					30.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-106 6900 – EMF control



<1> Only effective if p51854 = 1, 2.
The following applies for p51854 = 0 → 1 or 2:
The device must be restarted.
<2> Only effective for series circuit with diode bridge (p51800 = 35, 45) and device-internal armature voltage sensing (p51854 = 0).

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6902_13_eng.vsd	Function diagram	- 6902 -
Field circuit control - Armature voltage/EMF actual value sensing					02.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-107 6902 – Actual value acquisition, armature voltage/EMF

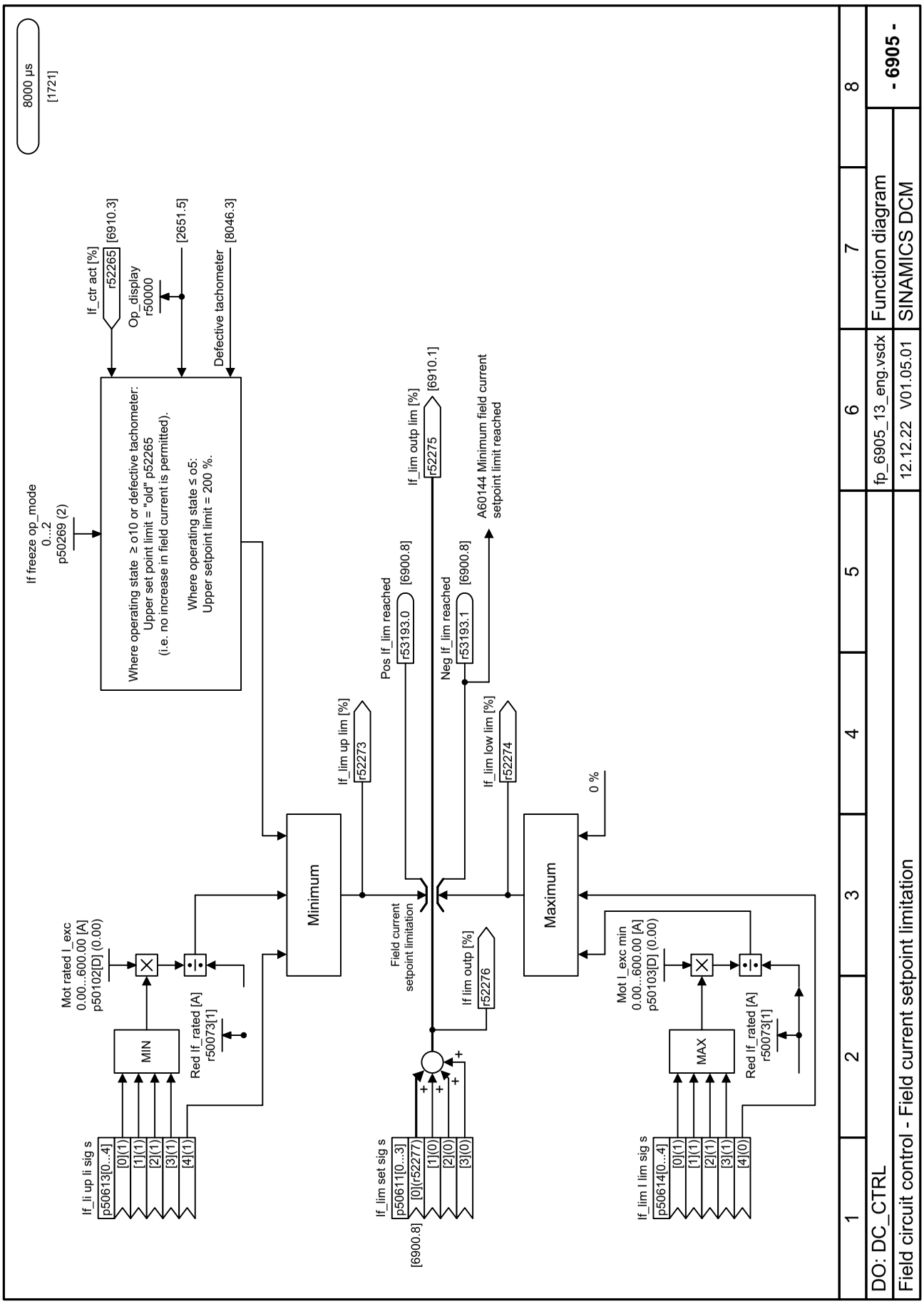
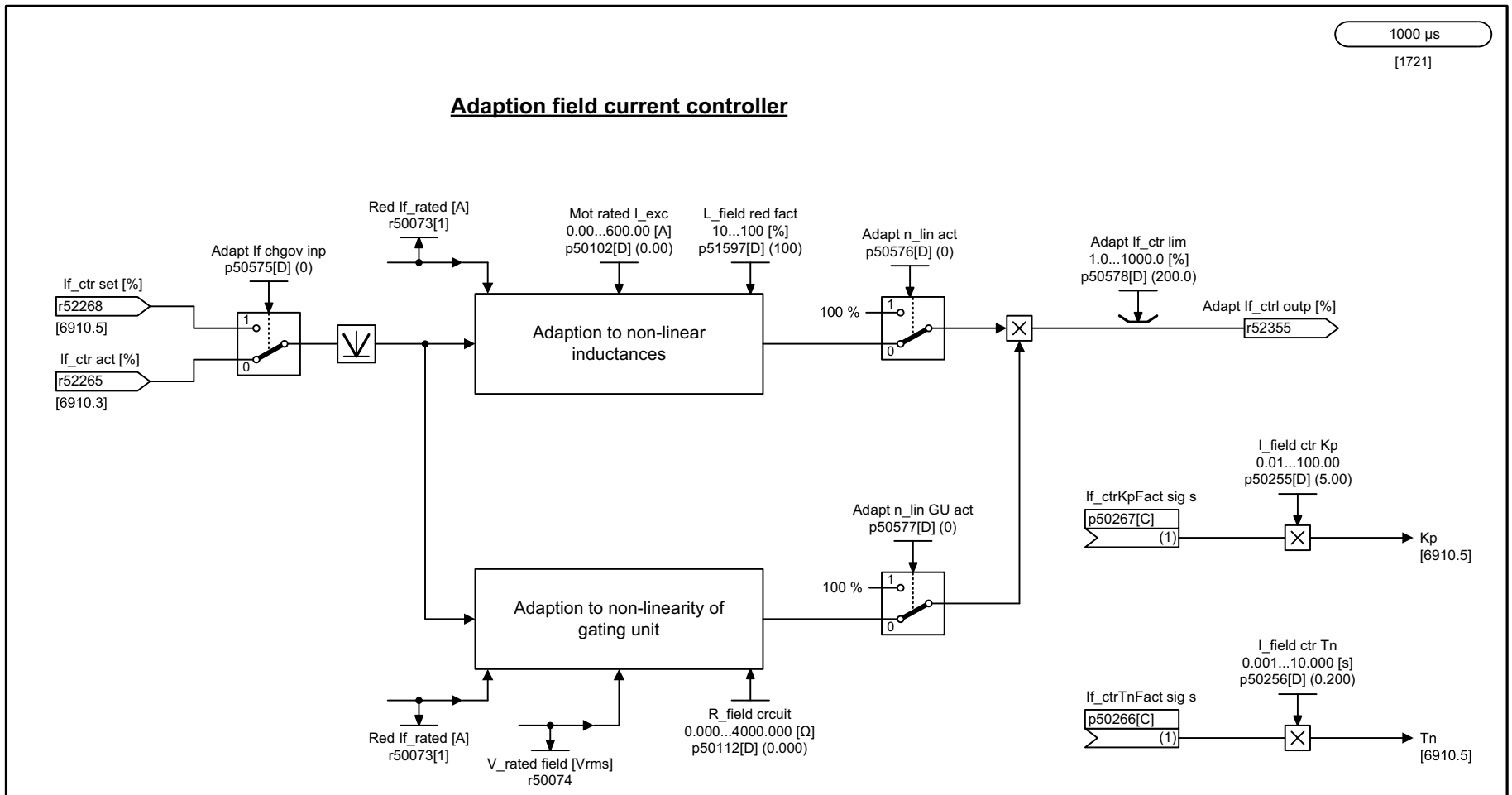
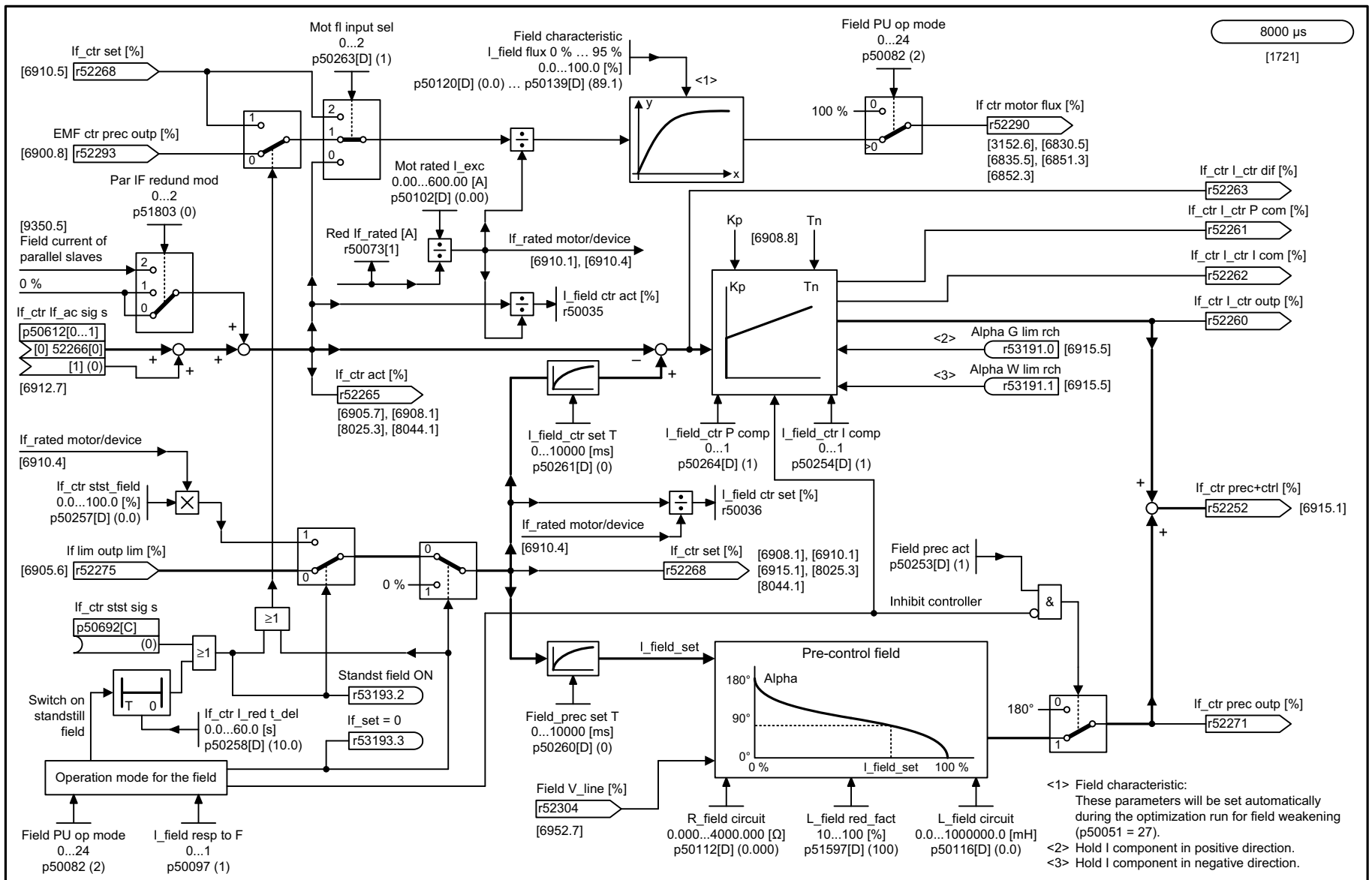


Fig. 3-108 6905 – Field current setpoint limitation



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6908_13_eng.vsd	Function diagram	- 6908 -
Field circuit control - Field current controller adaption					01.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-109 6908 – Field current controller adaptation



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6910_13_eng.vsd	Function diagram	- 6910 -
Field circuit control - Field current regulation					30.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-110 6910 – Field current control

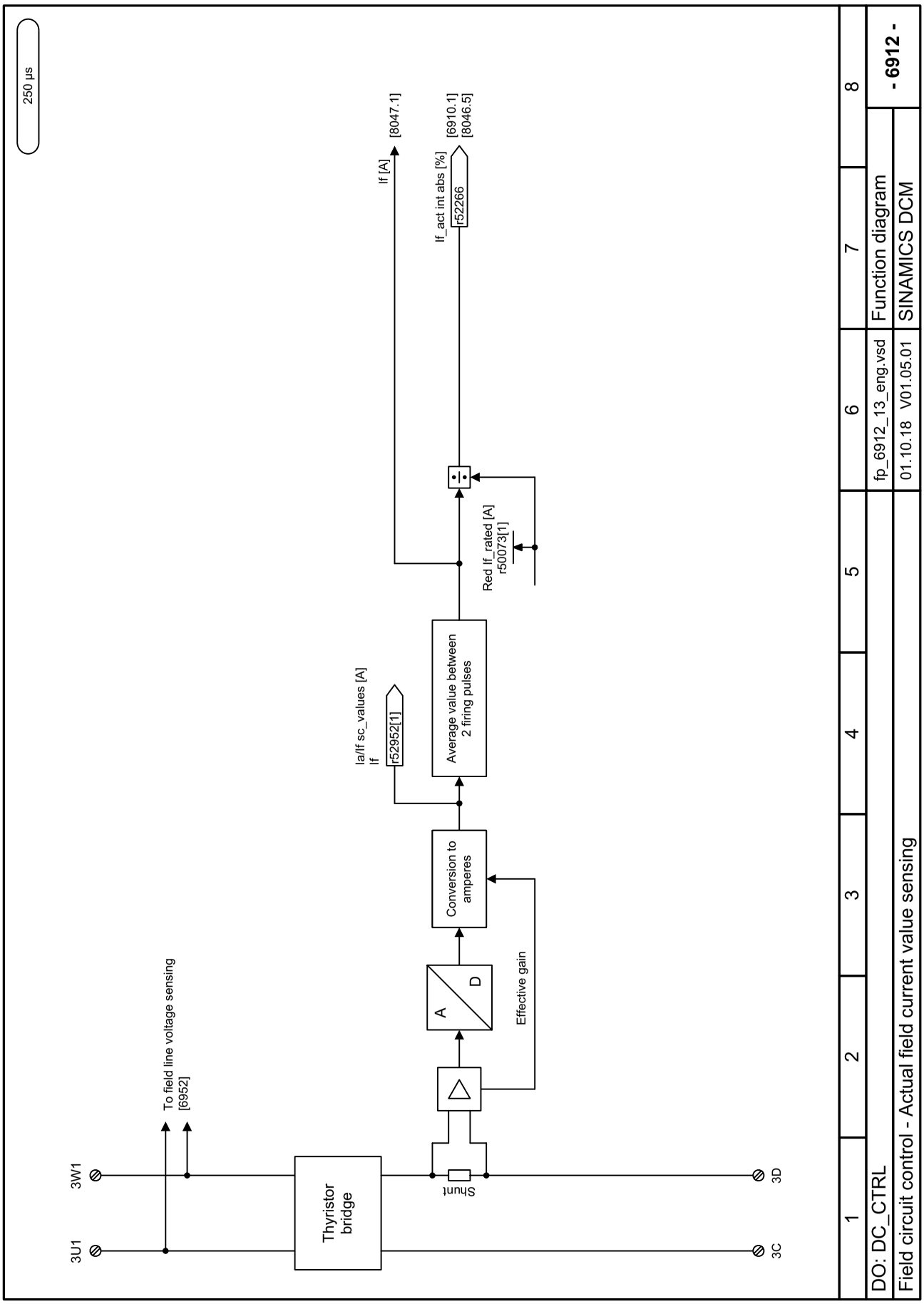


Fig. 3-111 6912 – Actual field current value sensing

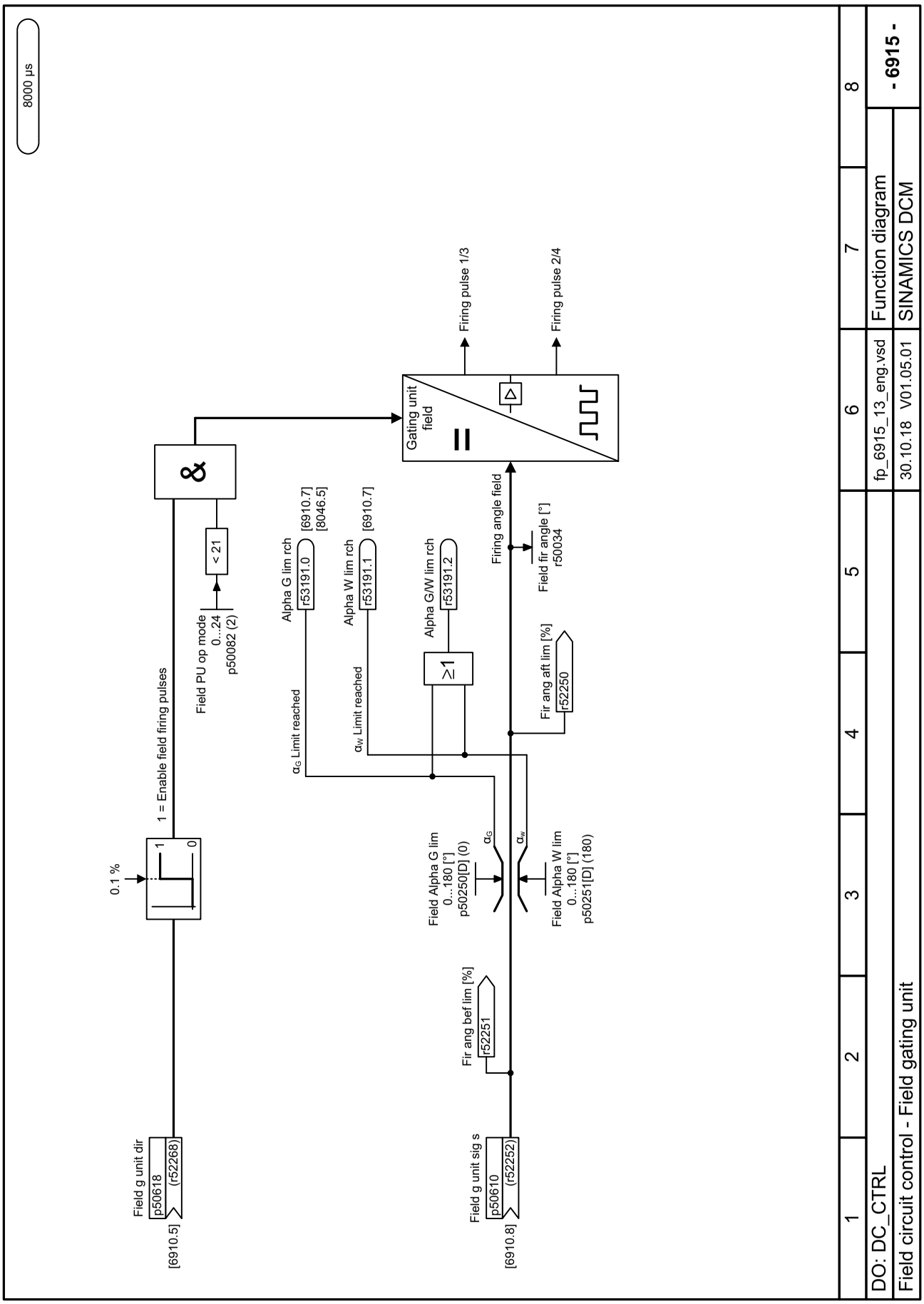
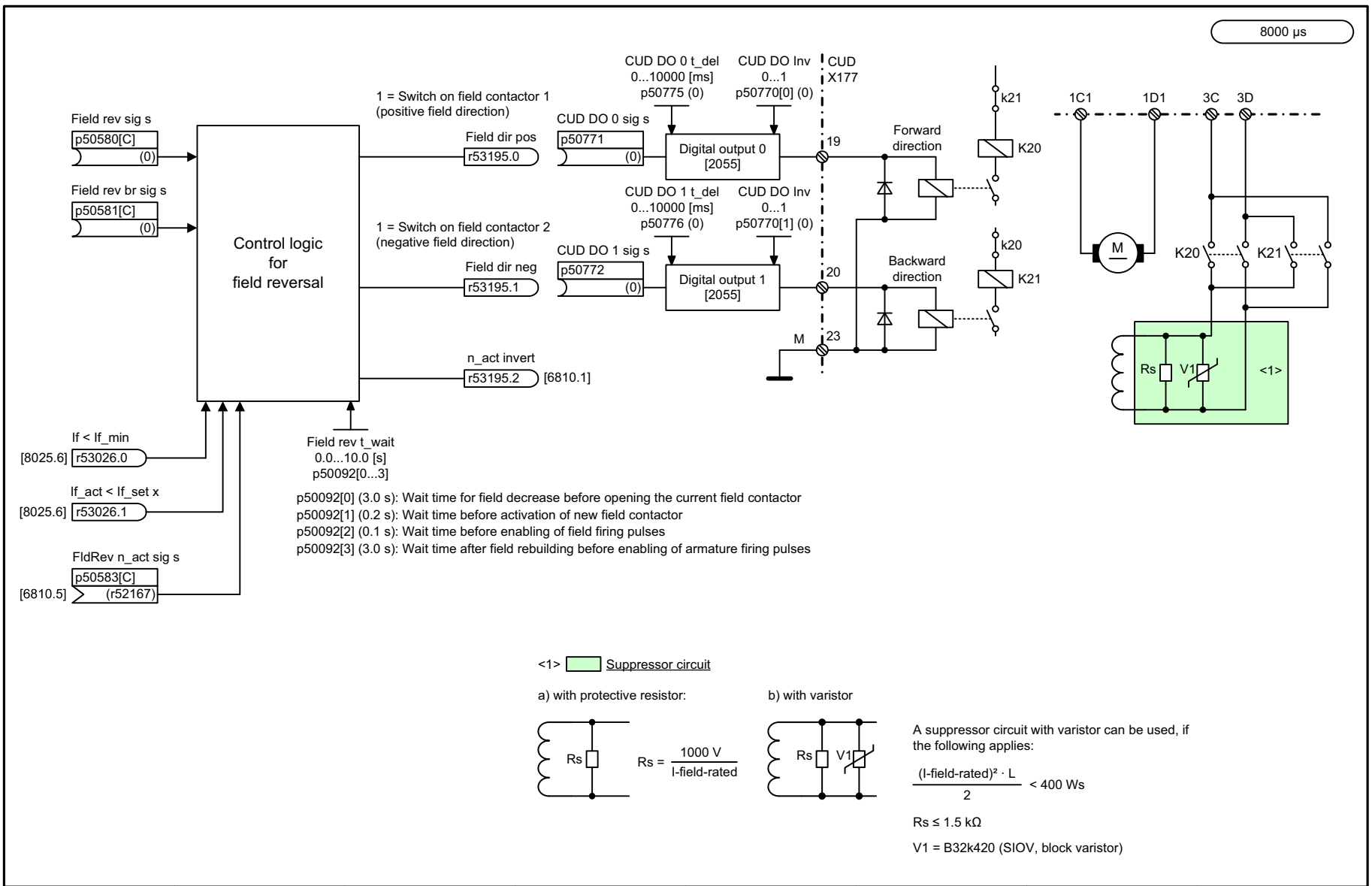


Fig. 3-112 6915 – Field gating unit



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6920_13_eng.vsd	Function diagram	- 6920 -
Field circuit control - Field reversal					01.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-113 6920 – Field reversal

3.14 Power unit

Function diagrams

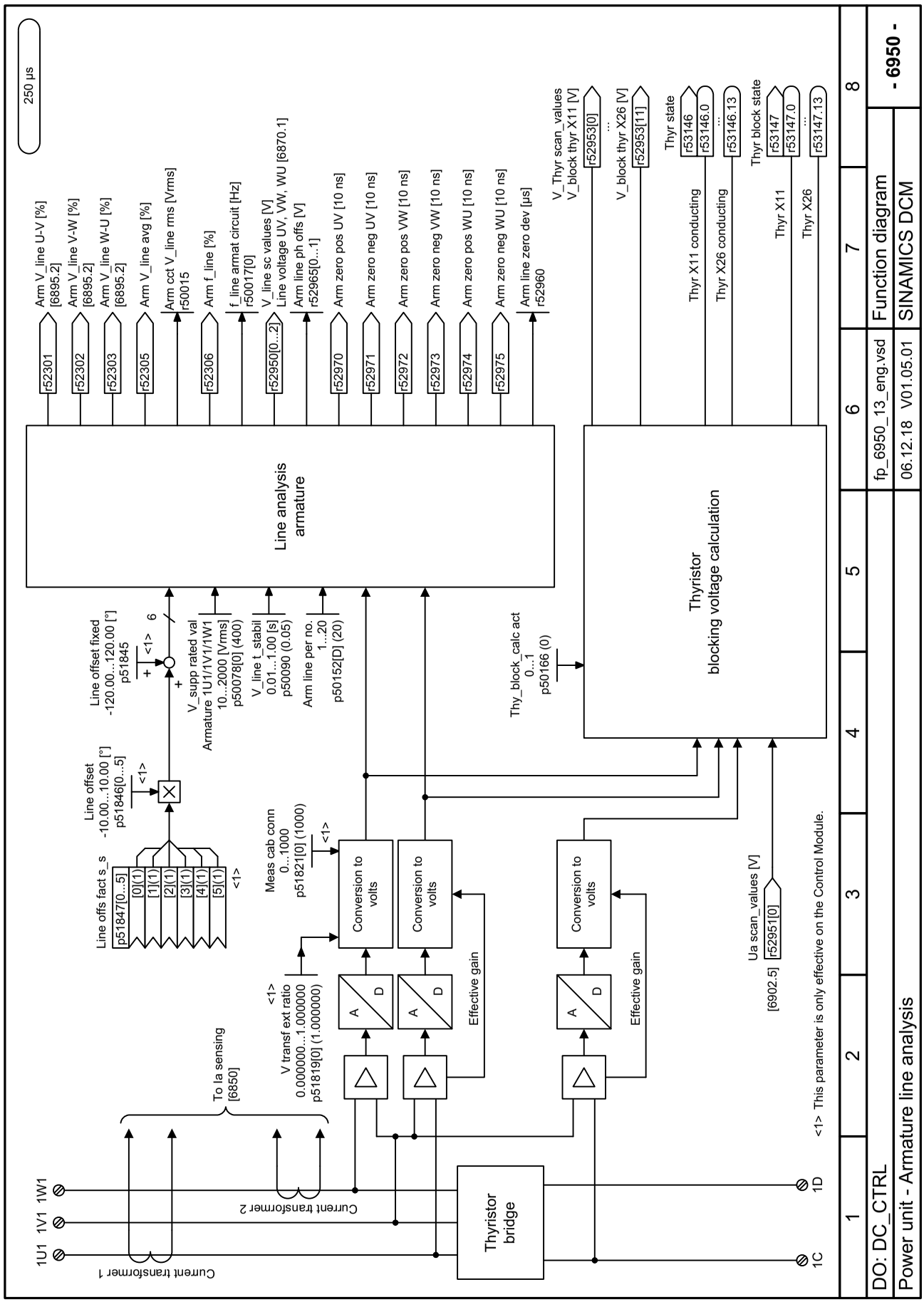


Fig. 3-114 6950 – Armature line analysis

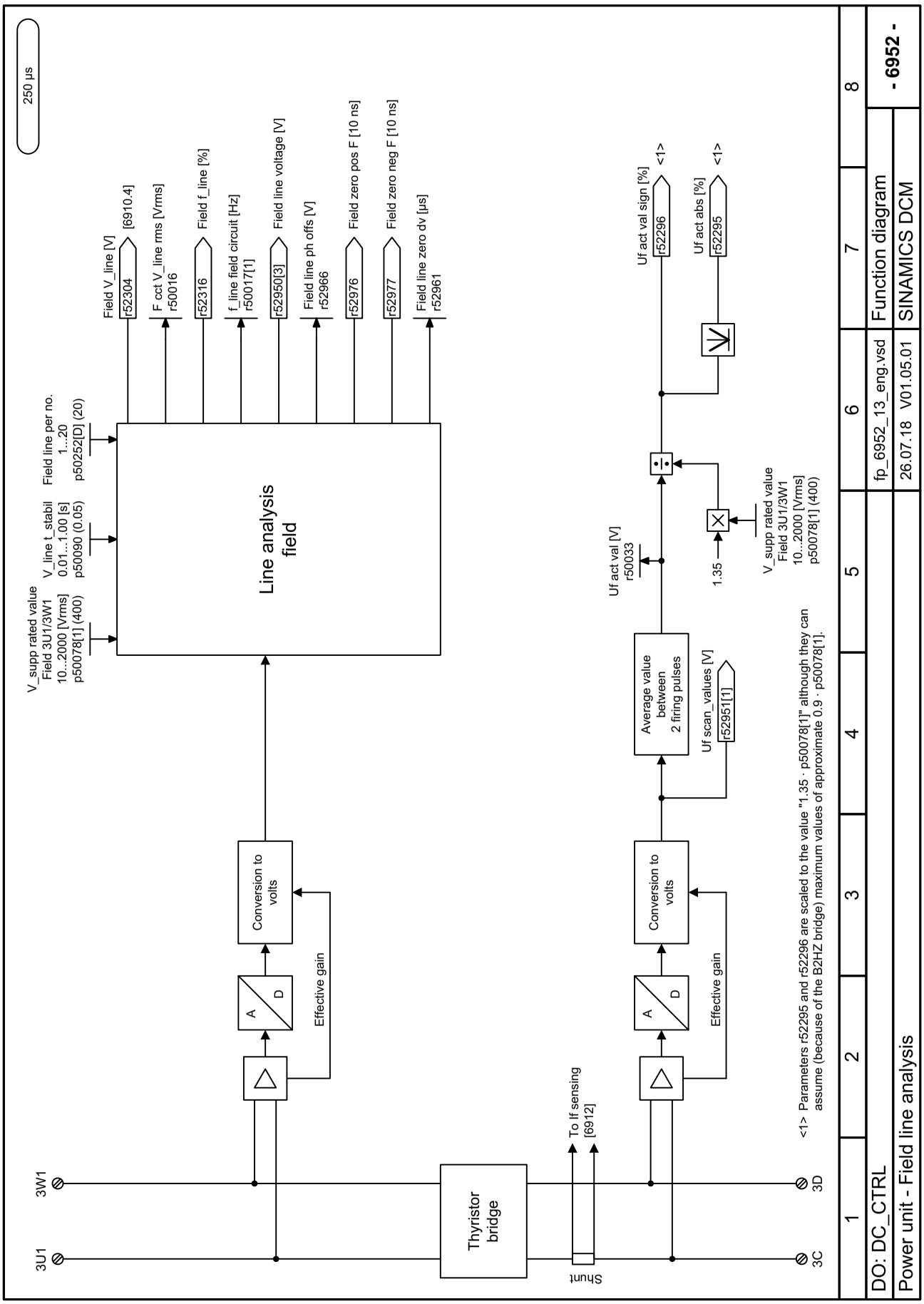
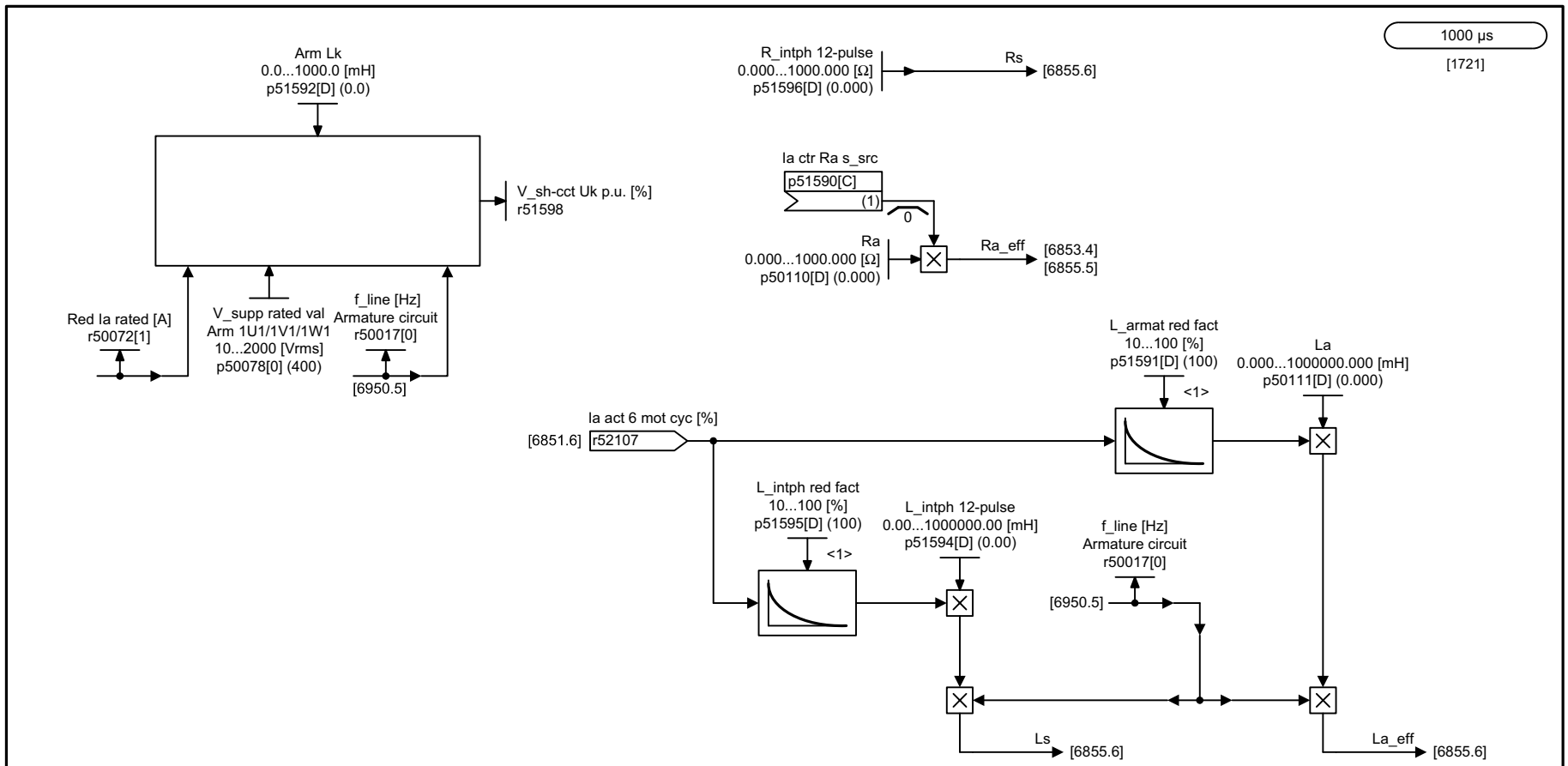


Fig. 3-115 6952 – Field line analysis



Explanations:
Ra: Resistance of the armature circuit of the motor.
La: Inductance of the armature circuit of the motor.
Rs: Resistance of the interface transformer/smoothing reactor in 12-pulse mode.
Ls: Inductance of the interface transformer/smoothing reactor in 12-pulse mode.
Lk: Commutation inductance.

<1> Reduction factors p51591, p51595:
The percentage value to which the inductance drops at a current dictated by p50100 (motor rated armature current).
(For non-current-dependent inductances, this value is 100 %.)

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6854_13_eng.vsd	Function diagram	- 6854 -
Armature circuit control - Armature circuit model parameters					28.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-116 6954 – Line monitoring

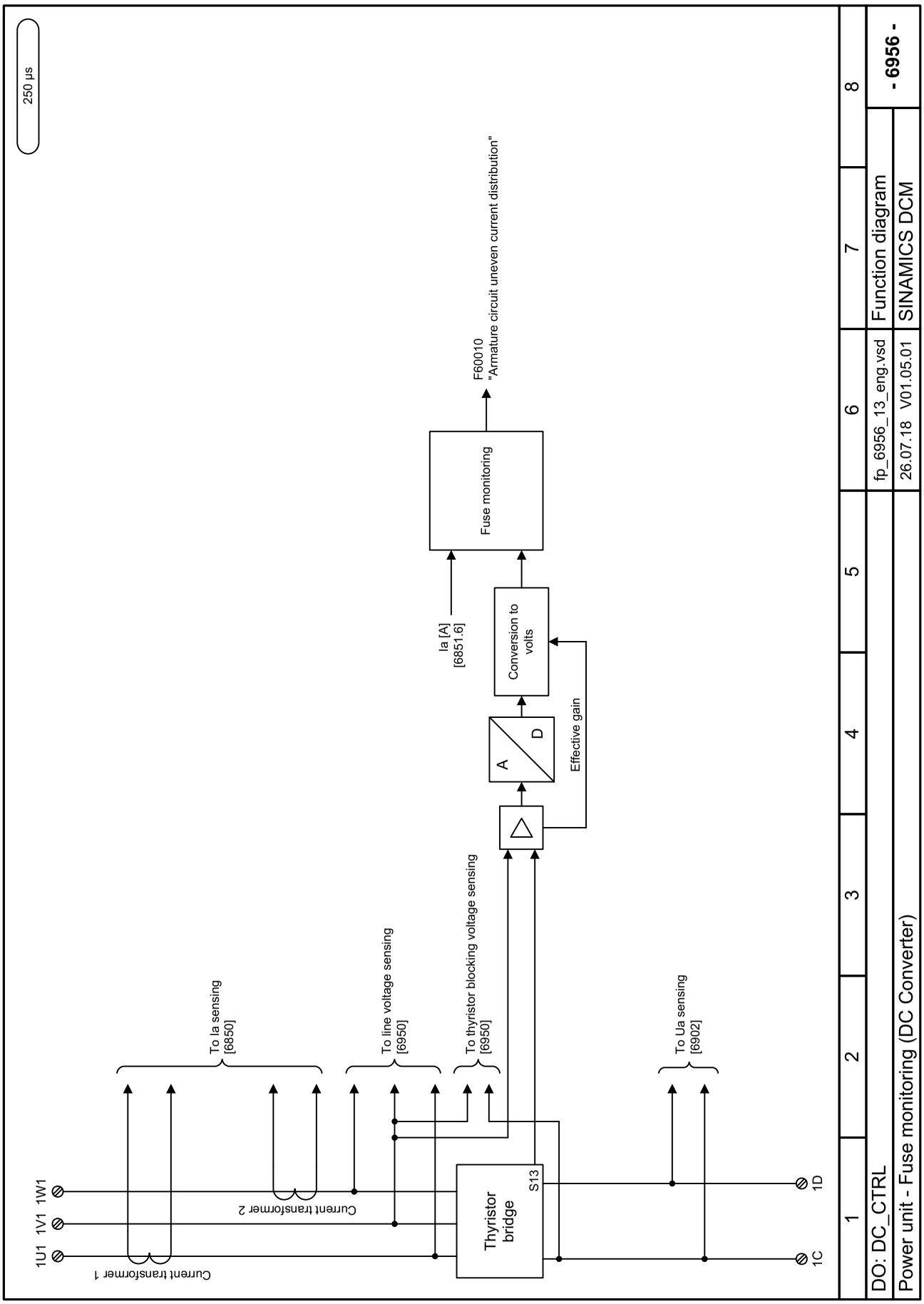
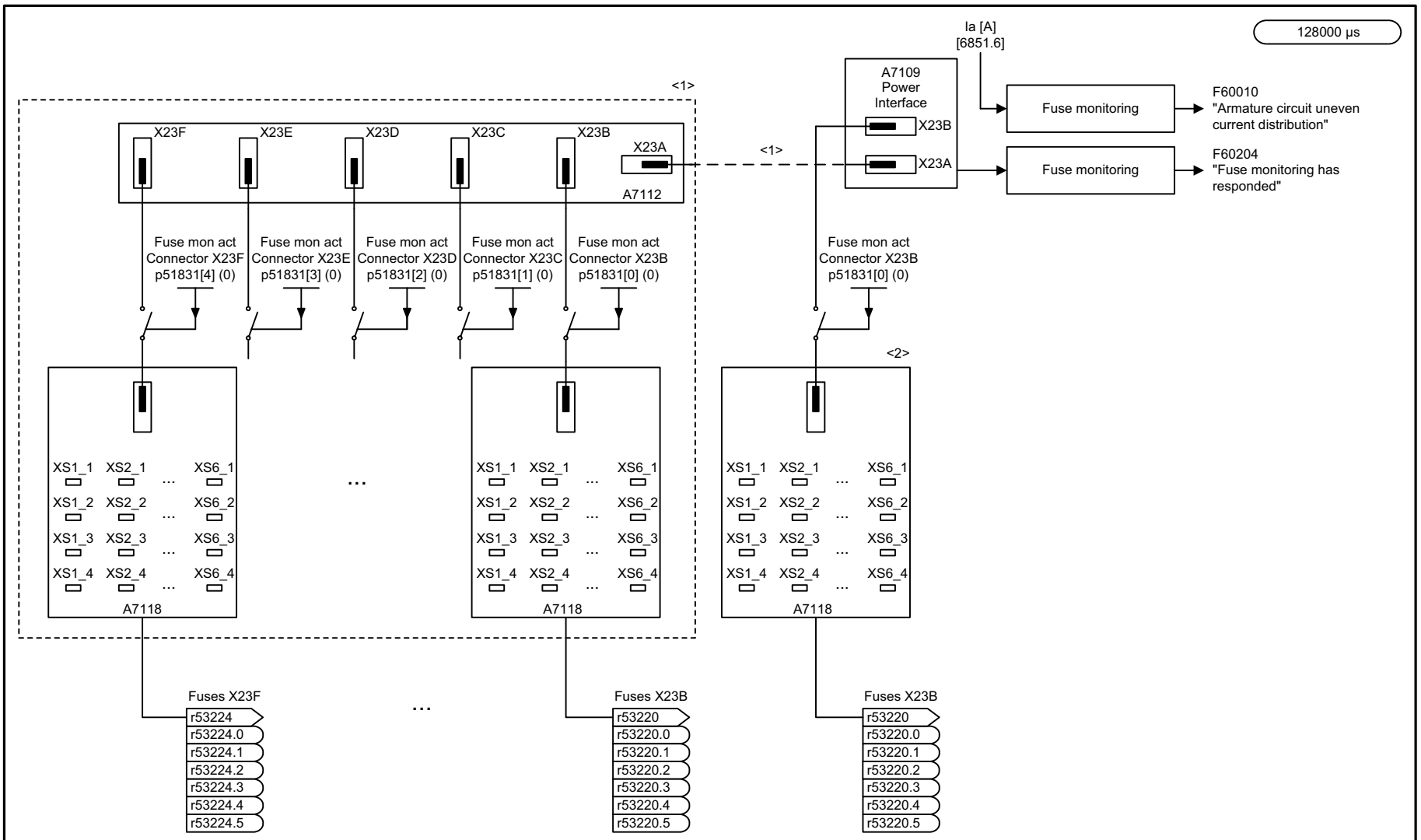


Fig. 3-117 6956 – Fuse monitoring (DC converter)



<1> Optional.
<2> If <1> is connected to slot X23A, slot X23B cannot be used for <2>.

1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_6957_13_eng.vsd	Function diagram	- 6957 -
Power unit - Fuse monitoring (Control Module)					26.07.18 V01.05.01	SINAMICS DCM	

Fig. 3-118 6957 – Fuse monitoring (Control Module)

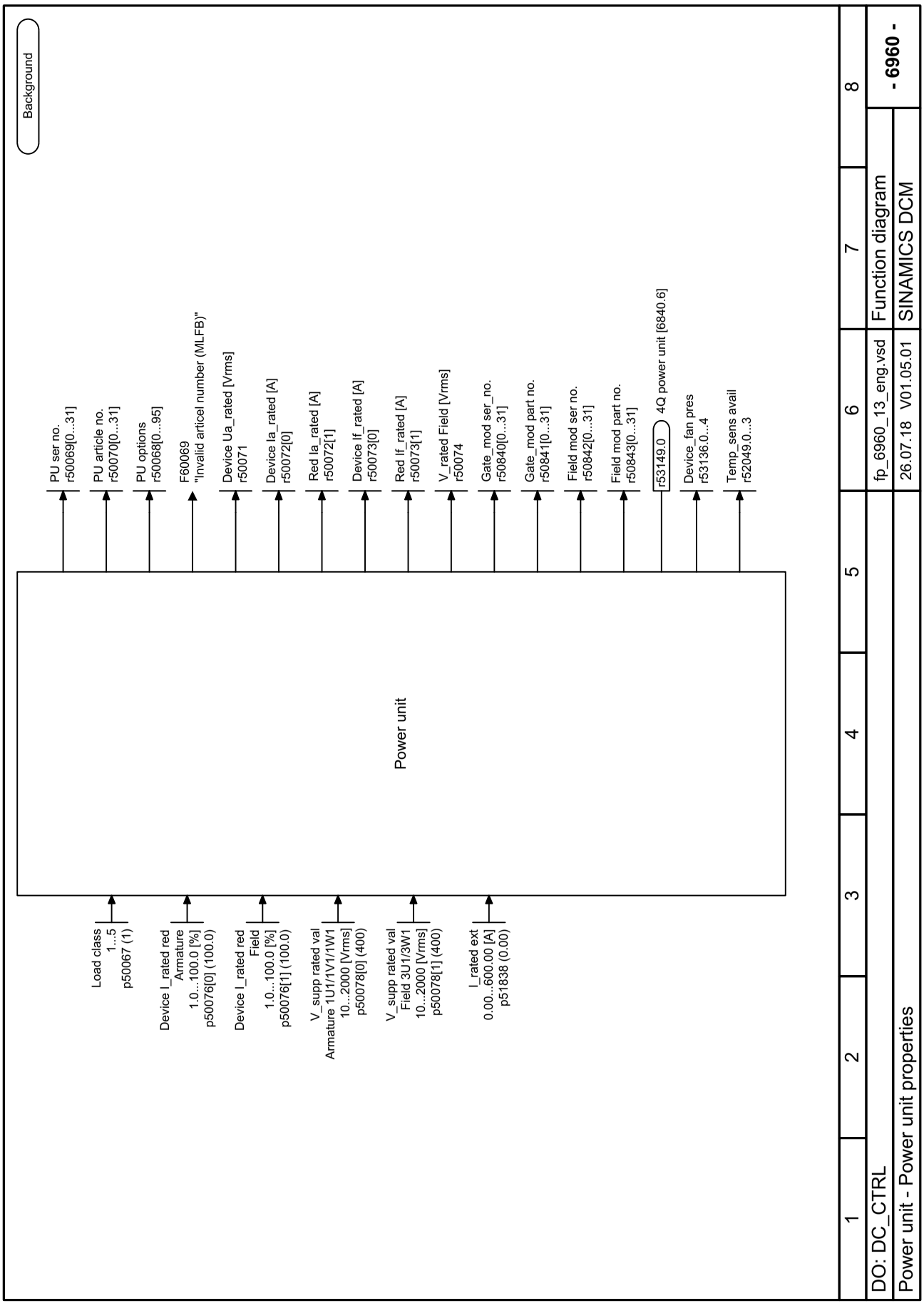


Fig. 3-119 6960 – Power unit properties

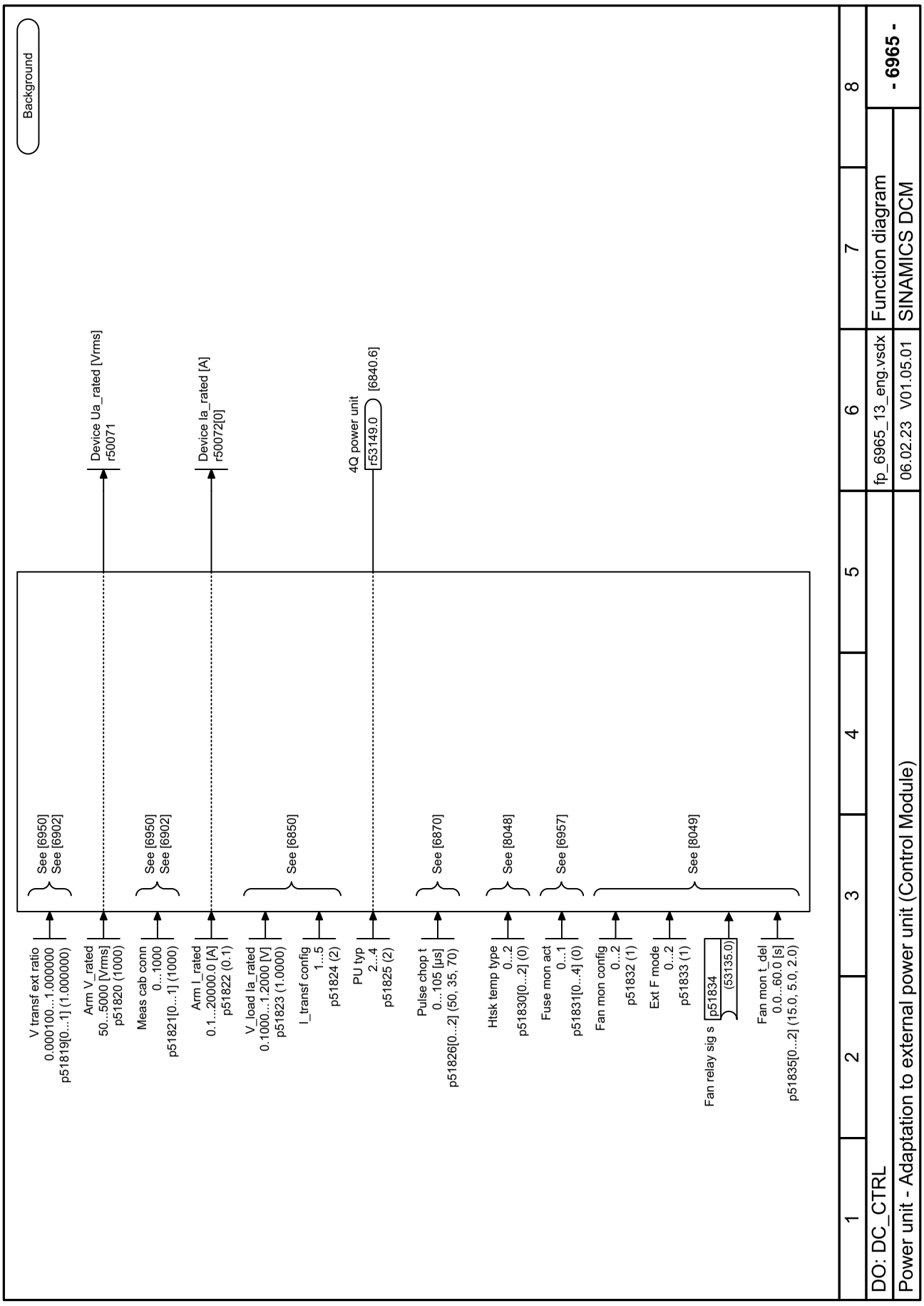


Fig. 3-120 6965 – Adaptation to external power unit (Control Module)

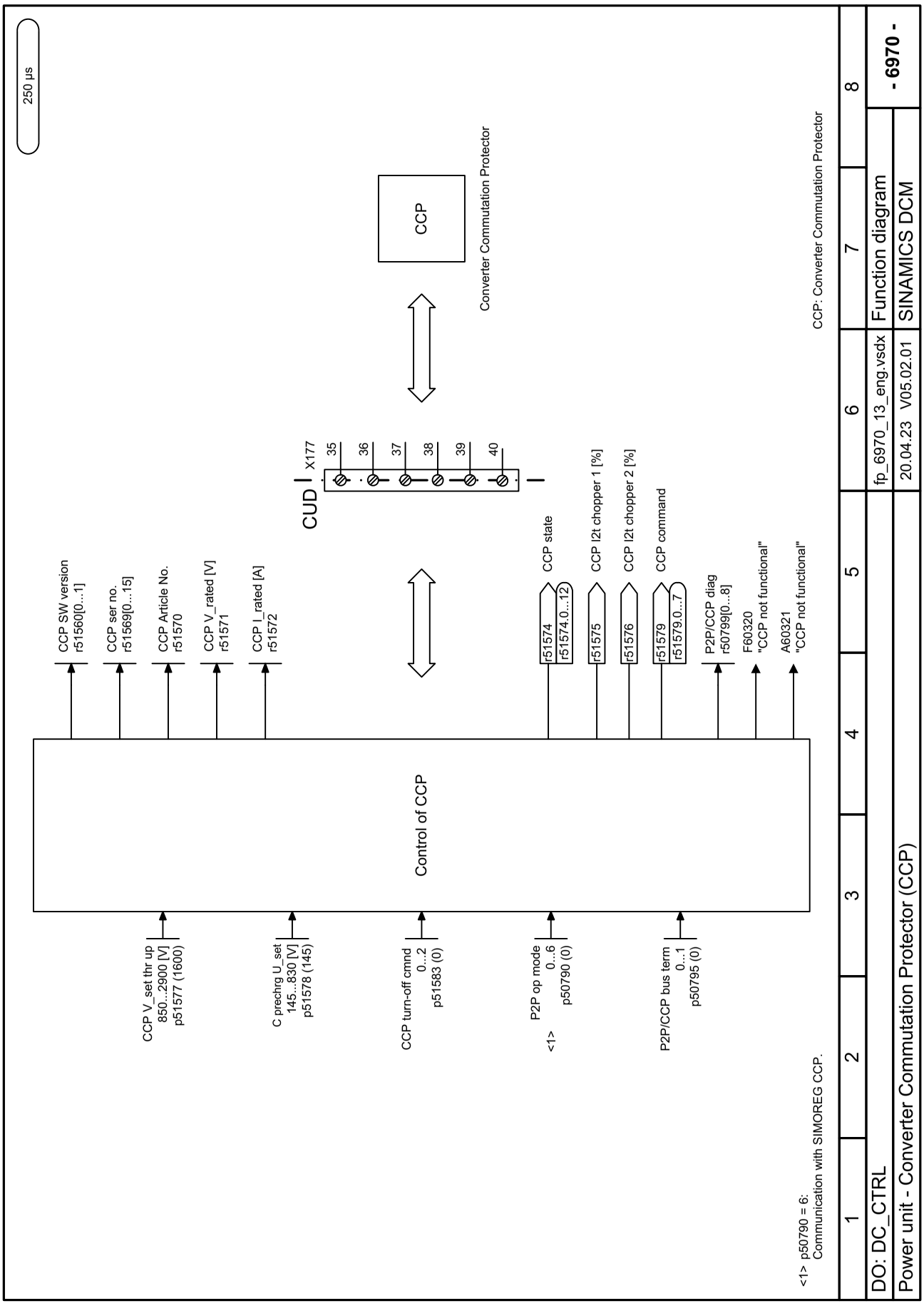
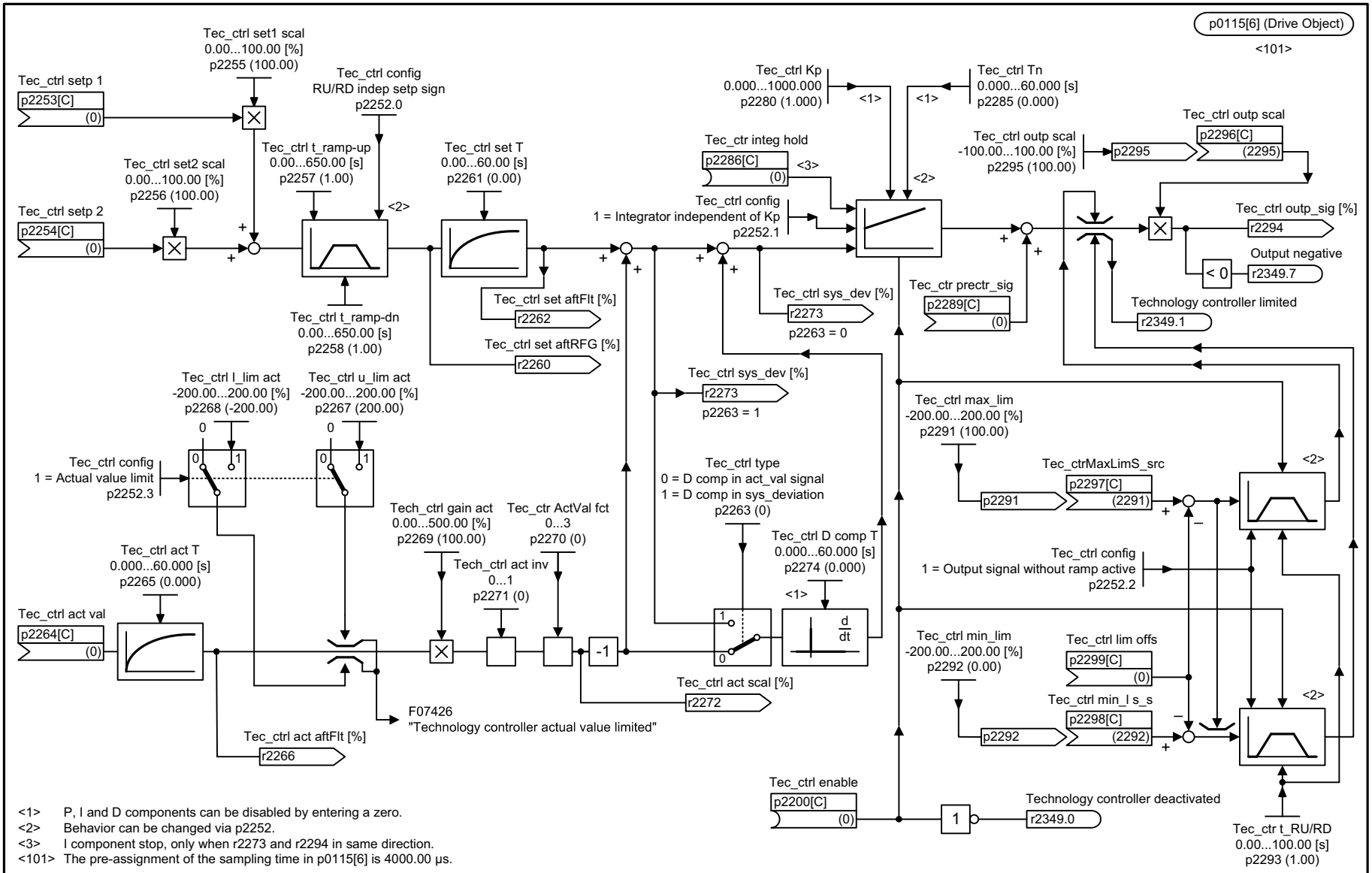


Fig. 3-121 6970 – Converter Commutation Protector (CCP)

3.15 Technology controller

Function diagrams



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_7958_13_eng.vsd	Function diagram	- 7958 -
Technology controller - Control (r0108.16 = 1)					27.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-122 7958 – Closed-loop control (r0108.16 = 1)

3.16 Signals and monitoring functions

Function diagrams

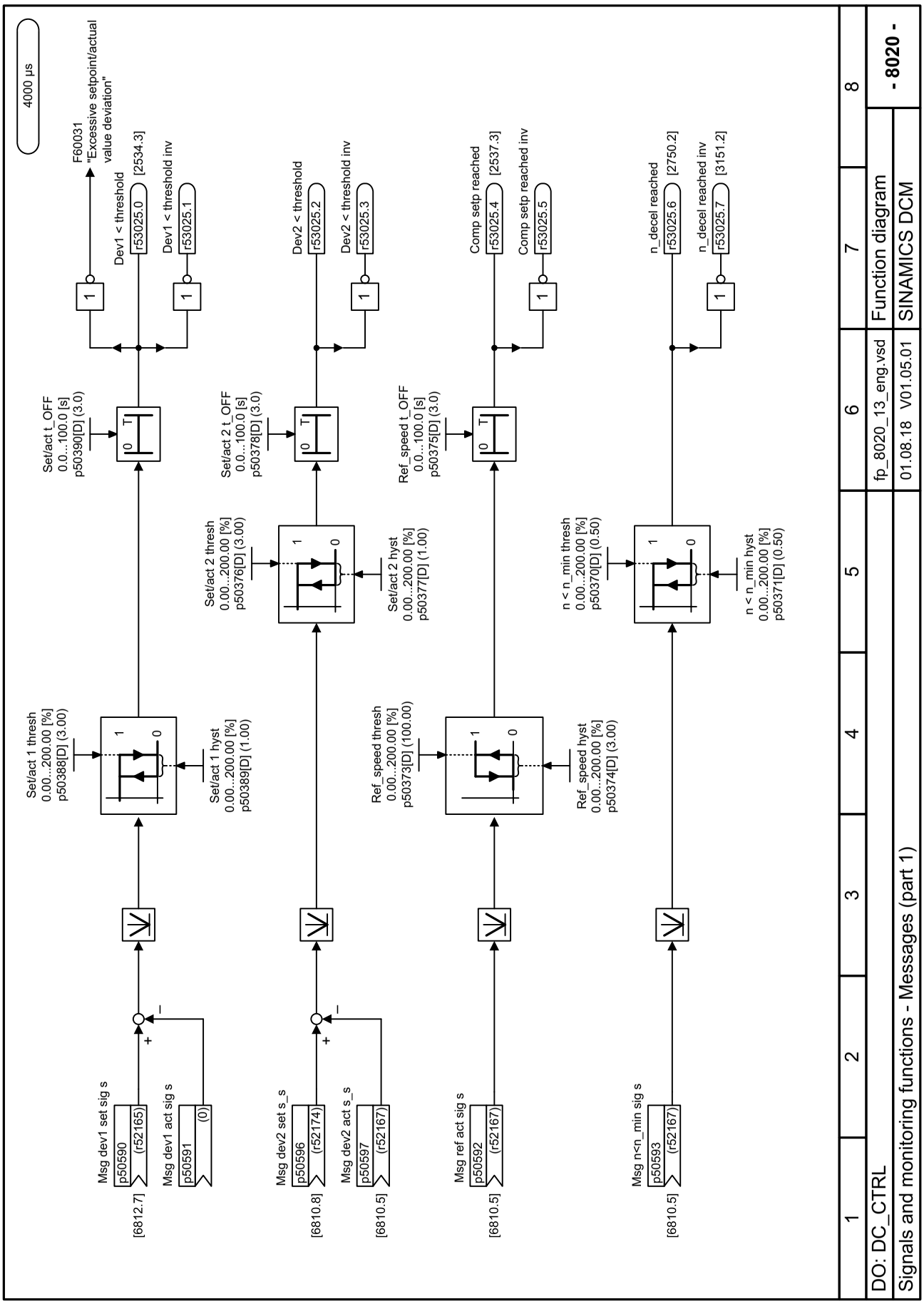
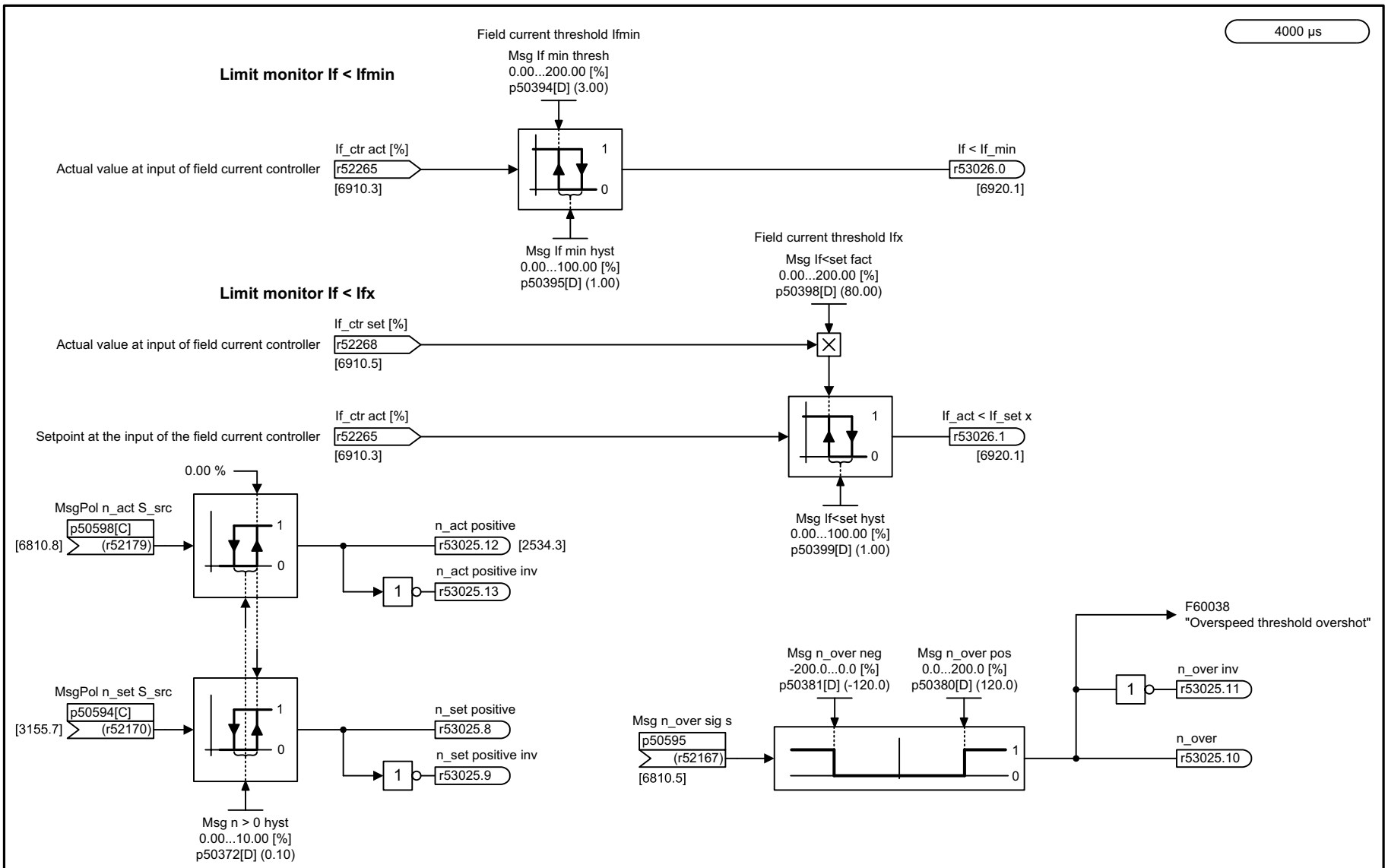


Fig. 3-123 8020 – Messages (Part 1)



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_8025_13_eng.vsd	Function diagram	- 8025 -
Signals and monitoring functions - Messages (part 2)					01.10.18 V01.05.01	SINAMICS DCM	

Fig. 3-124 8025 – Messages (Part 2)

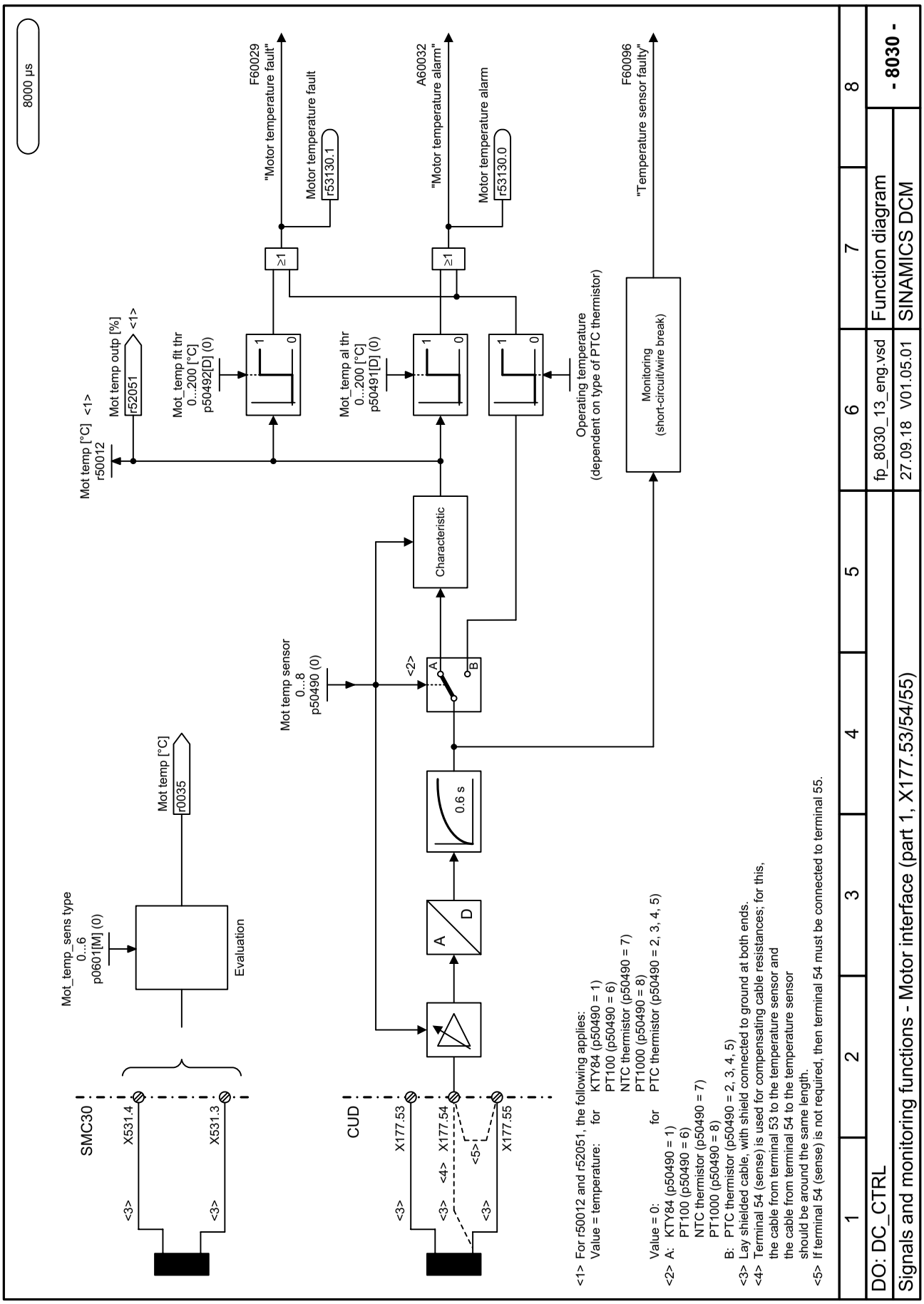


Fig. 3-125 8030 – Motor interface (Part 1, X177.53/54/55)

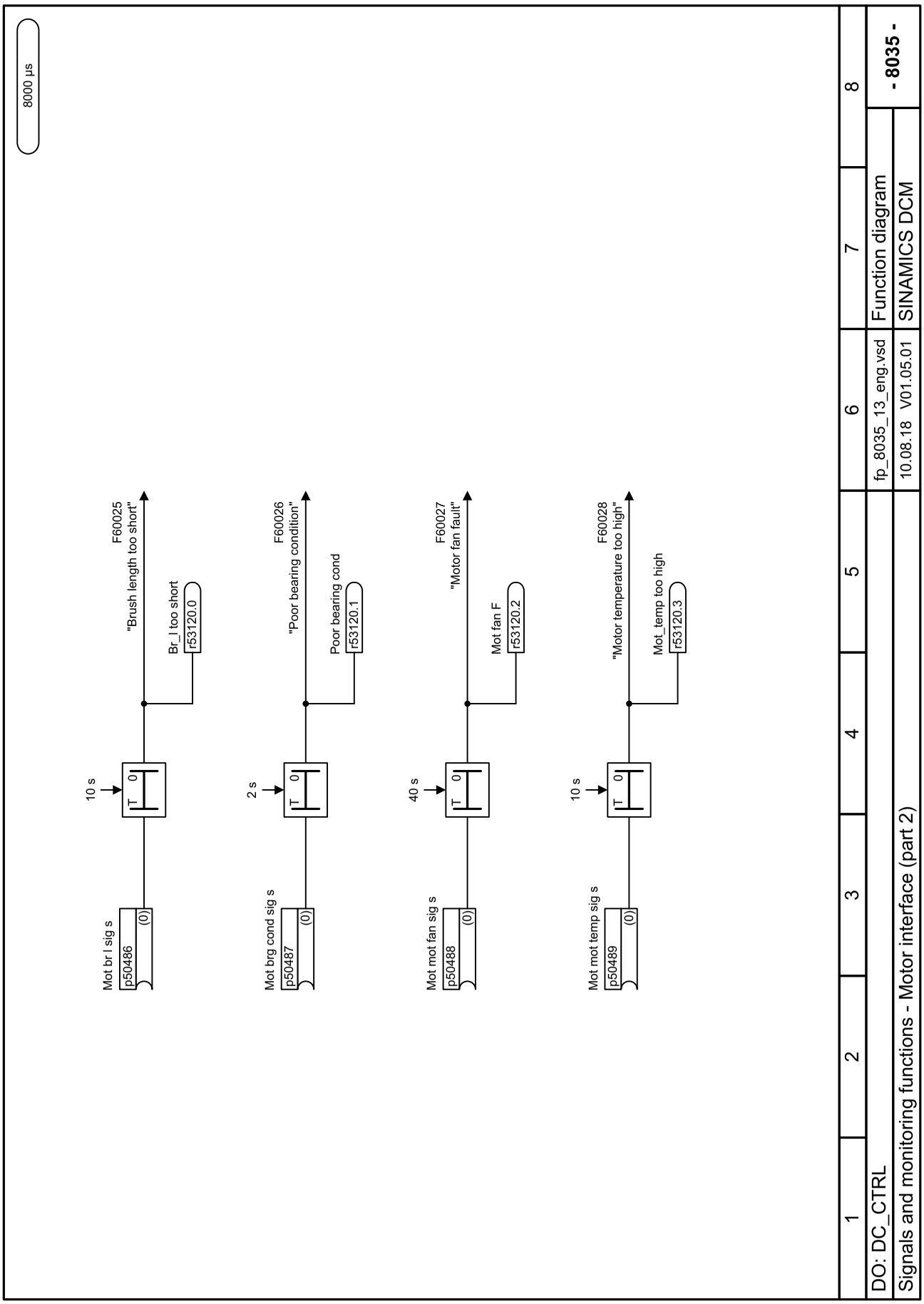


Fig. 3-126 8035 – Motor interface (Part 2)

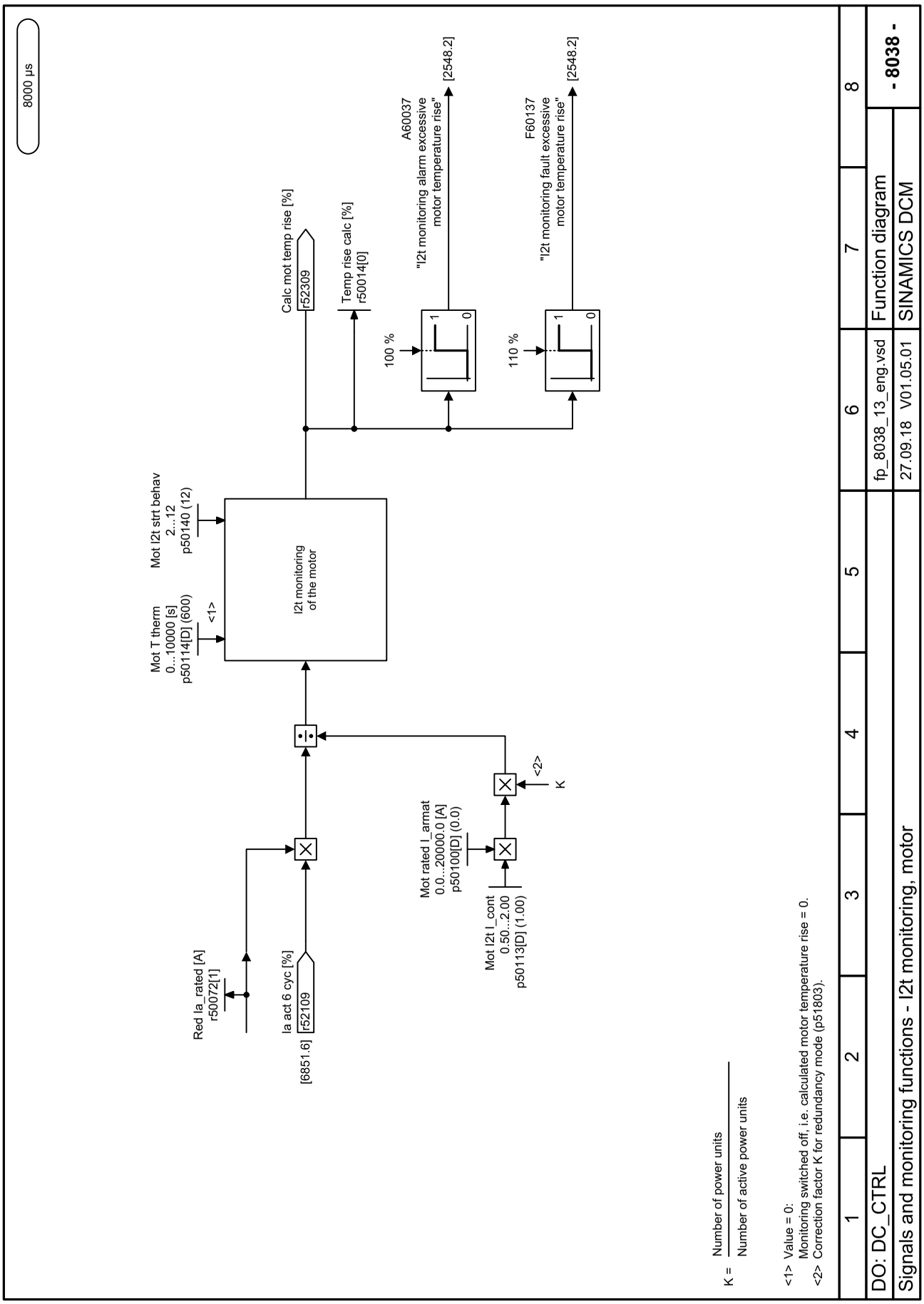


Fig. 3-127 8038 – I2t monitoring motor

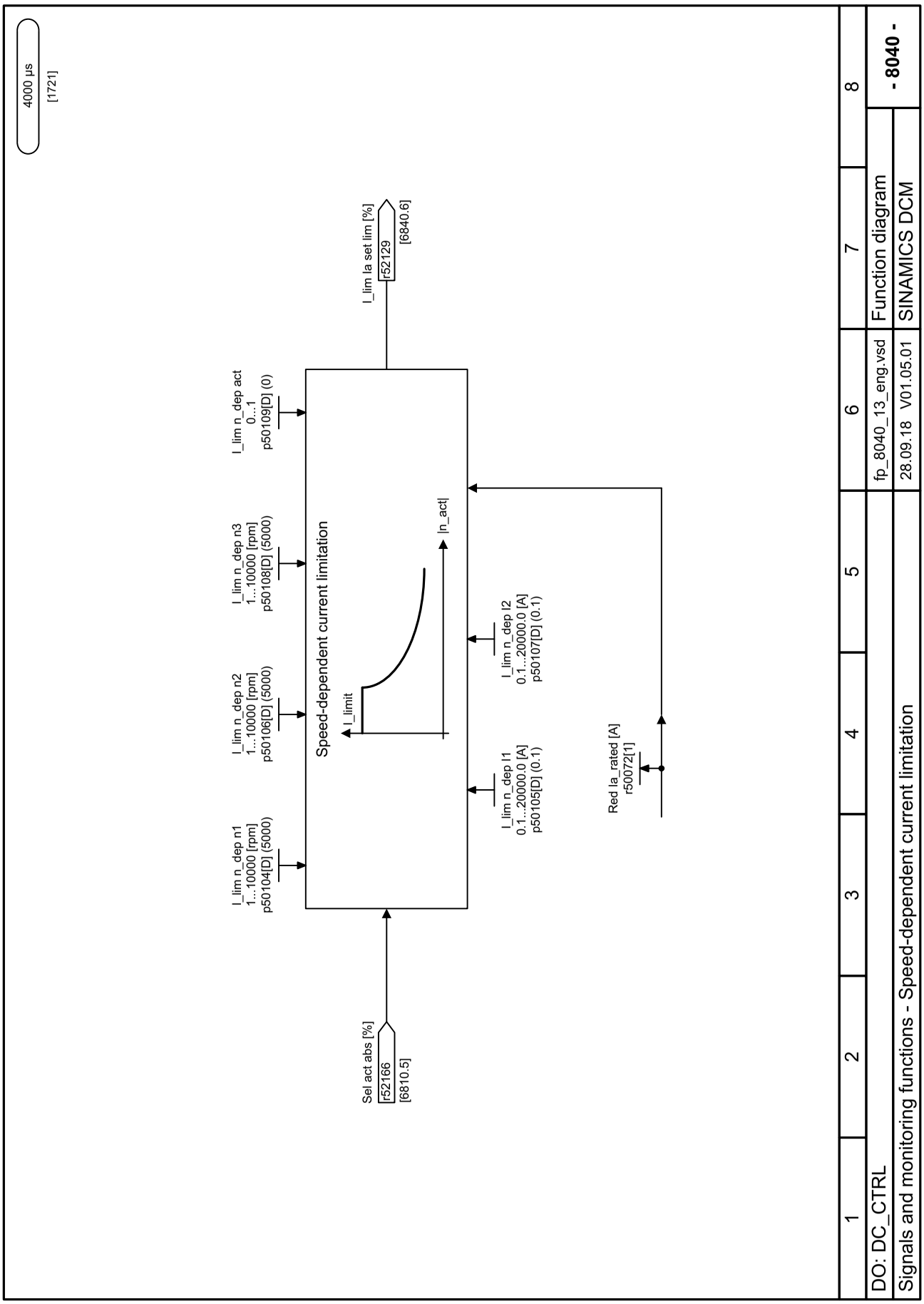


Fig. 3-128 8040 – Speed-dependent current limiting

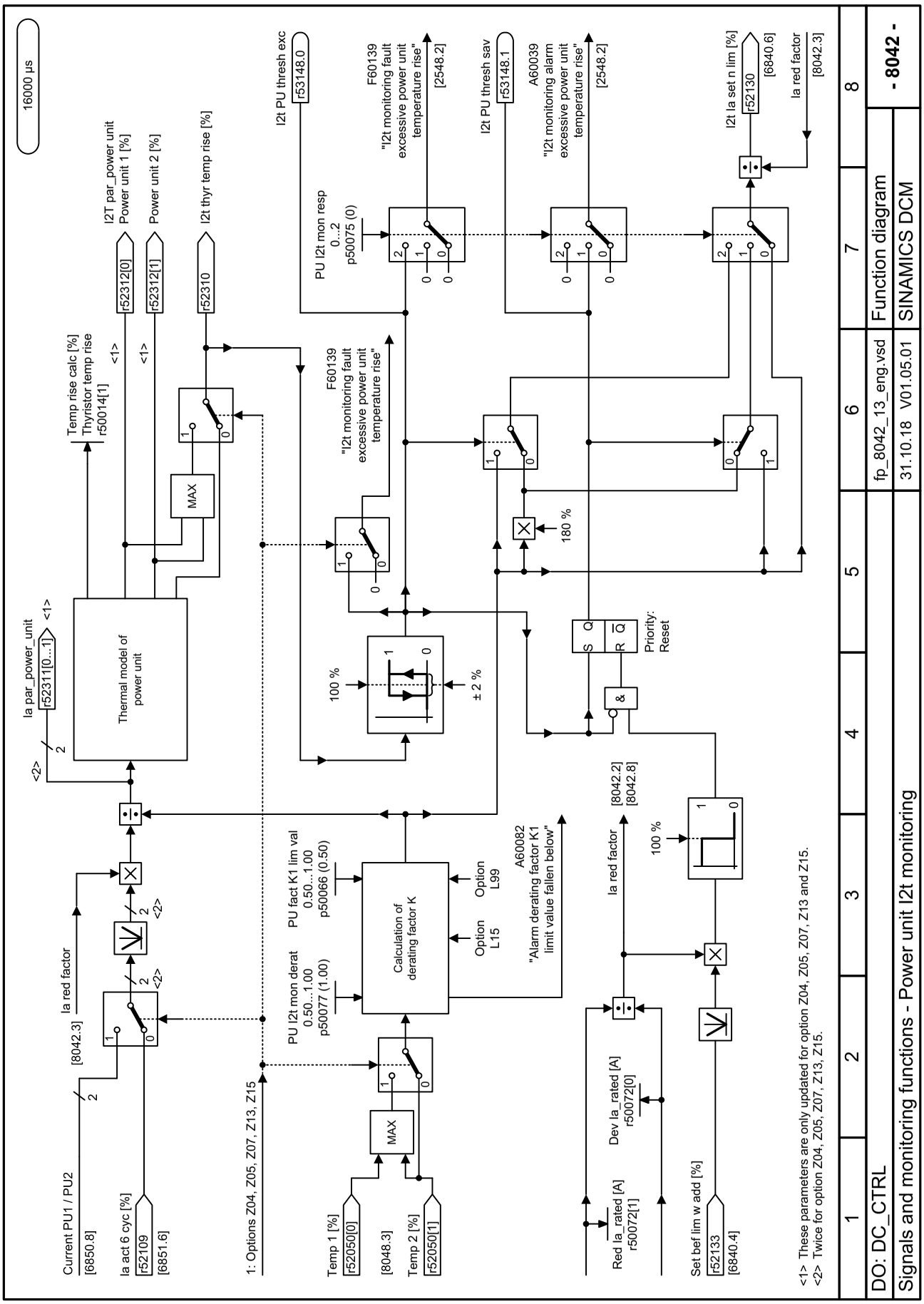


Fig. 3-129 8042 – Power unit I2t monitoring

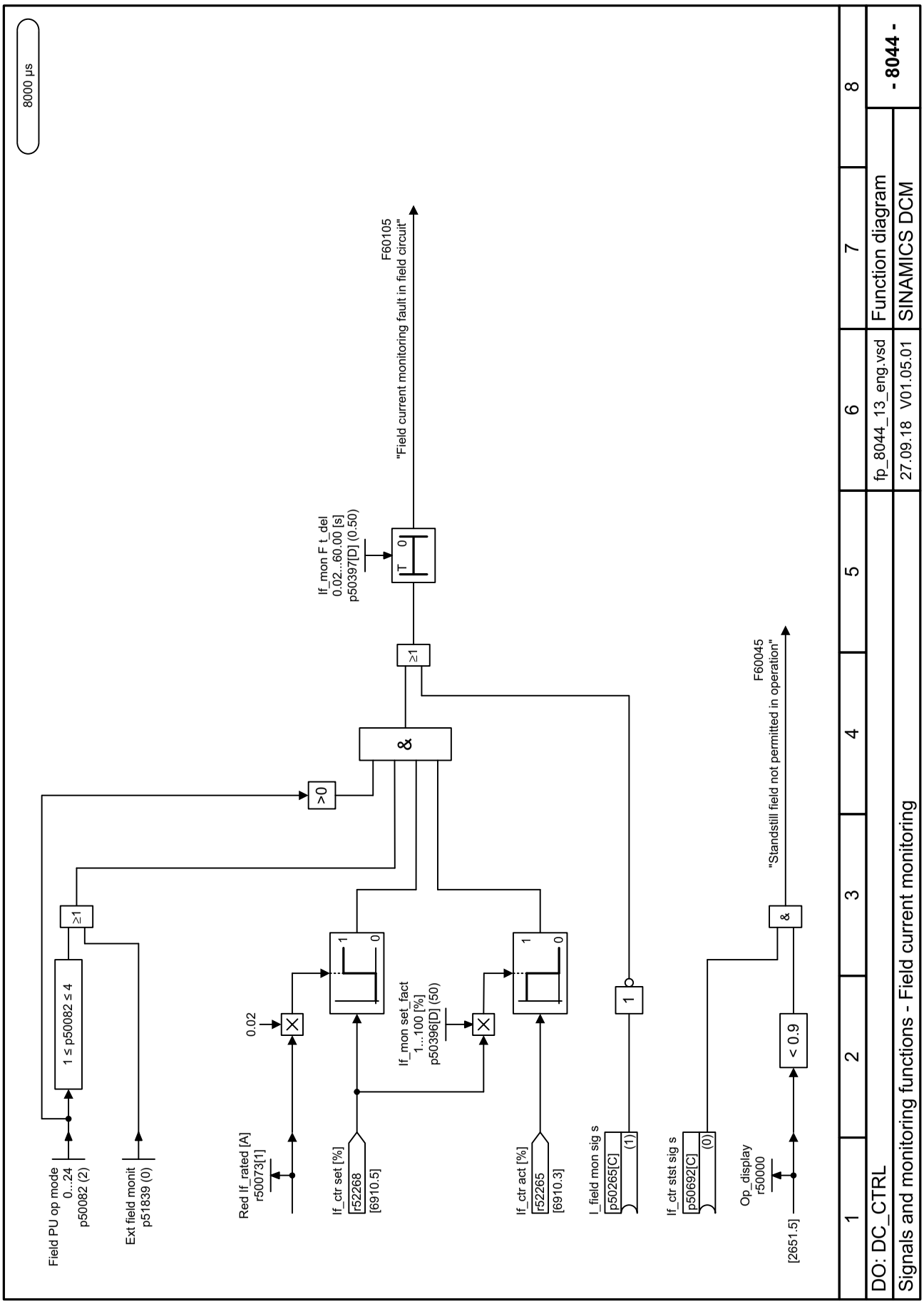


Fig. 3-130 8044 – Field current monitoring

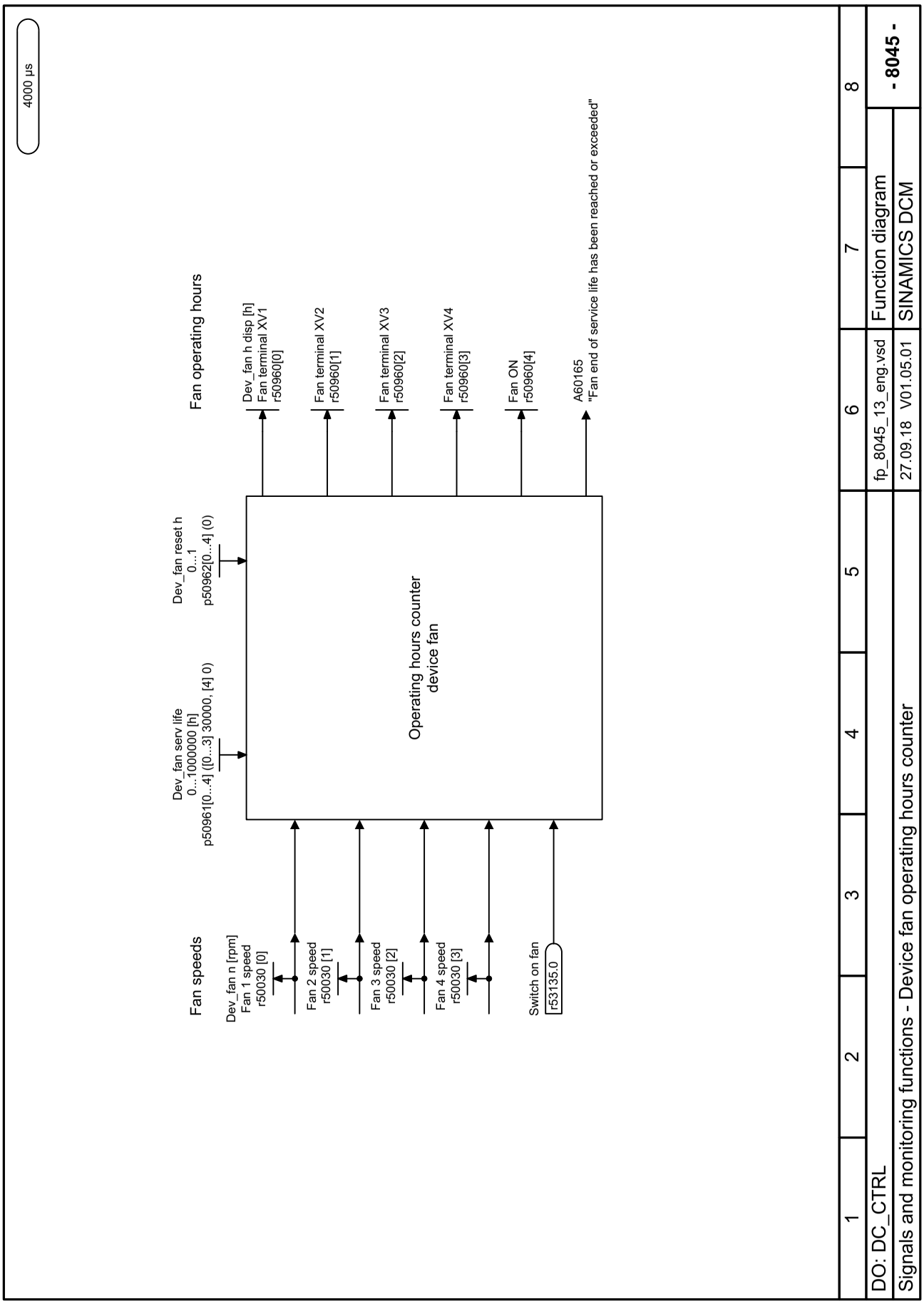
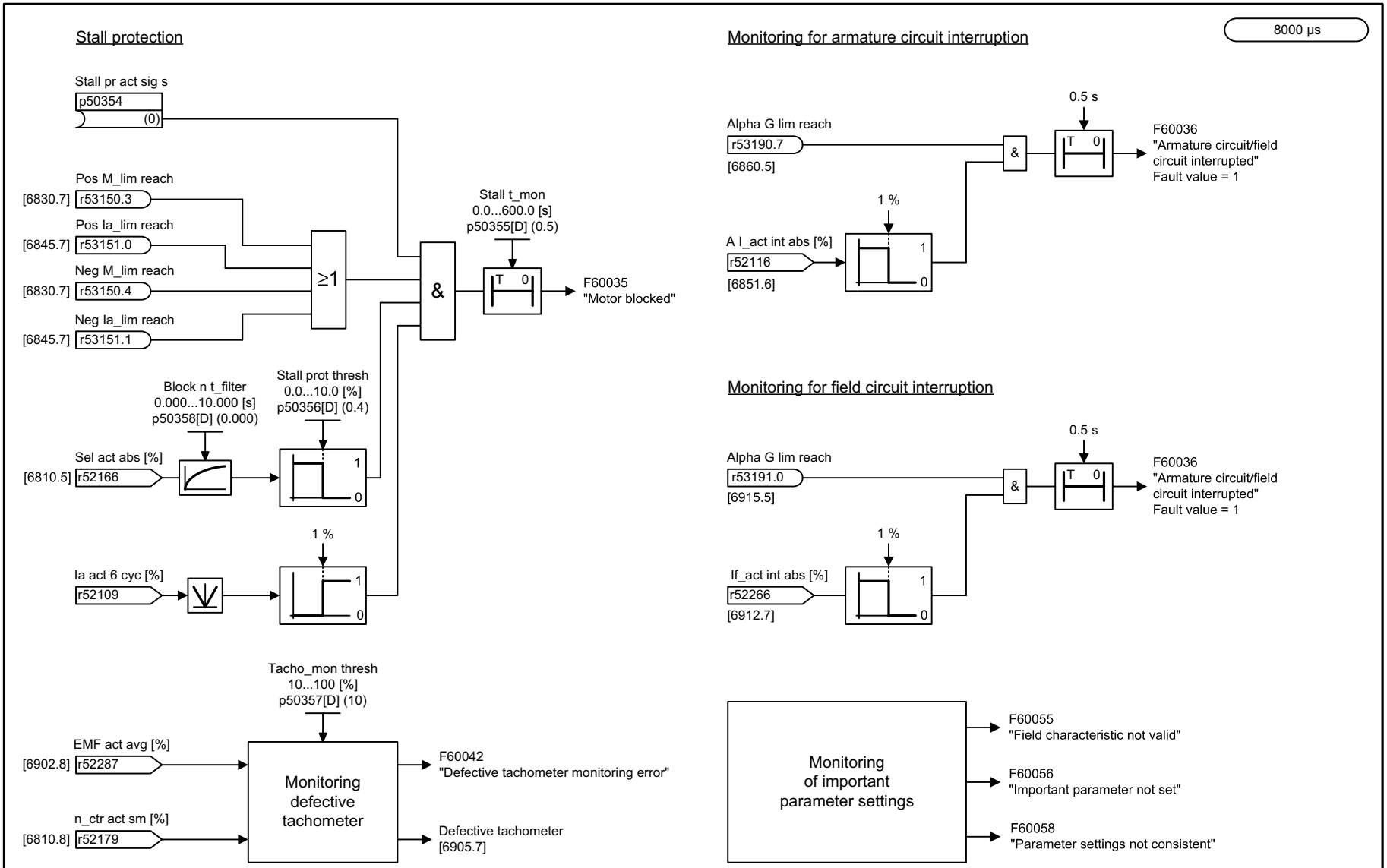


Fig. 3-131 8045 – Device fan operating hours counter



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_8046_13_eng.vsd	Function diagram	- 8046 -
Signals and monitoring functions - Monitoring stall protection / defective tachometer					27.09.18 V01.05.01	SINAMICS DCM	

Fig. 3-132 8046 – Monitoring blocking protection/tacho loss monitoring

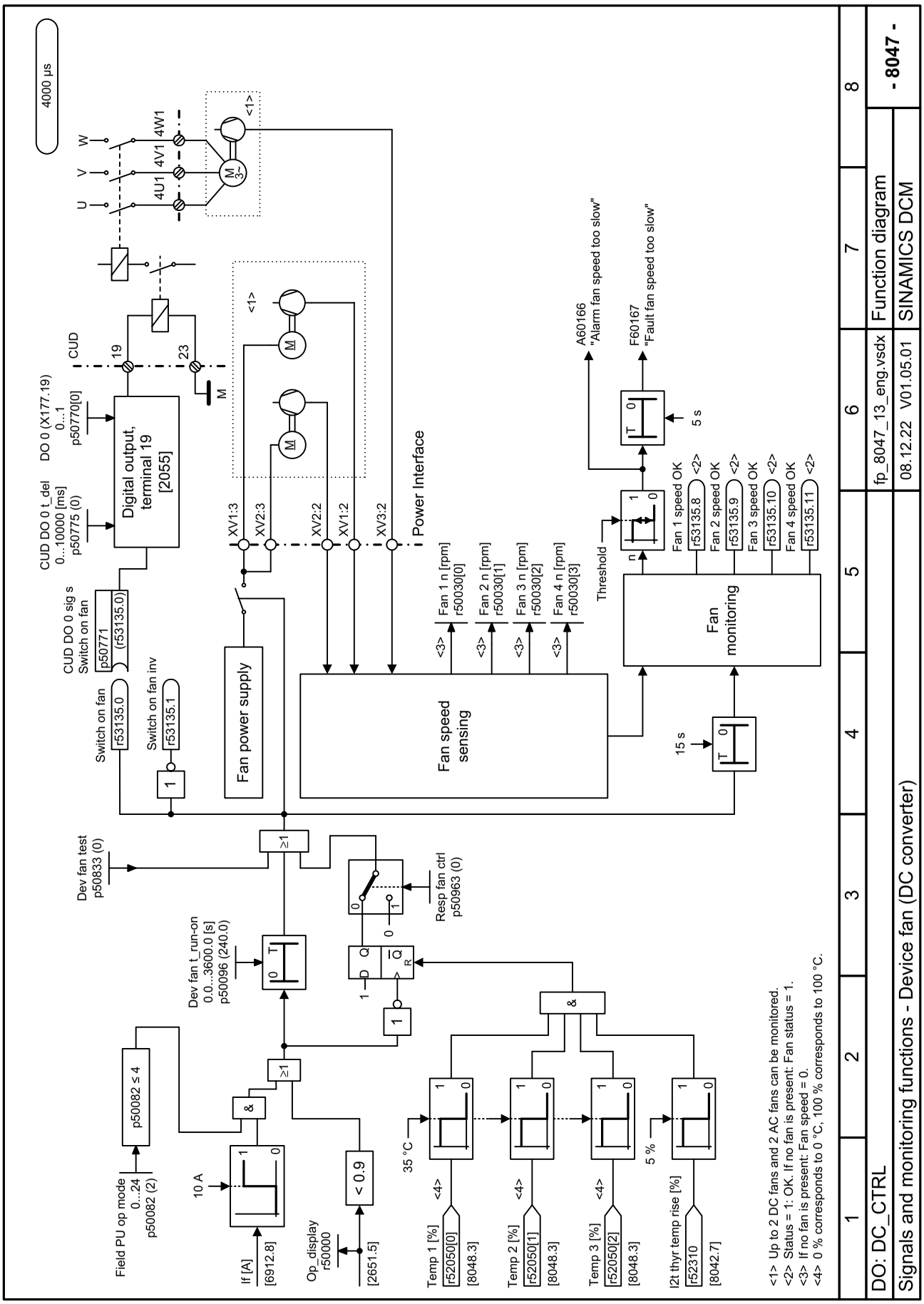


Fig. 3-133 8047 – Device fan (DC converter)

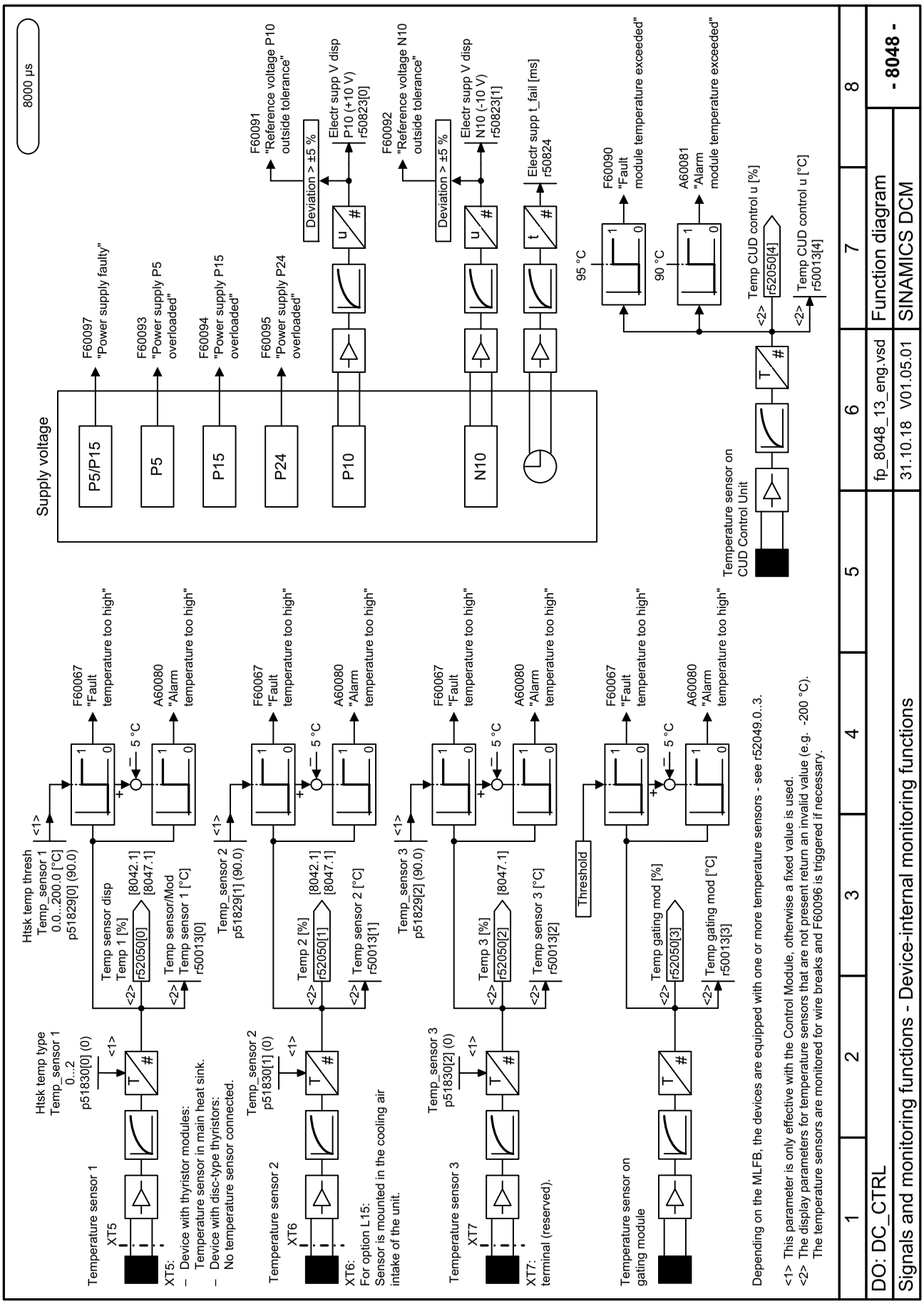


Fig. 3-134 8048 – Device-internal monitoring functions

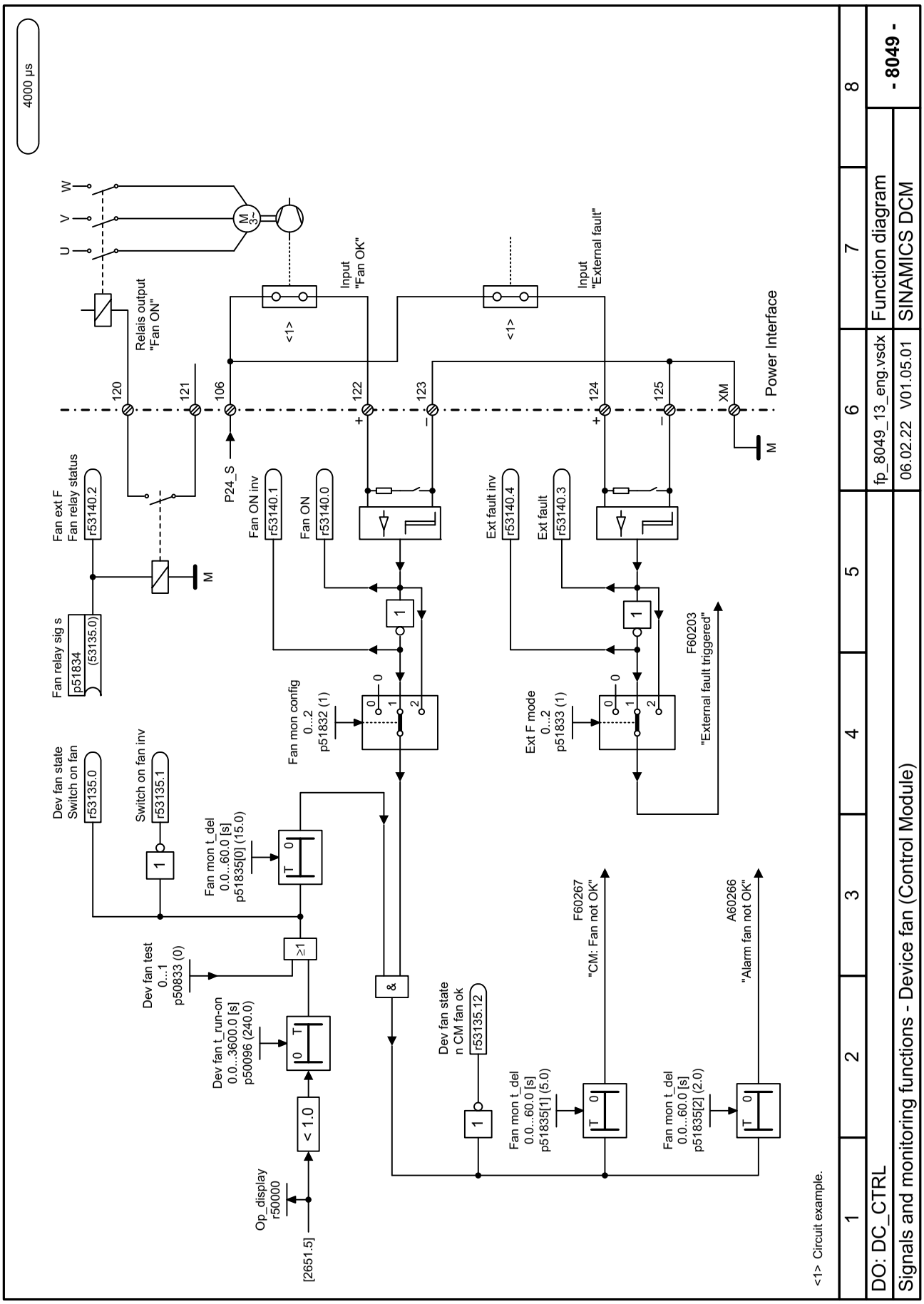


Fig. 3-135 8049 – Device fan (Control Module)

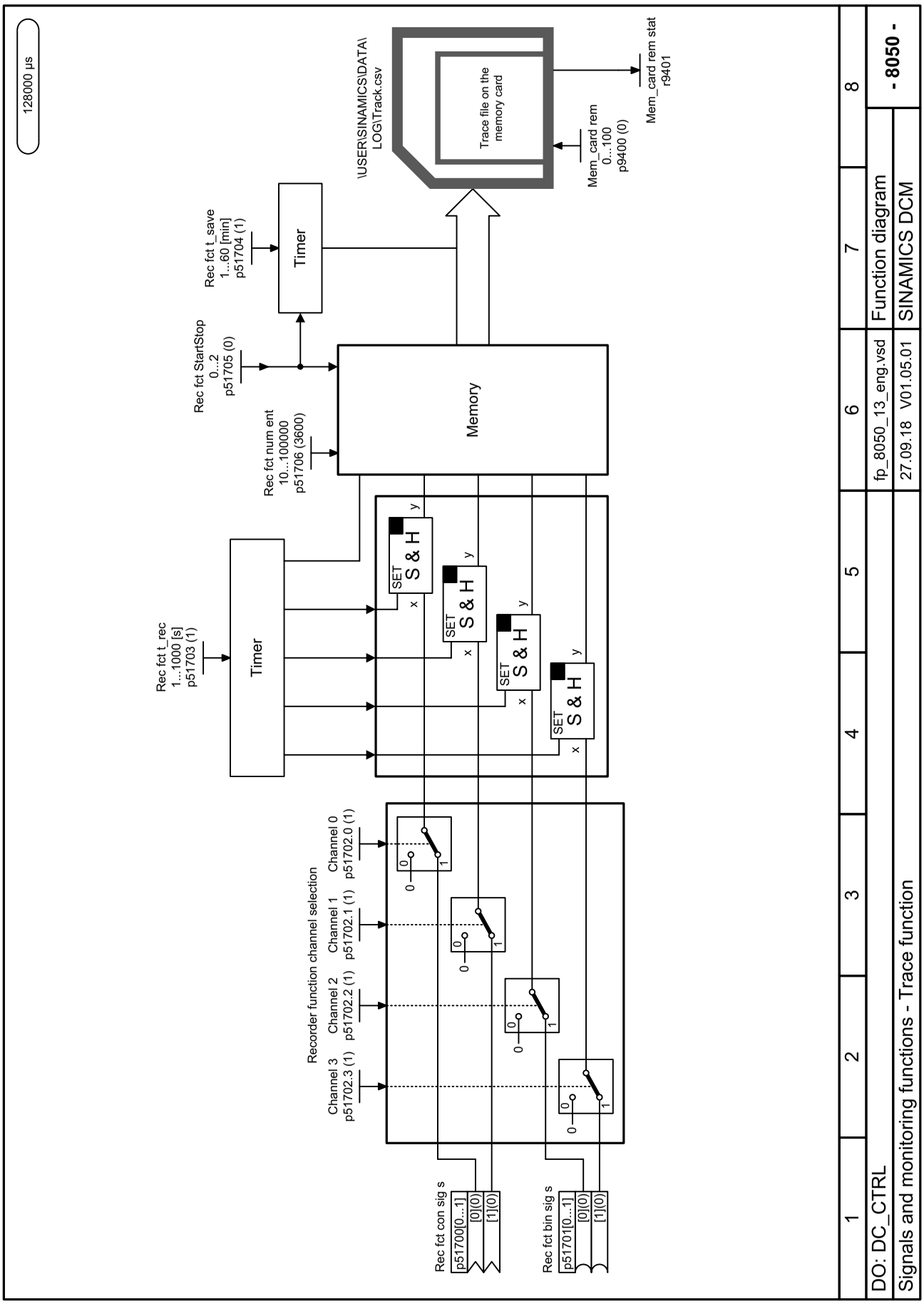


Fig. 3-136 8050 – Trace function

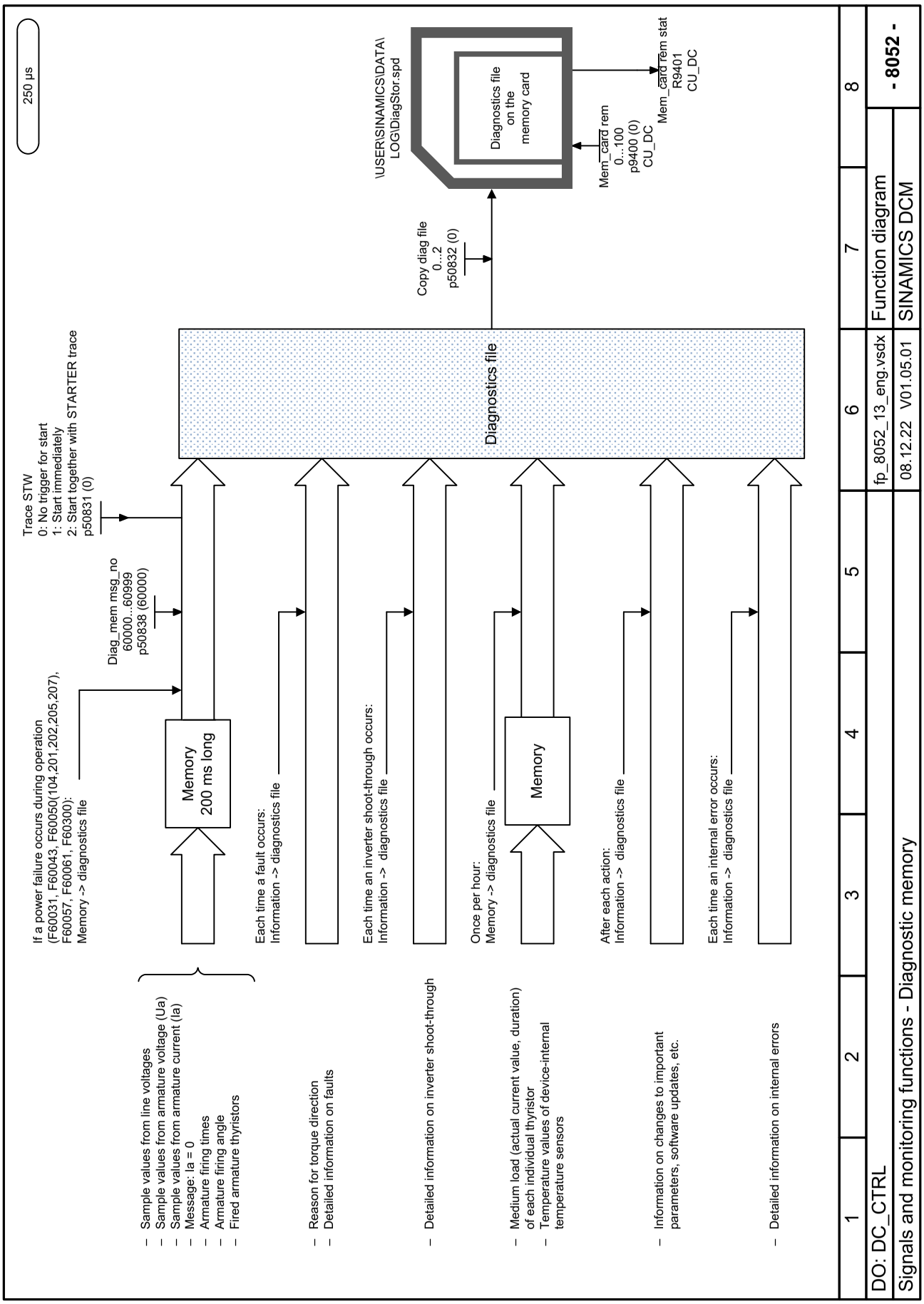


Fig. 3-137 8052 – Diagnostic memory

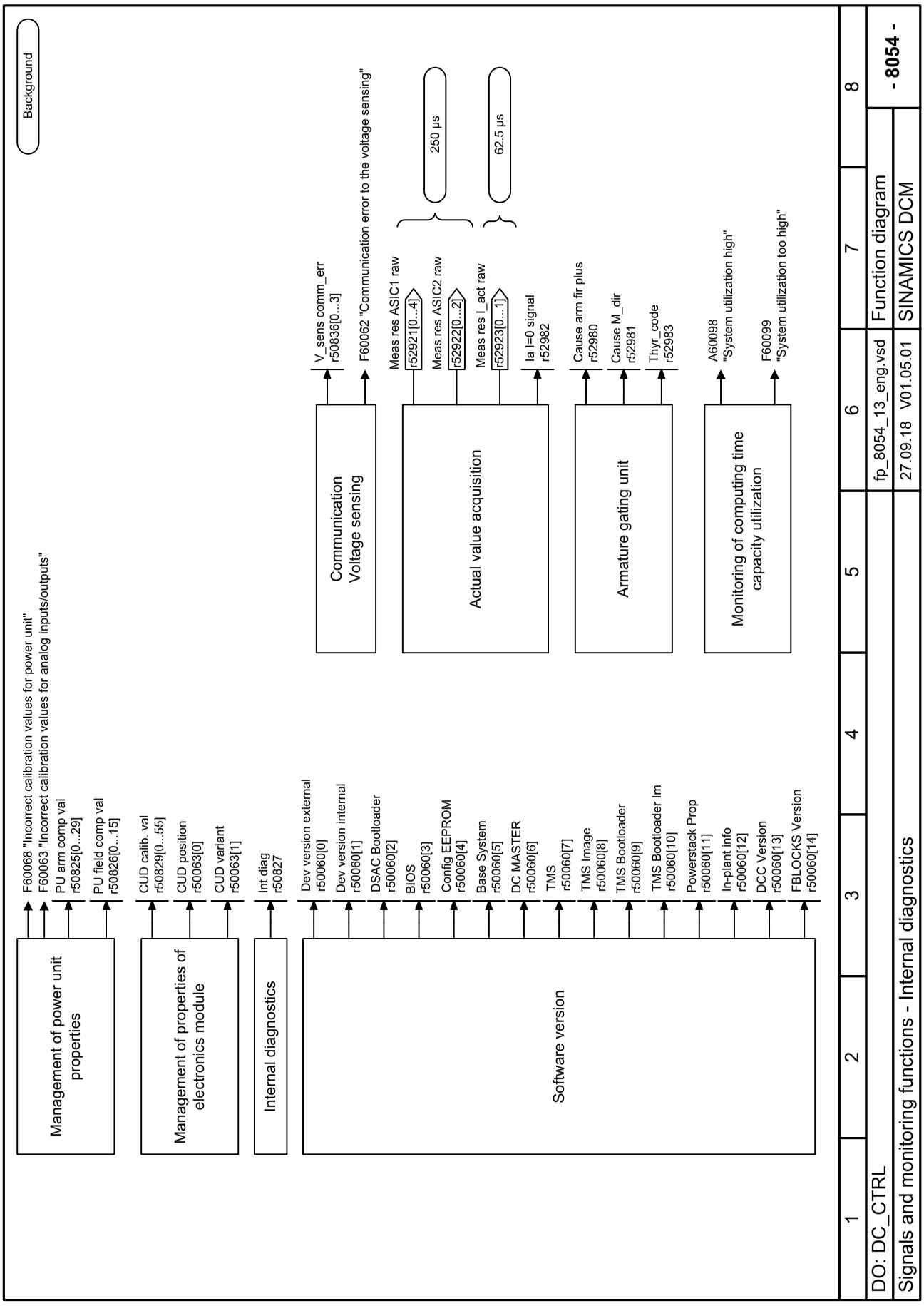
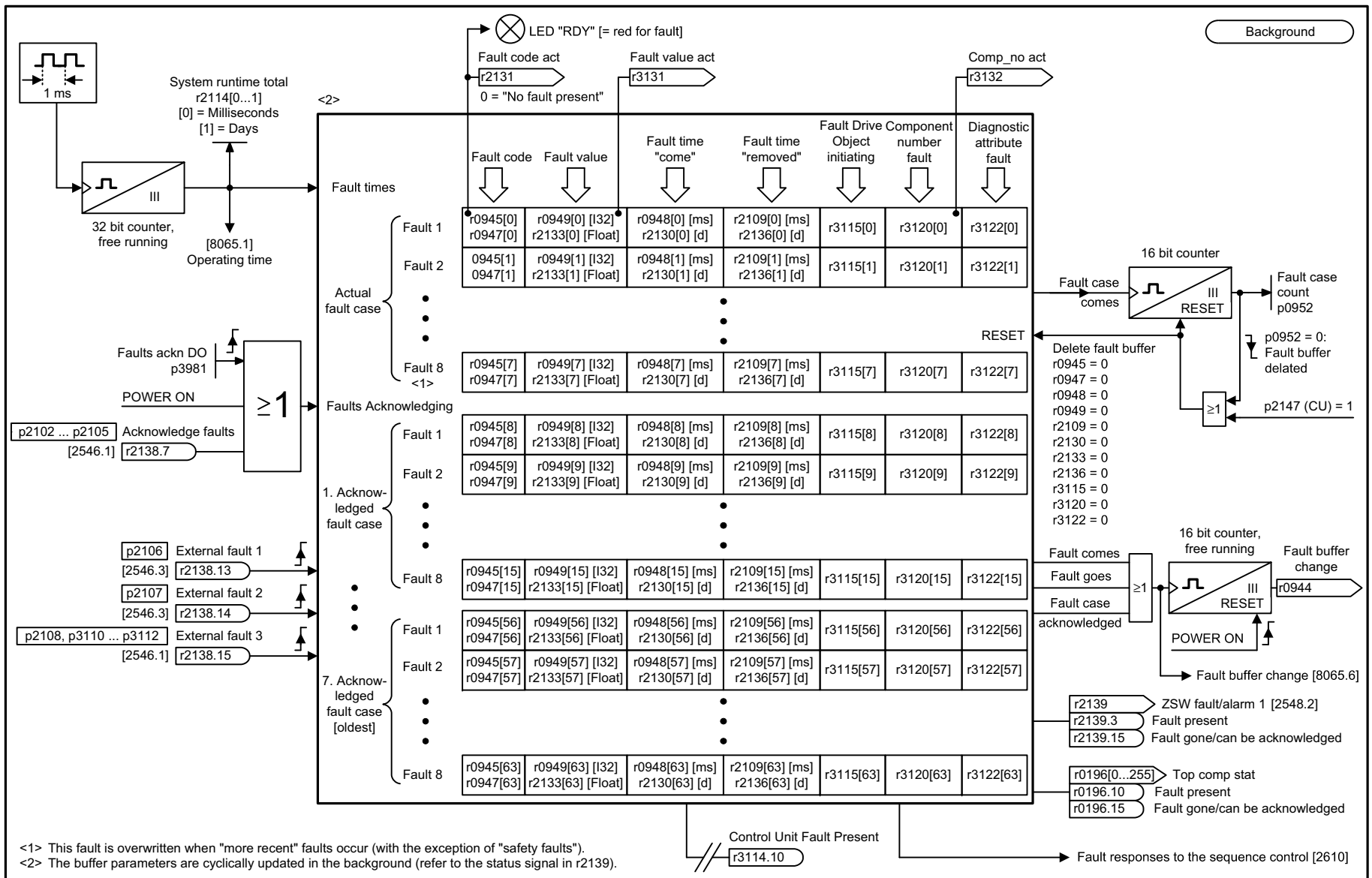


Fig. 3-138 8054 – Internal diagnostics

3.17 Faults and alarms

Function diagrams



1	2	3	4	5	6	7	8
DO: All objects					fp_8060_51_eng.vsd	Function diagram	- 8060 -
Diagnostics - Fault buffer					22.05.19 V01.05.01	SINAMICS	

Fig. 3-139 8060 – Fault buffer

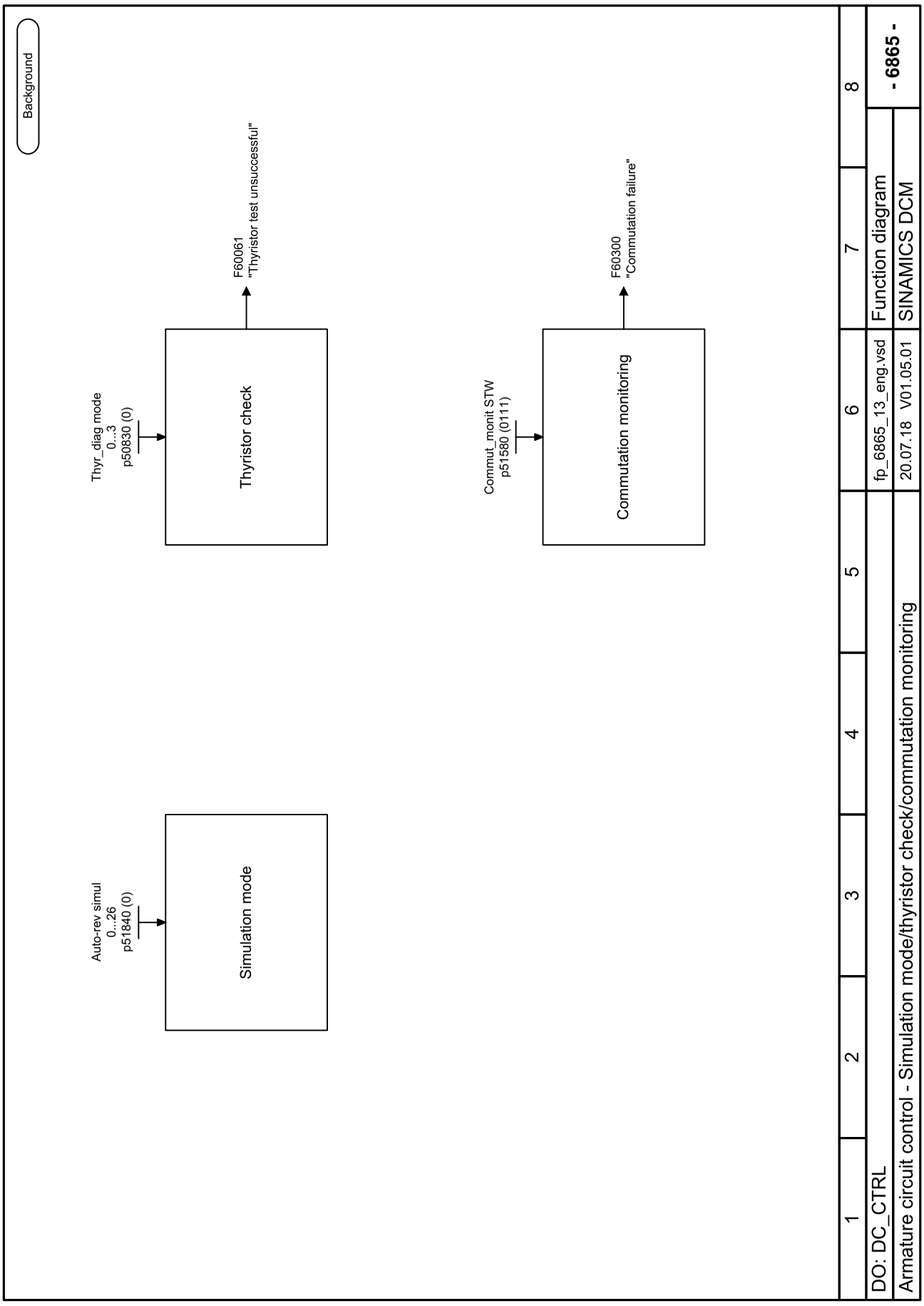


Fig. 3-140 8065 – Alarm buffer

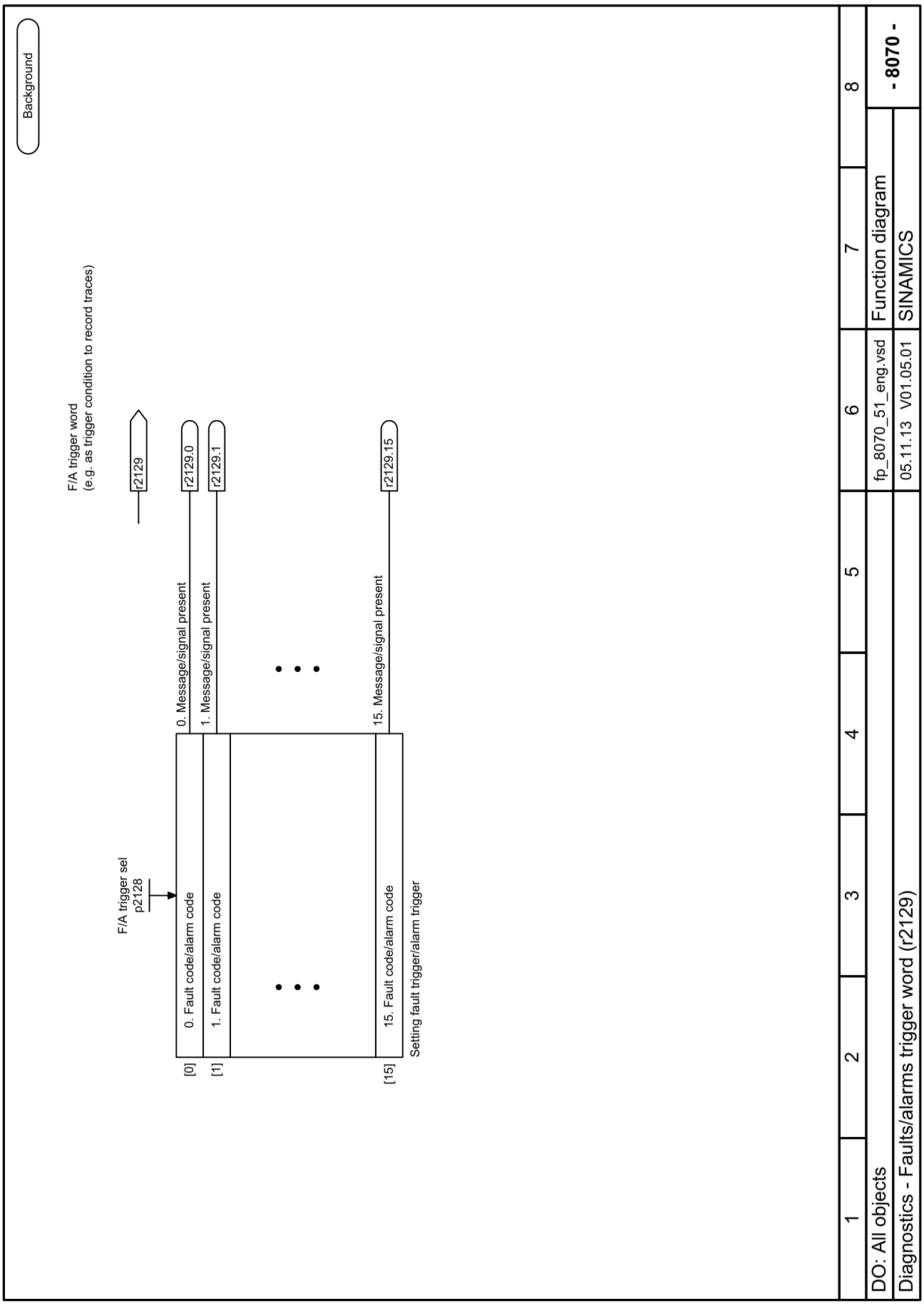
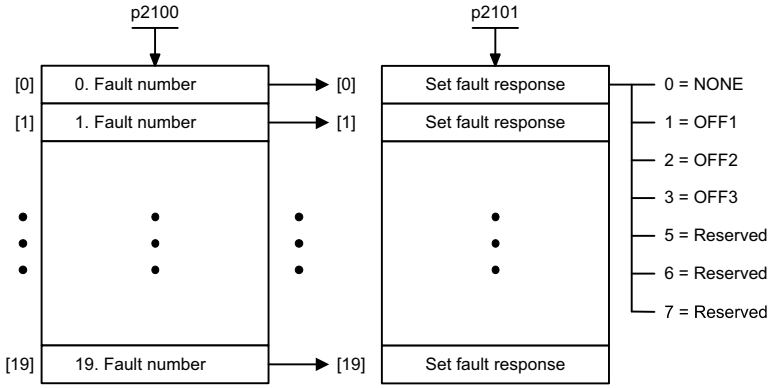


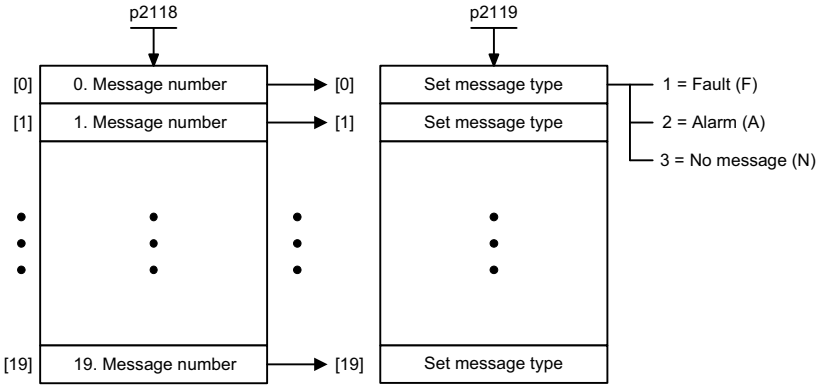
Fig. 3-141 8070 – Faults/alarms trigger word (r2129)

Background

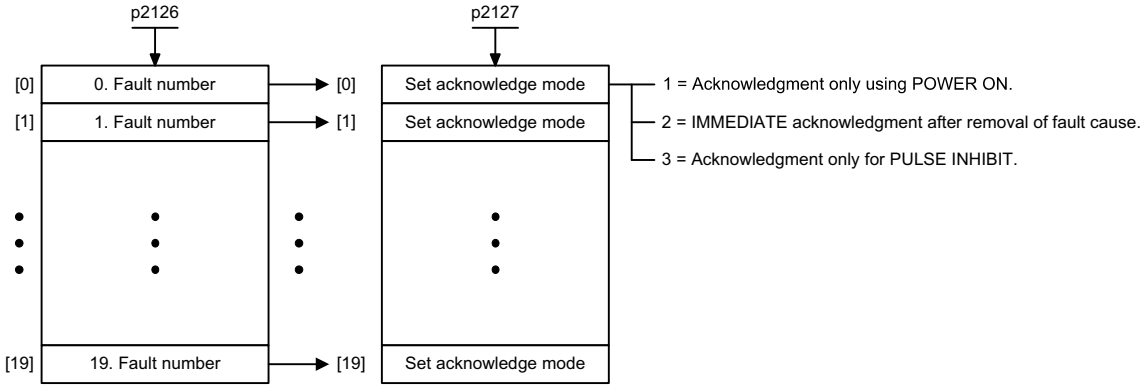
Change fault response for a maximum of 20 faults <1>



Changing the message type (fault <=> alarm) (for a maximum of 20 faults/alarms) <1>



Change acknowledge mode for a maximum of 20 faults <1>



<1> The fault response, acknowledge mode and message type for all faults and alarms are set to meaningful default values in the factory setting.
Changes that may be required are only possible in specific value ranges specified by SIEMENS.
When the message type is changed, the supplementary information is transferred from fault value r0949 to alarm value r2124 and vice versa.

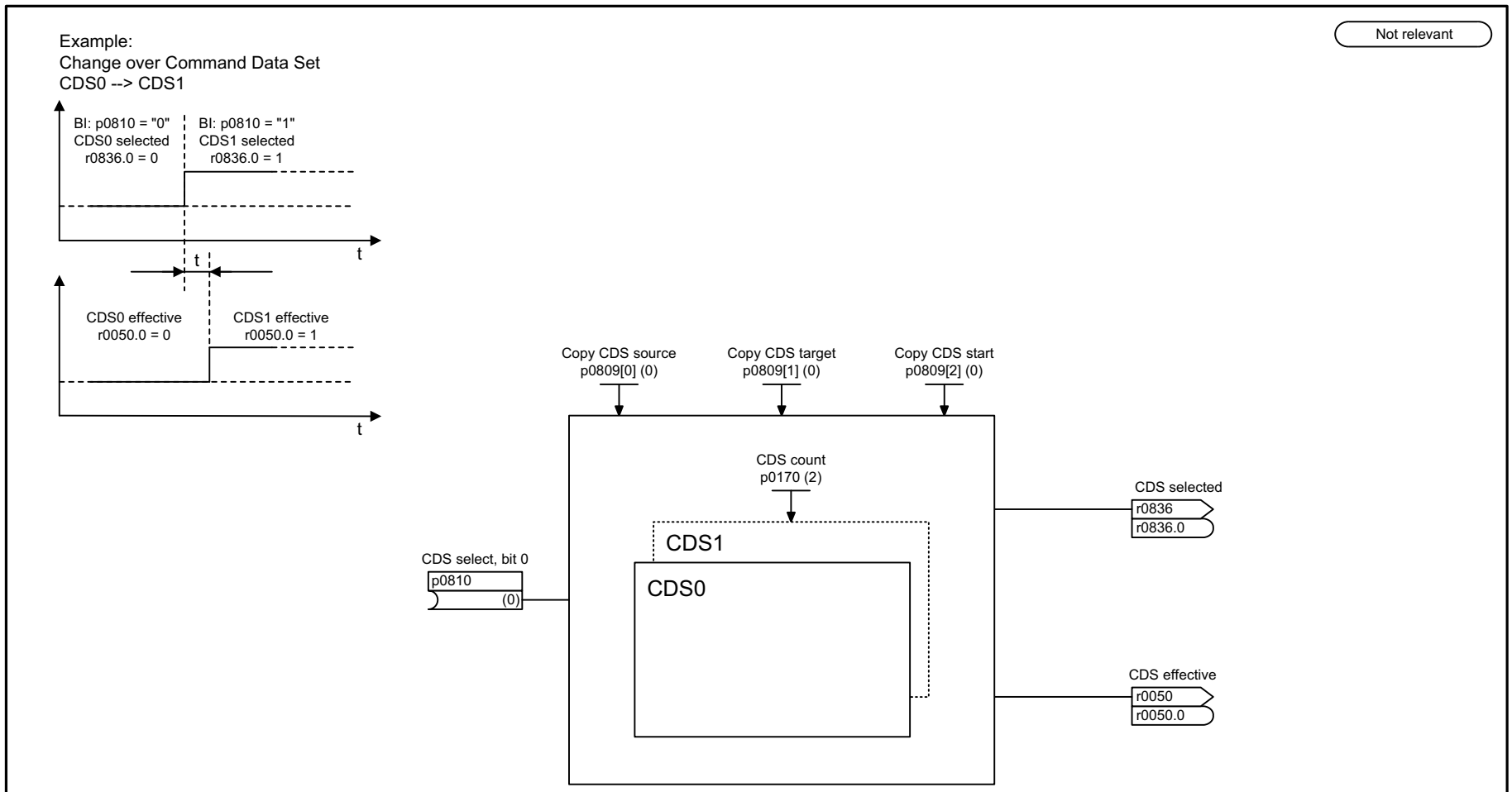
1	2	3	4	5	6	7	8
DO: All objects					fp_8075_70_eng.vsd	Function diagram	- 8075 -
Diagnostics - Faults/alarms configuration					25.09.18 V01.05.01	SINAMICS DCM/DCP	

Fig. 3-142 8075 – Faults/alarms configuration

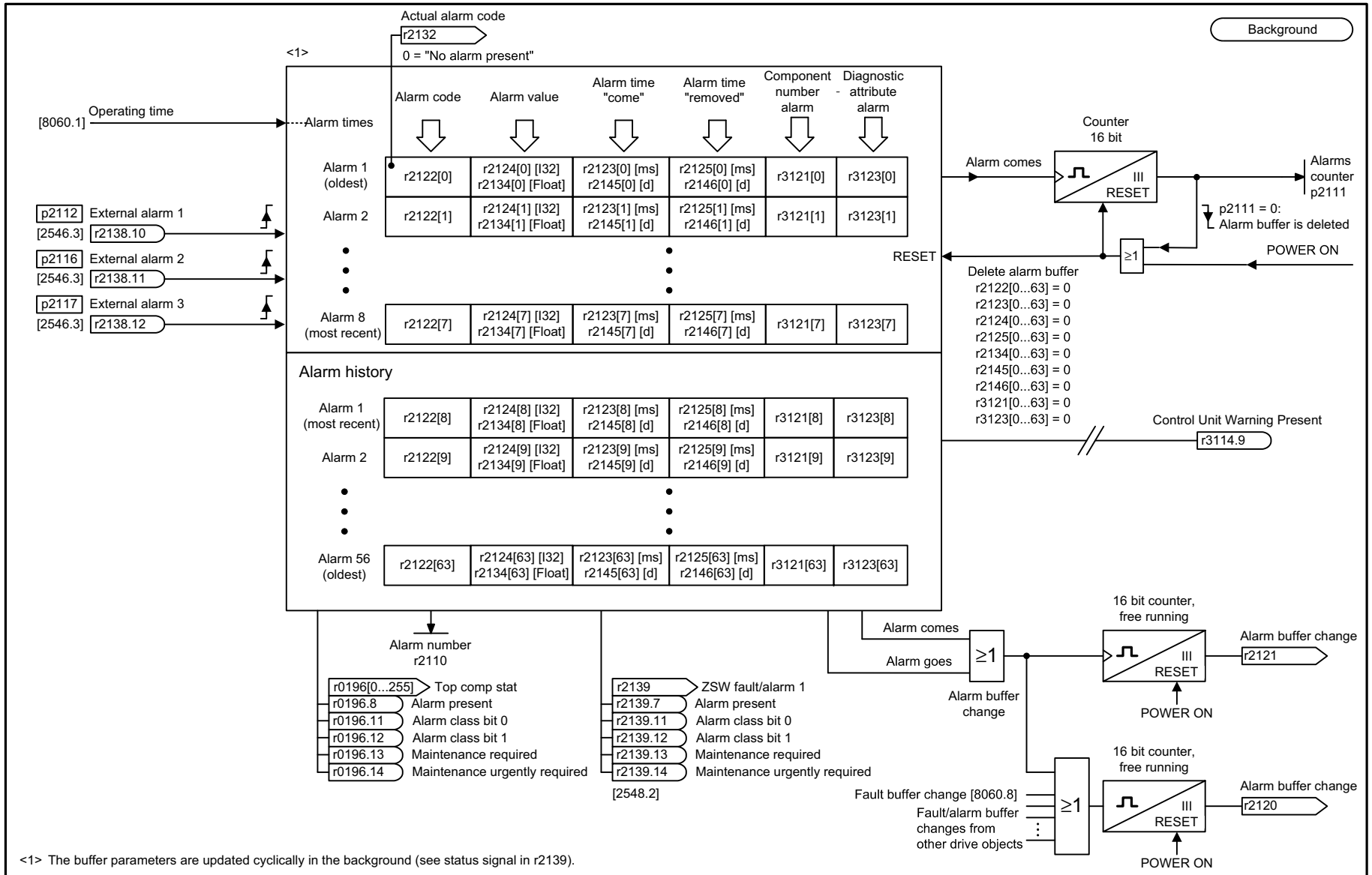
3.18 Data sets

Function diagrams

Fig. 3-143 8560 – Command Data Sets (CDS)



1	2	3	4	5	6	7	8
DO: DC_CTRL, DCP_CTRL					fp_8560_70_eng.vsd	Function diagram	- 8560 -
Data sets - Command Data Sets (CDS)					10.08.18 V01.05.01	SINAMICS DCM/DCP	

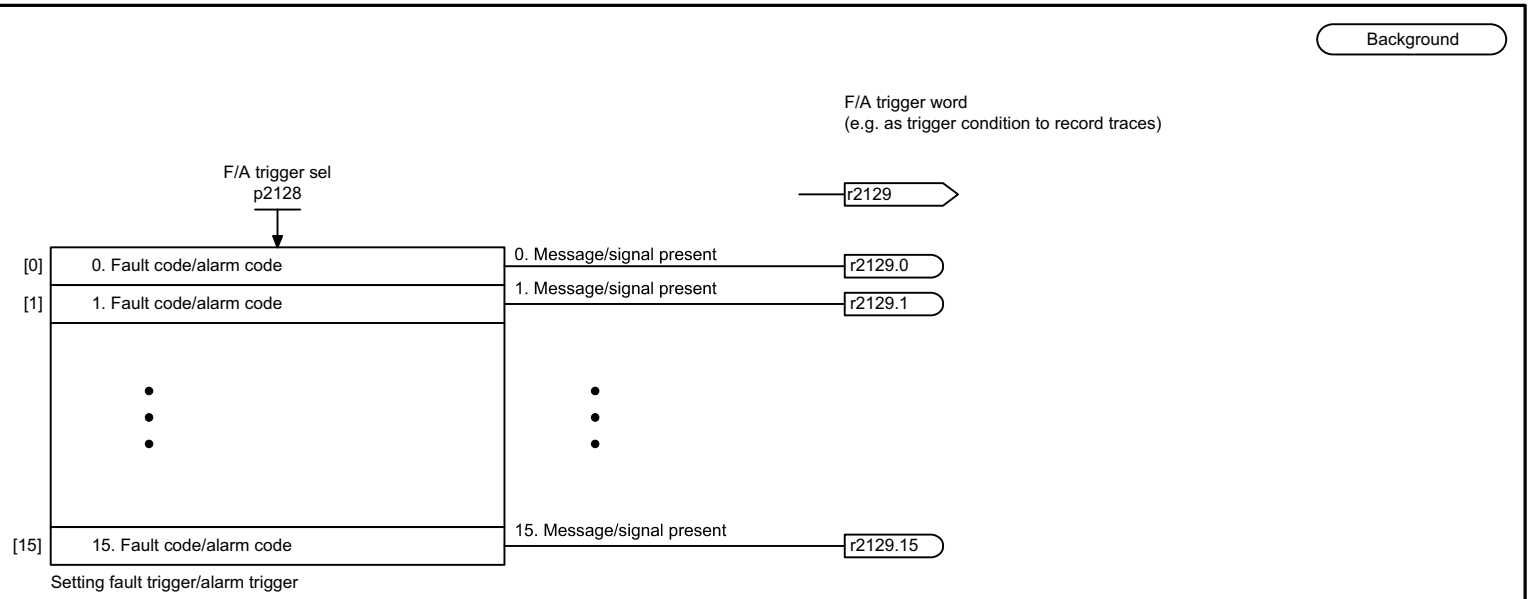


<1> The buffer parameters are updated cyclically in the background (see status signal in r2139).

1	2	3	4	5	6	7	8
DO: All objects					fp_8065_51_eng.vsd	Function diagram	- 8065 -
Diagnostics - Alarm buffer					25.04.19 V01.05.01	SINAMICS	

Fig. 3-144 8565 – Drive Data Sets (DDS)

Fig. 3-145 8570 – Encoder data sets (EDS)

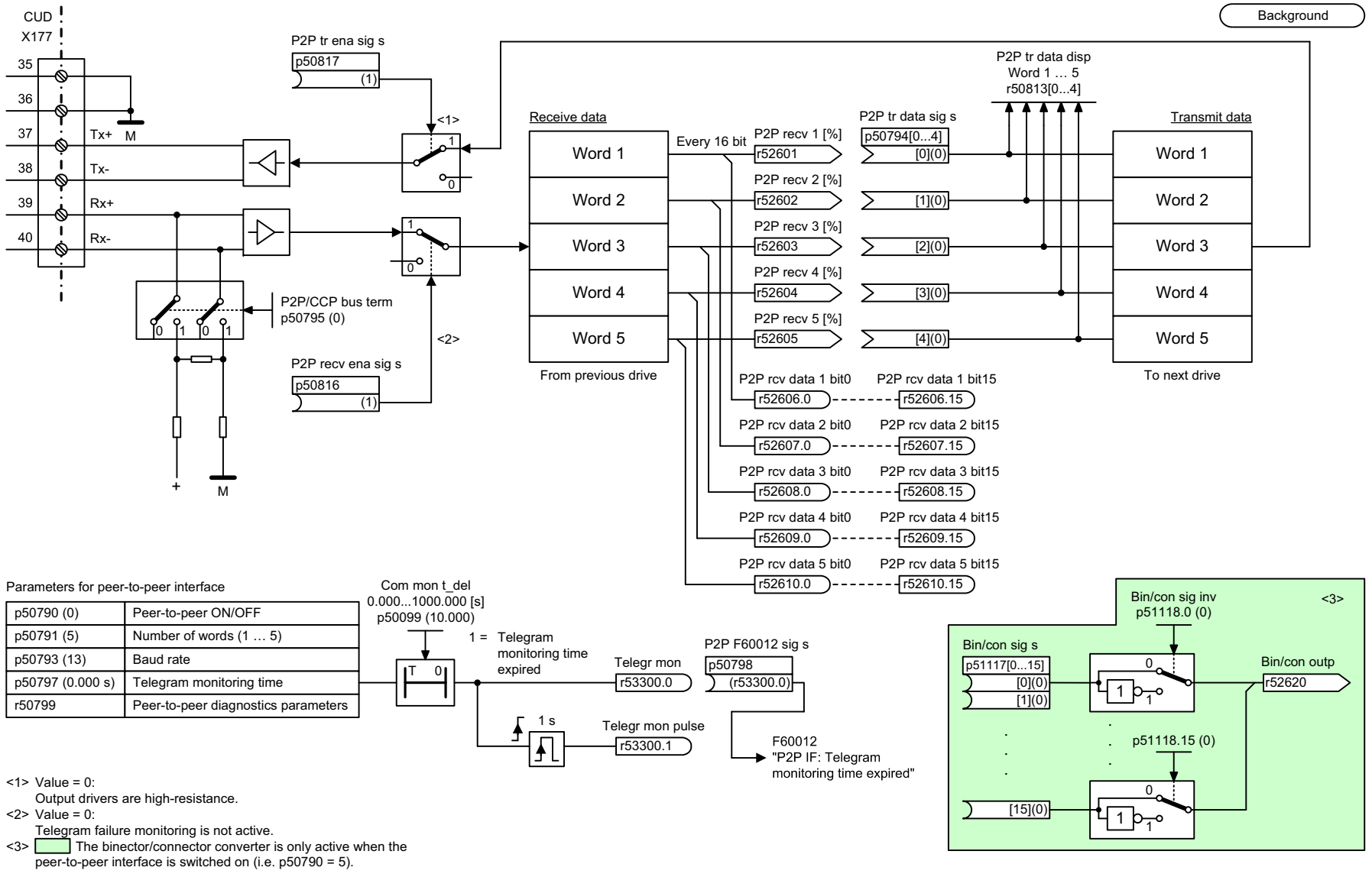


1	2	3	4	5	6	7	8
DO: All objects					fp_8070_51_eng.vsd	Function diagram	- 8070 -
Diagnostics - Faults/alarms trigger word (r2129)					05.11.13 V01.05.01	SINAMICS	

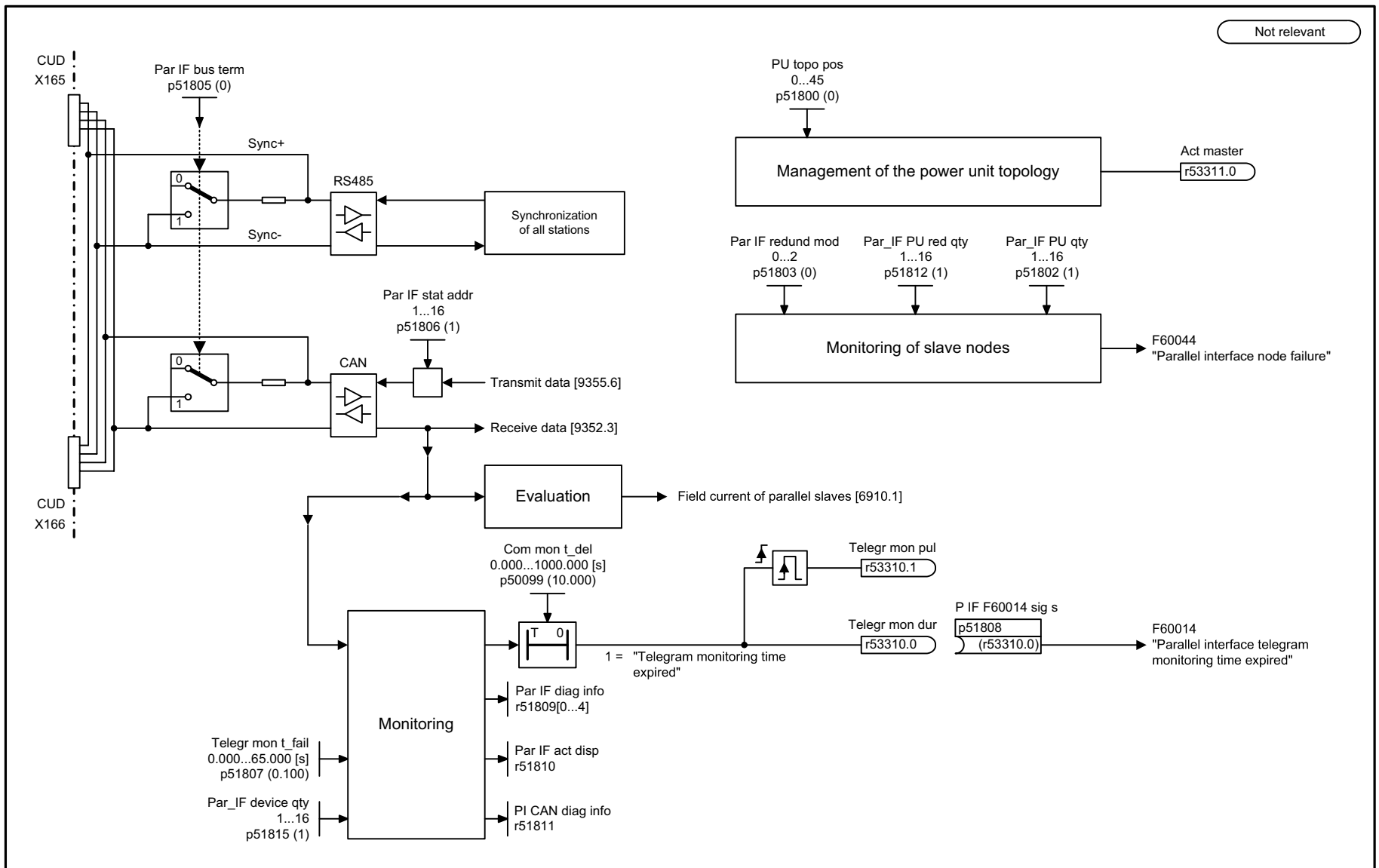
3.19 Communication between devices

Function diagrams

Fig. 3-146 9300 – Peer-to-peer interface



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_9300_13_eng.vsd	Function diagram	- 9300 -
Communication between devices - Peer-to-peer interface					05.10.18 V01.05.01	SINAMICS DCM	



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_9350_13_eng.vsd	Function diagram	- 9350 -
Communication between devices - Parallel connection interface (part 1)					09.08.18 V01.05.01	SINAMICS DCM	

Fig. 3-147 9350 – Parallel connection interface (Part 1)

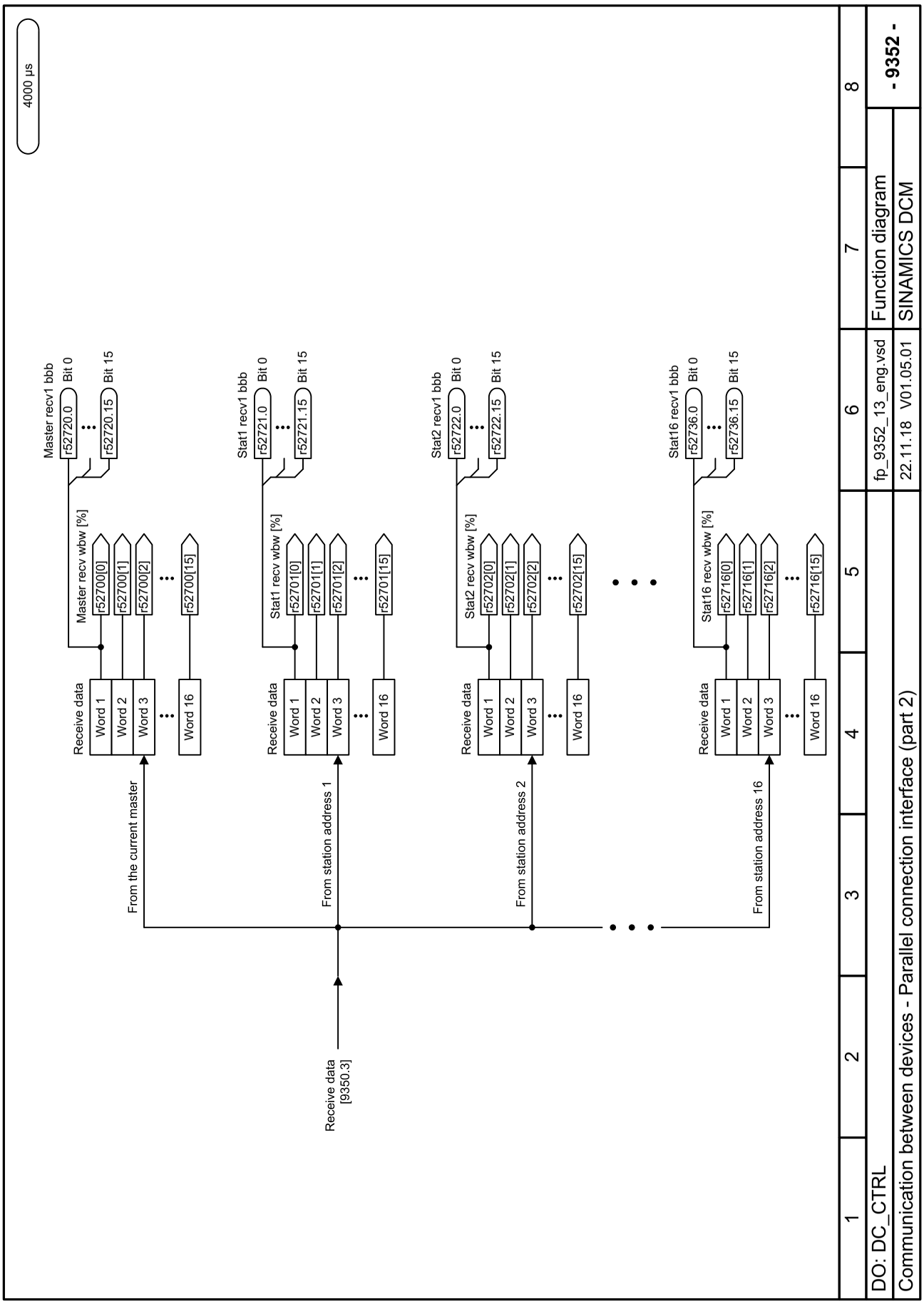


Fig. 3-148 9352 – Parallel connection interface (Part 2)

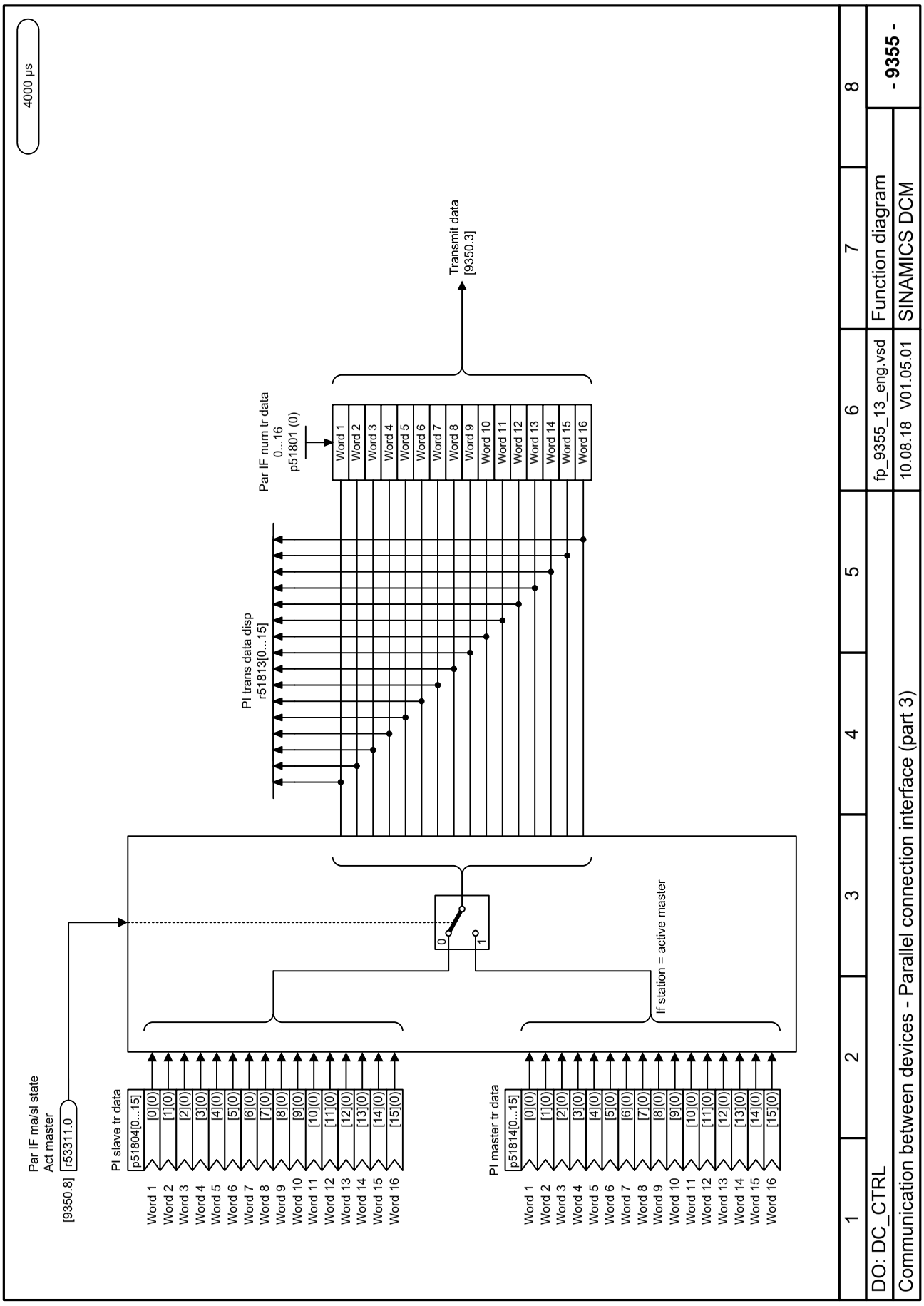
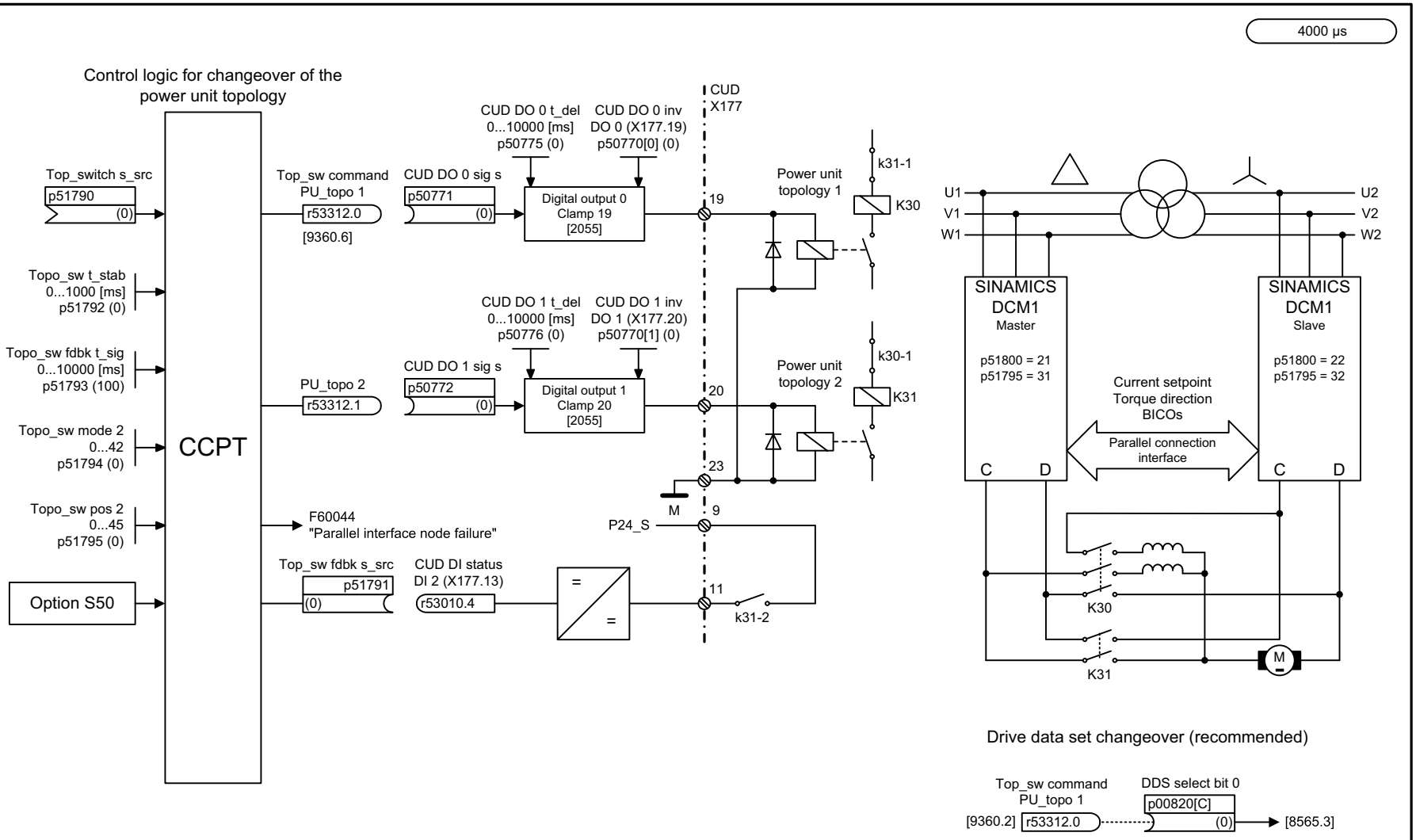


Fig. 3-149 9355 – Parallel connection interface (Part 3)



1	2	3	4	5	6	7	8
DO: DC_CTRL					fp_9360_13_eng.vsd	Function diagram	- 9360 -
Communication between devices - Switchover of the power unit topology					22.11.18 V01.05.01	SINAMICS DCM	

Fig. 3-150 9360 – Switchover of the power unit topology

3.20 Terminal Module 15 (TM15DI_DO)

Function diagrams

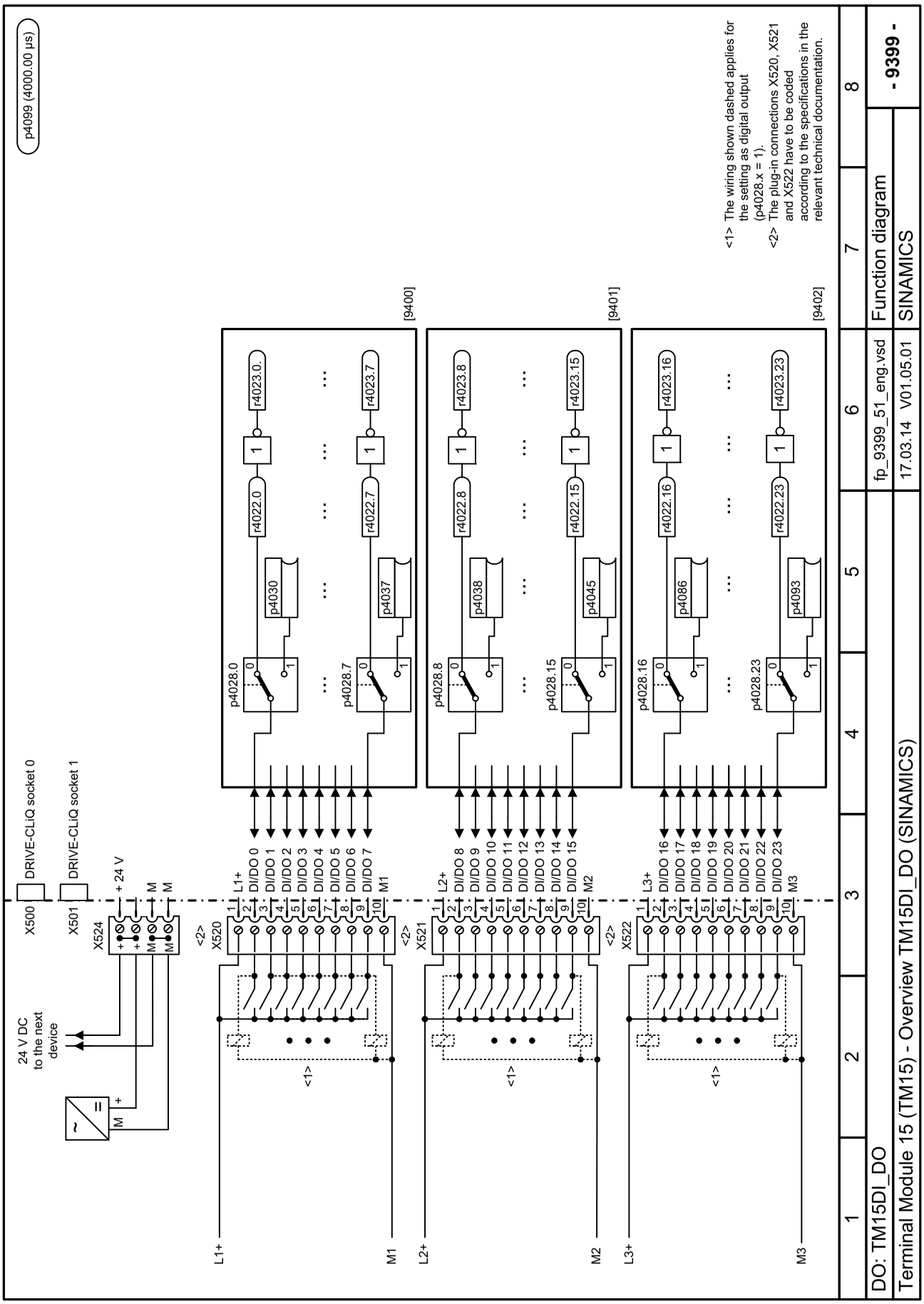


Fig. 3-151 9399 – Overview TM15DI_DO (SINAMICS)

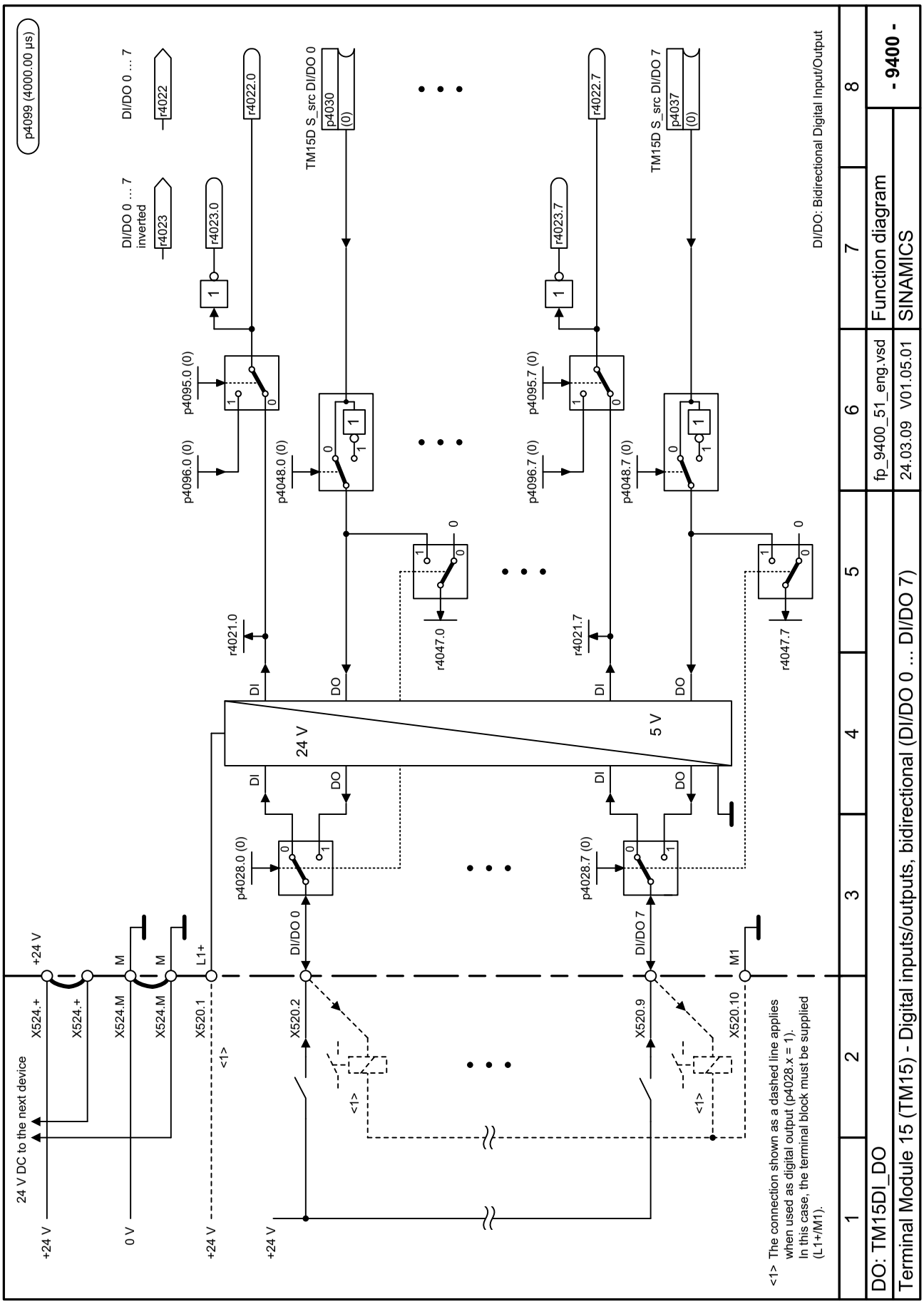


Fig. 3-152 9400 – Digital inputs/outputs, bidirectional (DI/DO 0 ... DI/DO 7)

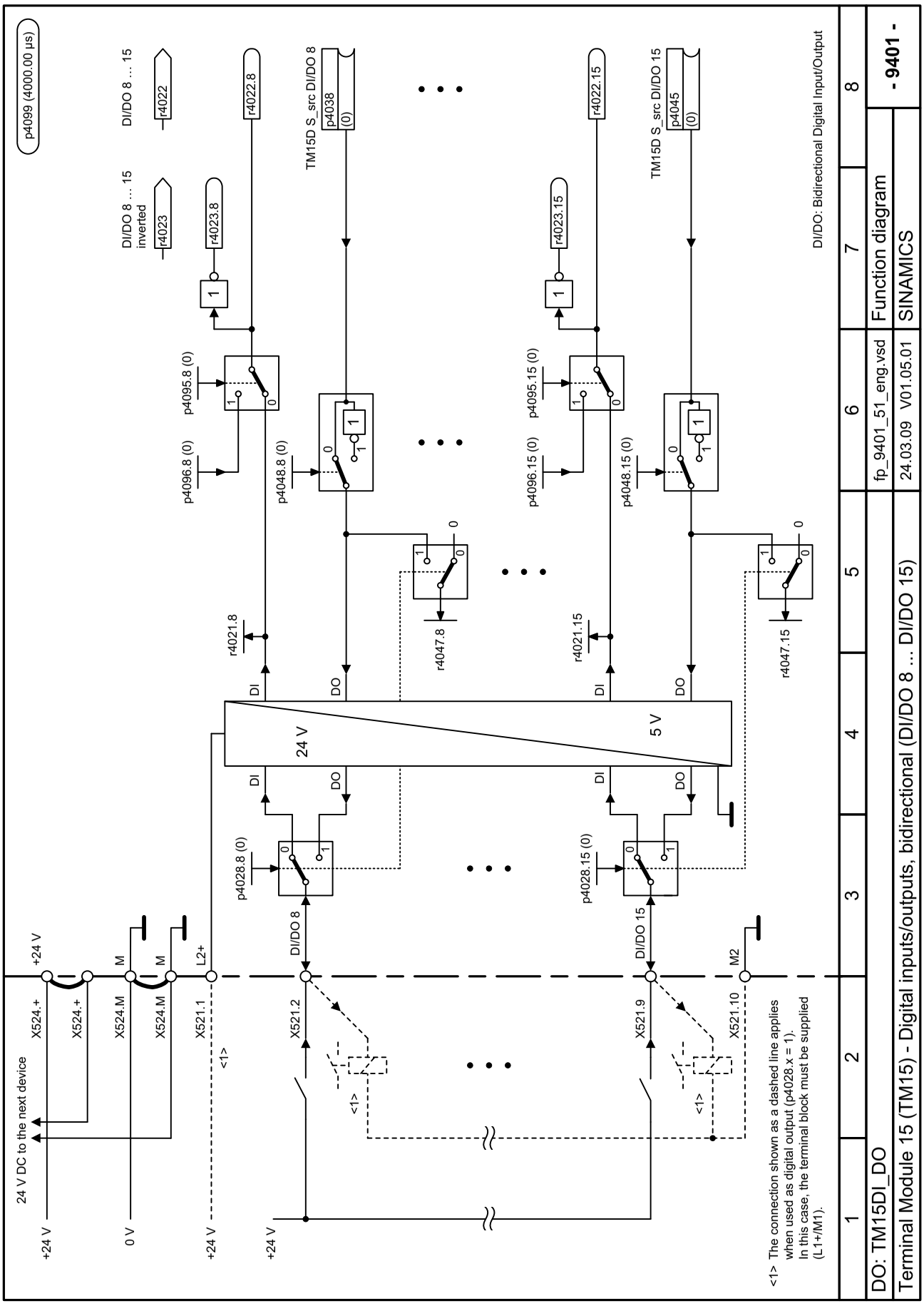


Fig. 3-153 9401 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 15)

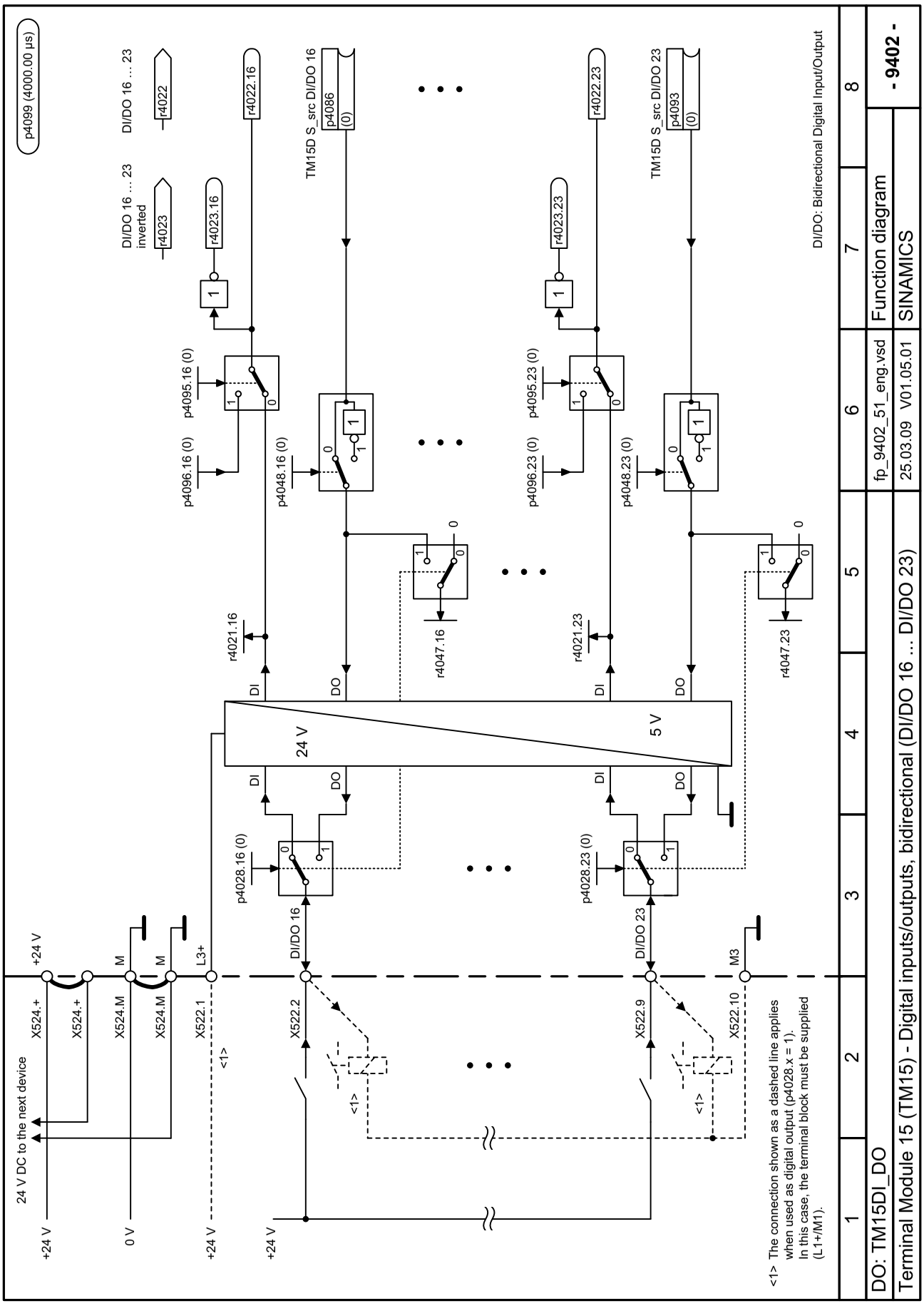


Fig. 3-154 9402 – Digital inputs/outputs, bidirectional (DI/DO 16 ... DI/DO 23)

3.21 Terminal Module 31 (TM31)

Function diagrams

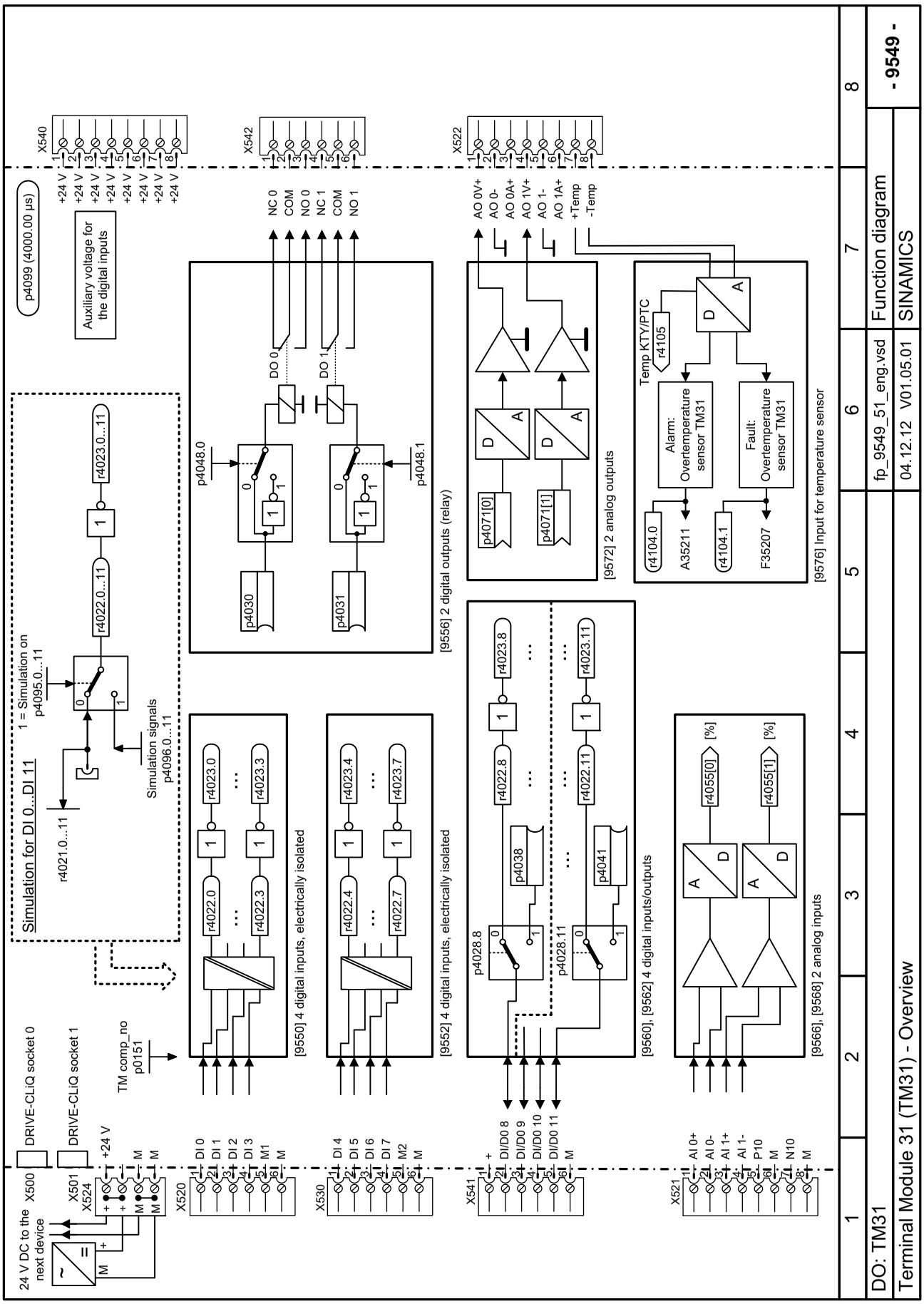


Fig. 3-155 9549 – Overview

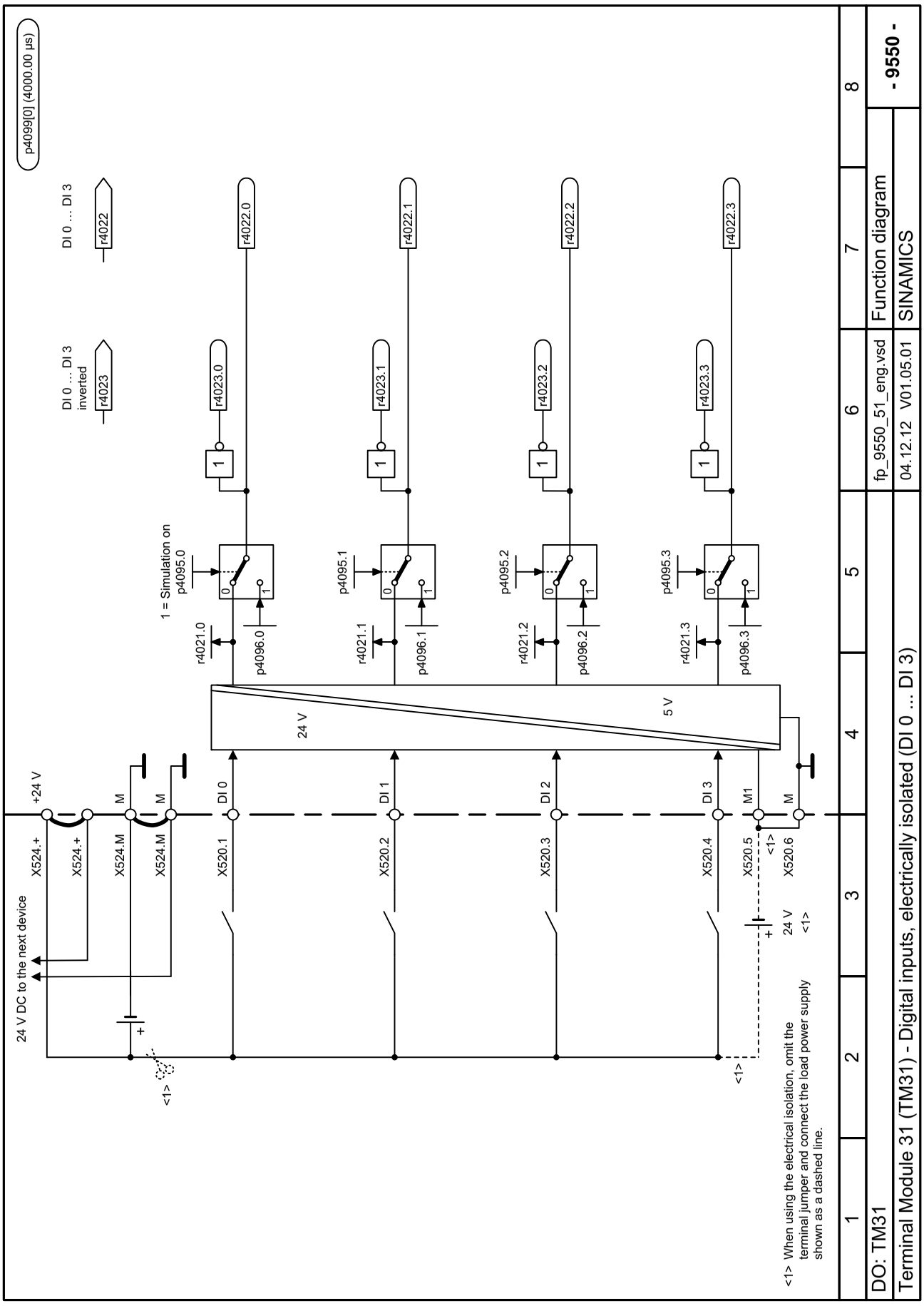


Fig. 3-156 9550 – Digital inputs, electrically isolated (DI 0 ... DI 3)

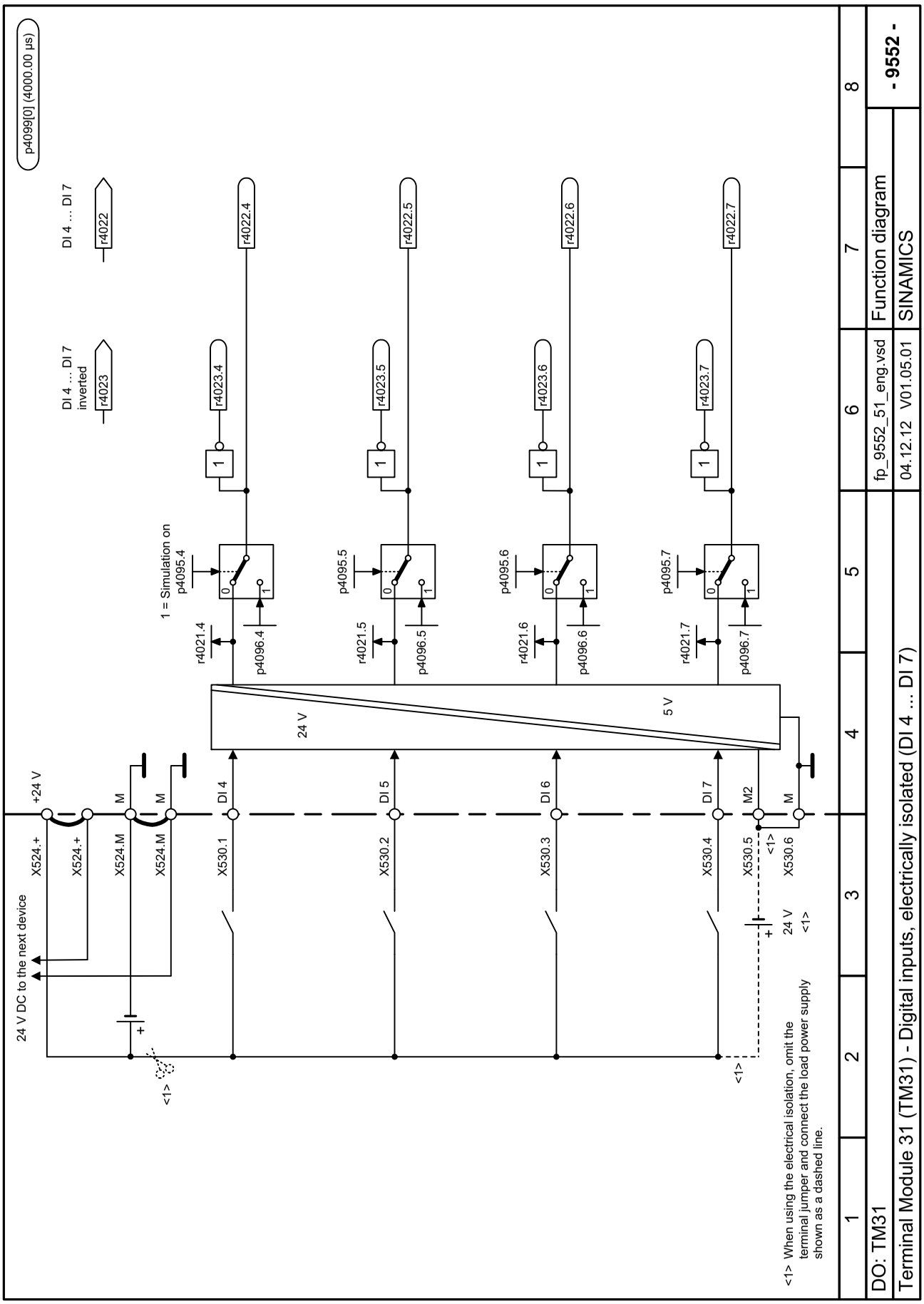


Fig. 3-157 9552 – Digital inputs, electrically isolated (DI 4 ... DI 7)

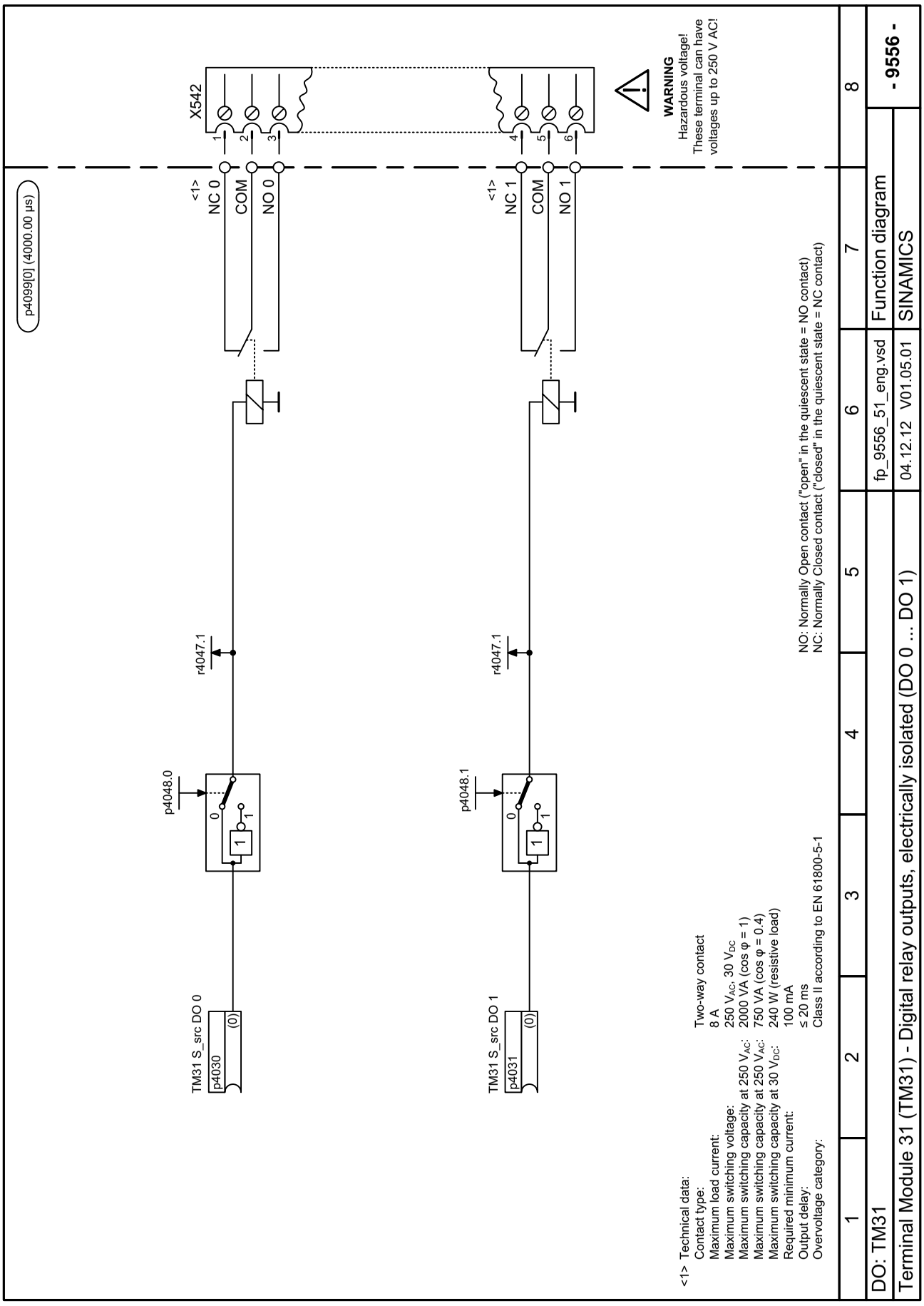


Fig. 3-158 9556 – Digital relay outputs, electrically isolated (DO 0 ... DO 1)

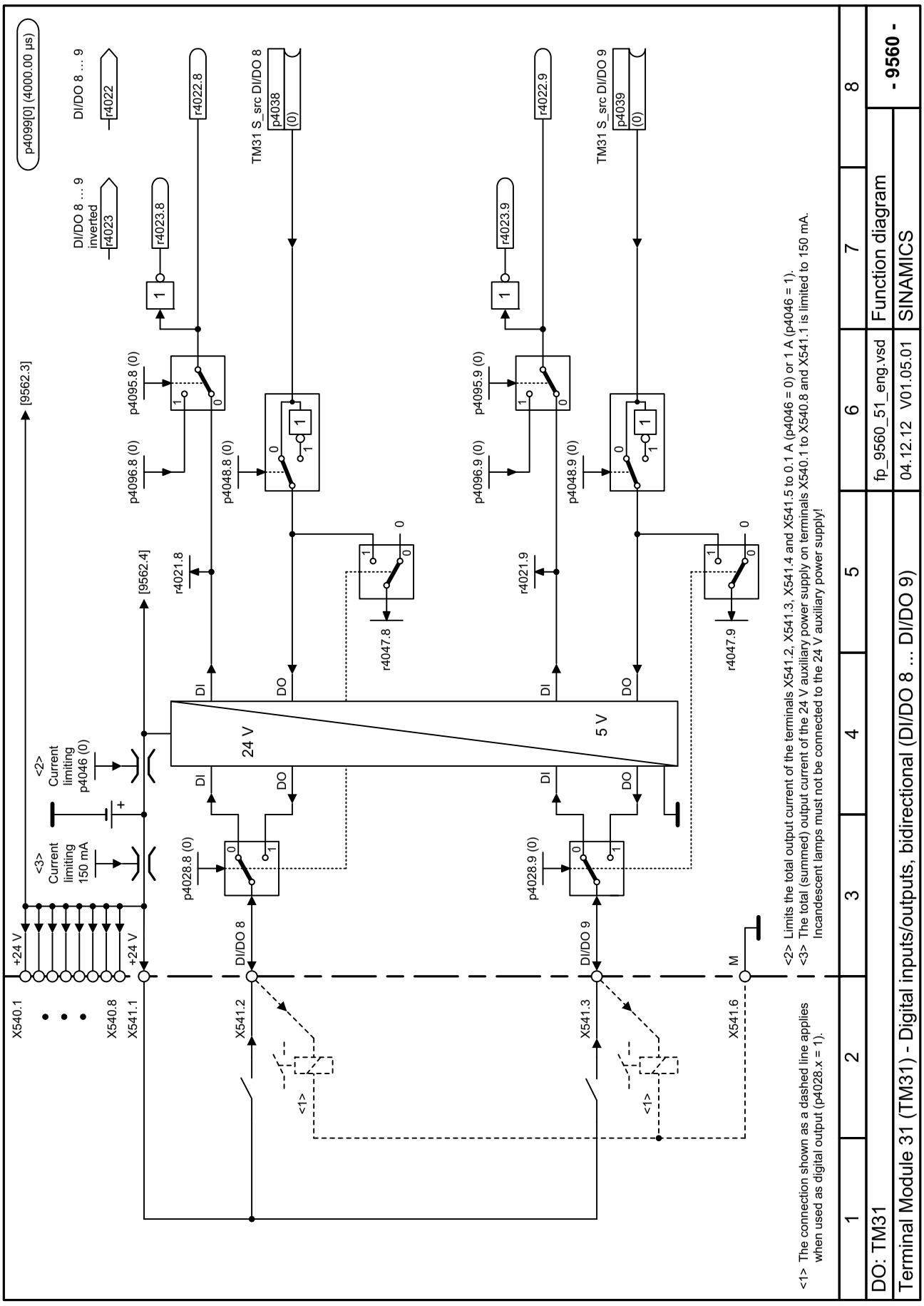


Fig. 3-159 9560 – Digital inputs/outputs, bidirectional (DI/DO 8 ... DI/DO 9)

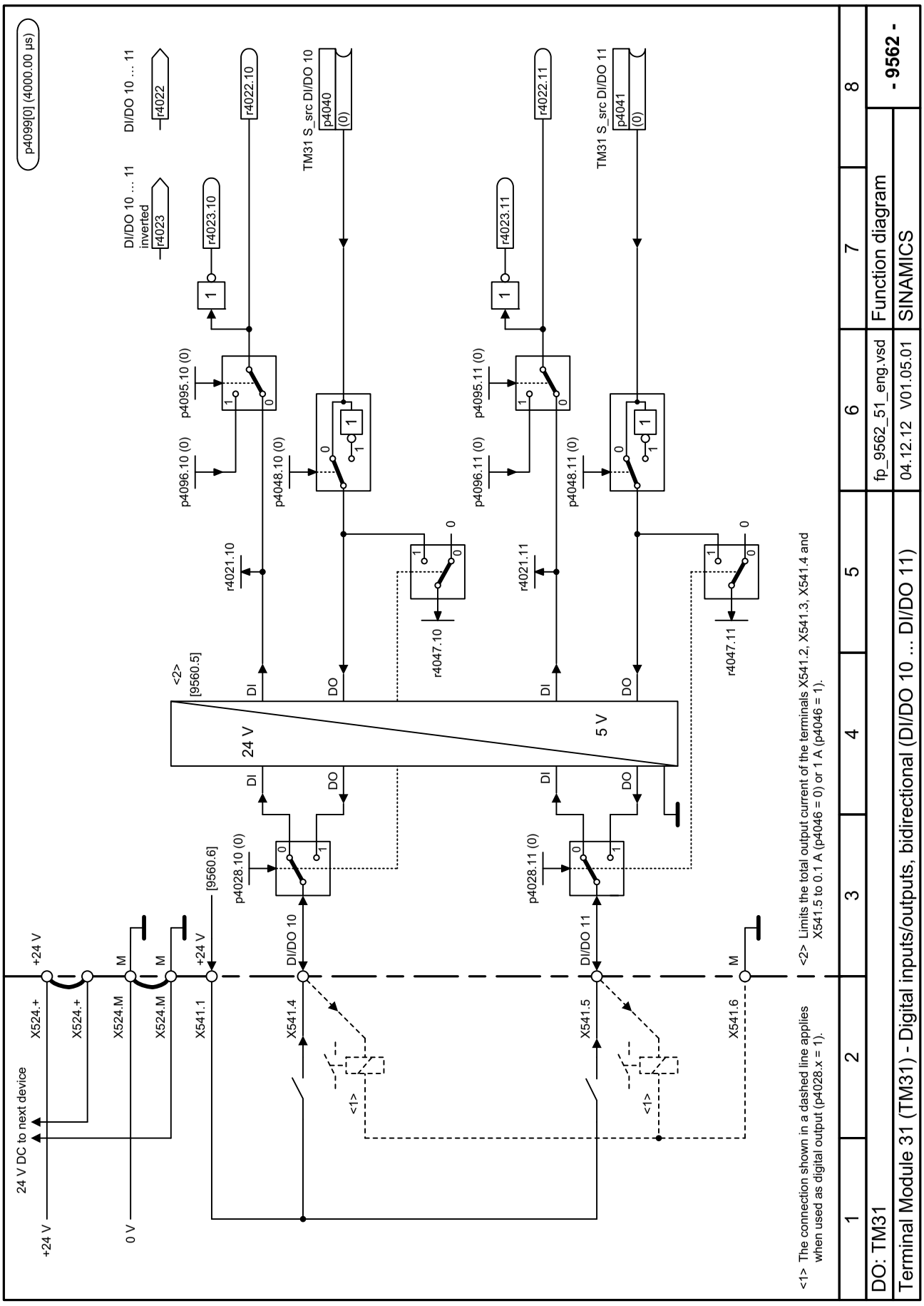
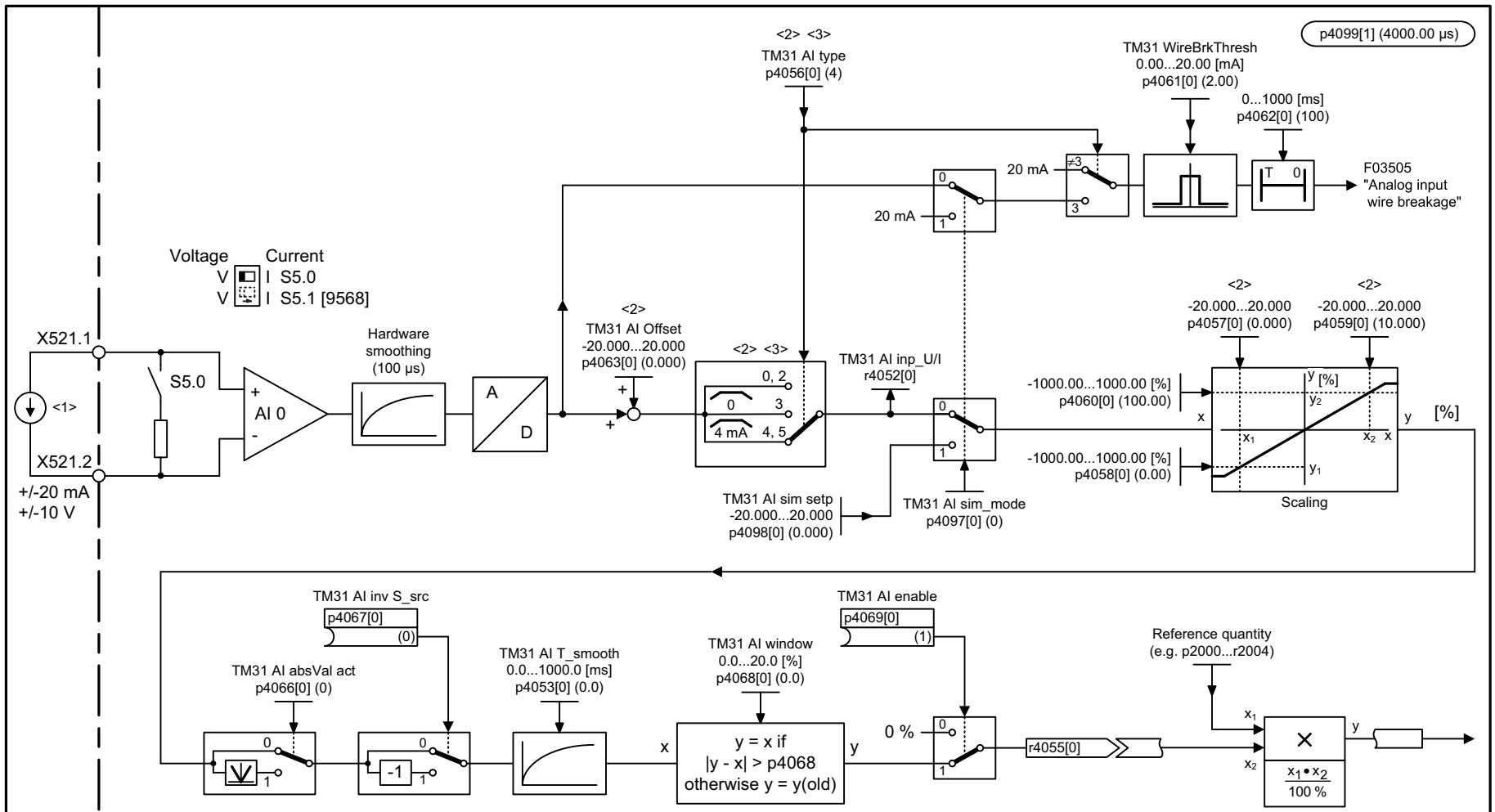


Fig. 3-160 9562 – Digital inputs/outputs, bidirectional (DI/DO 10 ... DI/DO 11)



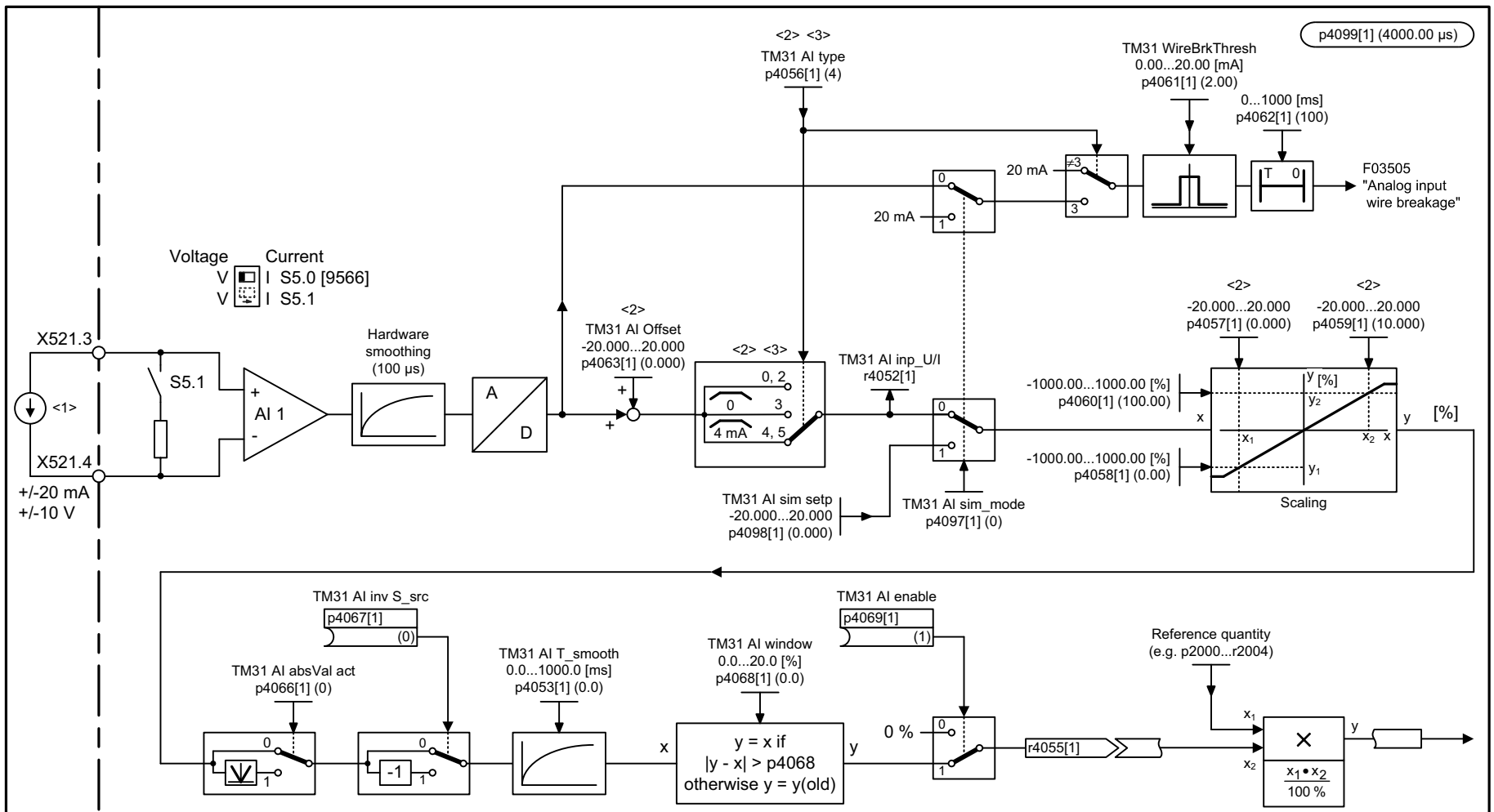
<1> Differential input!
In case of a ground-based input signal, the terminal X521.2 must be connected to the reference potential M.
Caution:
The voltage between an input (X521.1 or X521.2) and the ground point must not exceed 35 V.
When the load resistor is switched in (S5.0 closed), the voltage between the input terminals must not exceed 15 V.

<2> For p4056 = 2, 3, 5 the units are mA.
For p4056 = 0, 4 the units are V.

<3> p4056
= 0: 0 V ... +10 V
= 2: 0 mA ... +20 mA
= 3: 4 mA ... +20 mA with monitoring
= 4: -10 V ... +10 V
= 5: -20 mA ... +20 mA

1	2	3	4	5	6	7	8
DO: TM31					fp_9566_51_eng.vsd	Function diagram	- 9566 -
Terminal Module 31 (TM31) - Analog input 0 (AI 0)					04.06.19 V01.05.01	SINAMICS	

Fig. 3-161 9566 – Analog input 0 (AI 0)



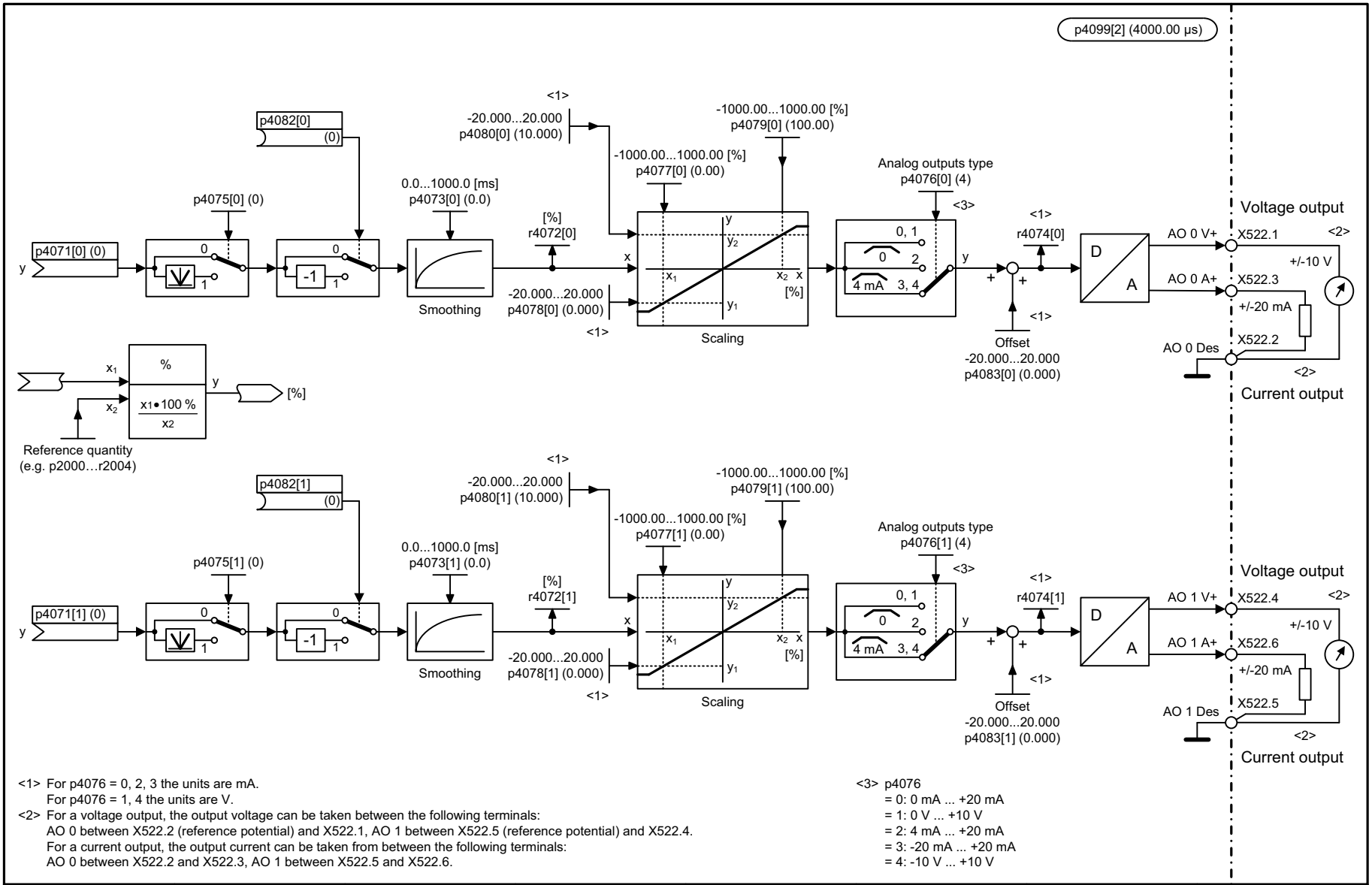
<1> Differential input!
In case of a ground-based input signal, the terminal X521.4 must be connected to the reference potential M.
Caution:
The voltage between an input (X521.3 or X521.4) and the ground point must not exceed 35 V.
When the load resistor is switched in (S5.1 closed), the voltage between the input terminals must not exceed 15 V.

<2> For p4056 = 2, 3, 5 the units are mA.
For p4056 = 0, 4 the units are V.

<3> p4056
= 0: 0 V ... +10 V
= 2: 0 mA ... +20 mA
= 3: 4 mA ... +20 mA with monitoring
= 4: -10 V ... +10 V
= 5: -20 mA ... +20 mA

1	2	3	4	5	6	7	8
DO: TM31					fp_9568_51_eng.vsd	Function diagram	- 9568 -
Terminal Module 31 (TM31) - Analog input 1 (AI 1)					04.06.19 V01.05.01	SINAMICS	

Fig. 3-162 9568 – Analog input 1 (AI 1)



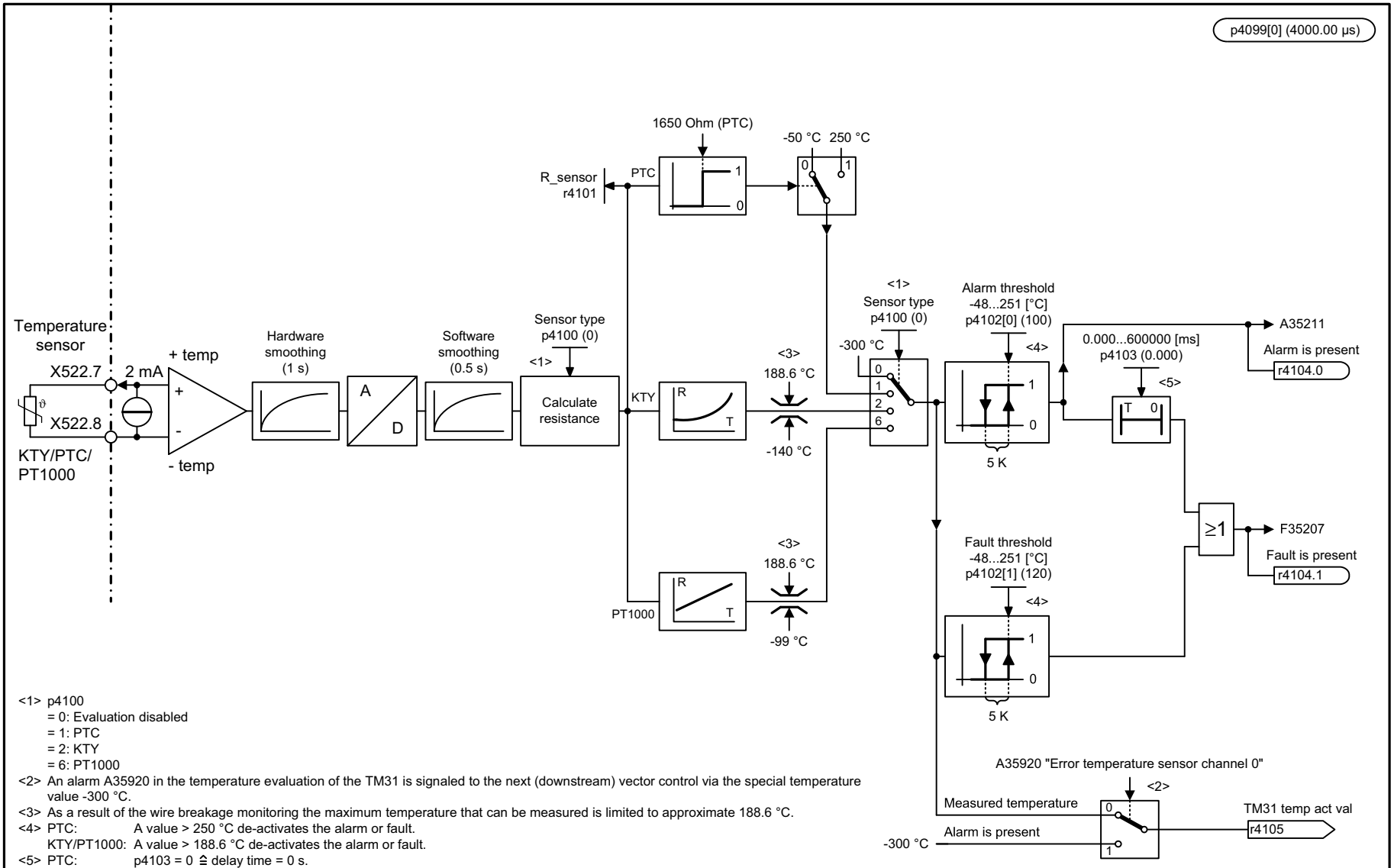
<1> For p4076 = 0, 2, 3 the units are mA.
For p4076 = 1, 4 the units are V.

<2> For a voltage output, the output voltage can be taken between the following terminals:
AO 0 between X522.2 (reference potential) and X522.1, AO 1 between X522.5 (reference potential) and X522.4.
For a current output, the output current can be taken from between the following terminals:
AO 0 between X522.2 and X522.3, AO 1 between X522.5 and X522.6.

<3> p4076
= 0: 0 mA ... +20 mA
= 1: 0 V ... +10 V
= 2: 4 mA ... +20 mA
= 3: -20 mA ... +20 mA
= 4: -10 V ... +10 V

1	2	3	4	5	6	7	8
DO: TM31					fp_9572_51_eng.vsd	Function diagram	- 9572 -
Terminal Module 31 (TM31) - Analog outputs (AO 0 ... AO 1)					04.06.19 V01.05.01	SINAMICS	

Fig. 3-163 9572 – Analog outputs (AO 0 ... AO 1)



<1> p4100
= 0: Evaluation disabled
= 1: PTC
= 2: KTY
= 6: PT1000

<2> An alarm A35920 in the temperature evaluation of the TM31 is signaled to the next (downstream) vector control via the special temperature value -300 °C.

<3> As a result of the wire breakage monitoring the maximum temperature that can be measured is limited to approximate 188.6 °C.

<4> PTC: A value > 250 °C de-activates the alarm or fault.
KTY/PT1000: A value > 188.6 °C de-activates the alarm or fault.

<5> PTC: p4103 = 0 ≙ delay time = 0 s.
KTY/PT1000: p4103 = 0 ≙ Output from temperature timer even off (0).

1	2	3	4	5	6	7	8
DO: TM31					fp_9576_51_eng.vsd	Function diagram	- 9576 -
Terminal Module 31 (TM31) - Temperature evaluation					04.12.12 V01.05.01	SINAMICS	

Fig. 3-164 9576 – Temperature evaluation

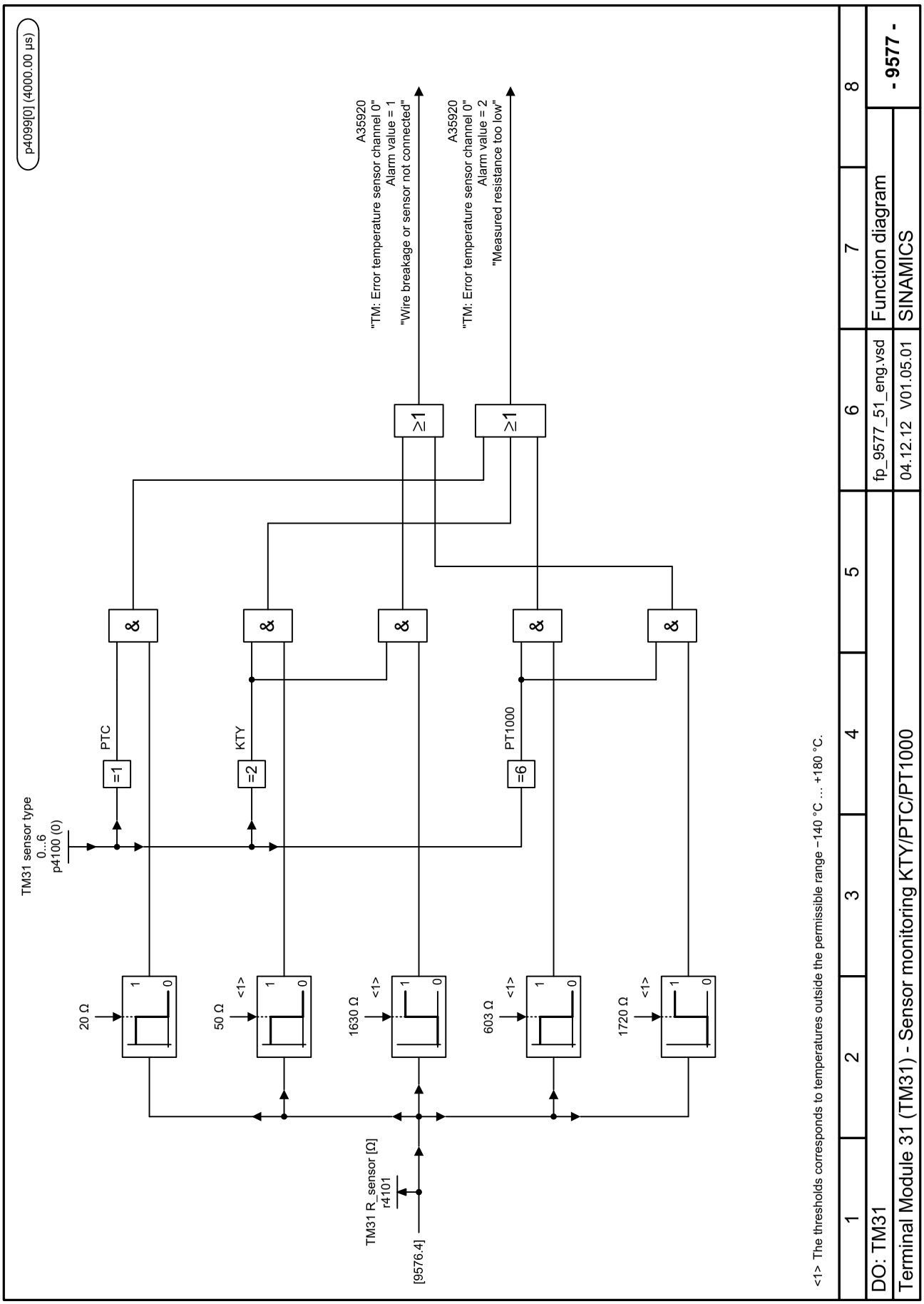


Fig. 3-165 9577 – Sensor monitoring KTY/PTC/PT1000

3.22 Terminal Module 150 (TM150)

Function diagrams

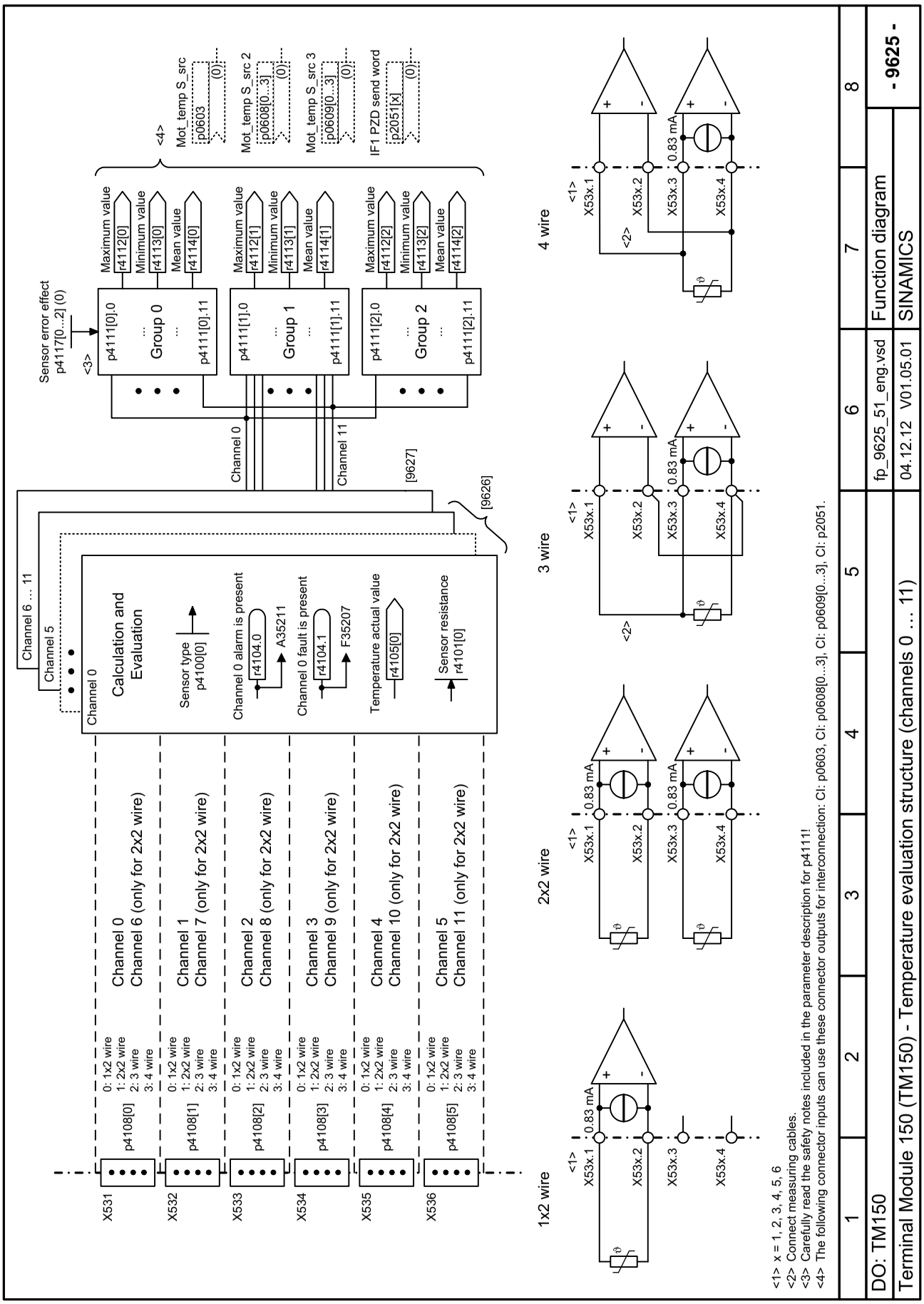
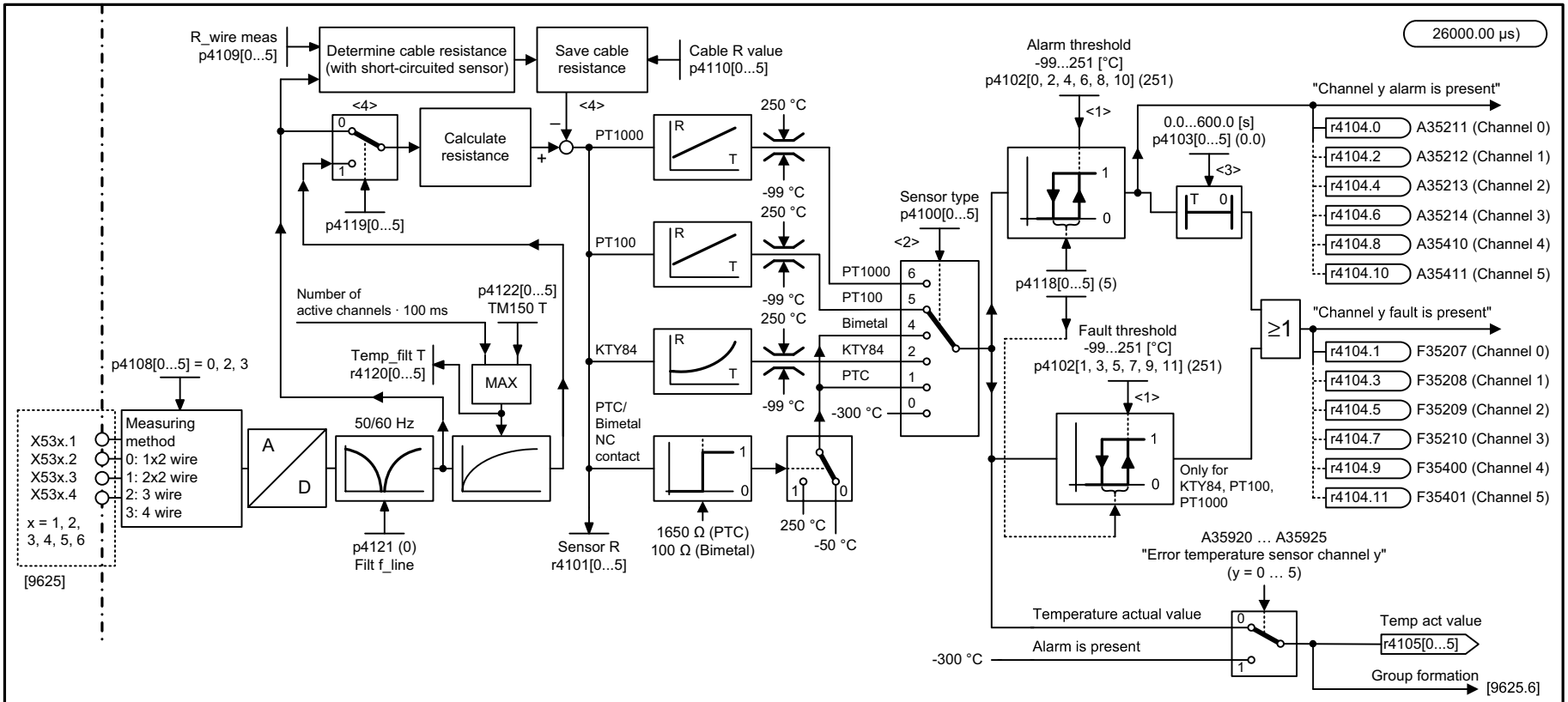


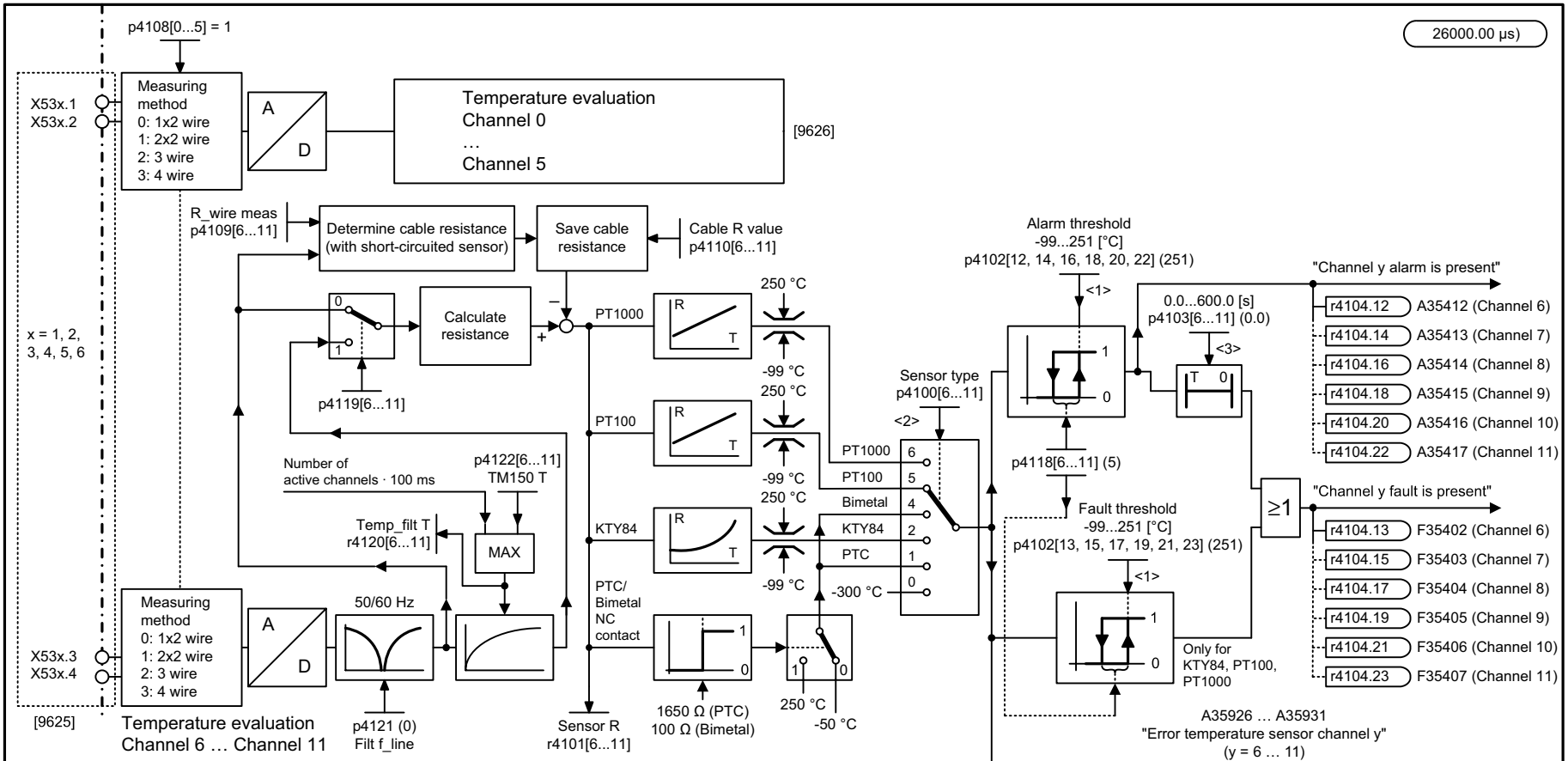
Fig. 3-166 9625 – Temperature evaluation structure (channels 0 ... 11)



<1> For p4102[0...23] = 251 °C the evaluation of the appropriate threshold is deactivated.
<2> p4100[0...11]
= 0: Evaluation disabled
= 1: PTC thermistor (with monitoring for short-circuit)
= 2: KTY84 (with monitoring for wire break and short-circuit)
= 4: Bimetal NC contact (no monitoring)
= 5: PT100 (with monitoring for wire break and short-circuit)
= 6: PT1000 (with monitoring for wire break and short-circuit)
<3> For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- The relevant fault can only be triggered via the fault threshold (the timer output is always logical 0).
For p4103 = 0 s and sensor type "PTC thermistor", "Bimetal NC contact" (p4100[0...11] = 1, 4) the following applies:
- The corresponding alarm and fault are output simultaneously (delay time = 0 s).
<4> Only for 1x2/2x2 wire evaluation (p4108[0...5] = 0, 1).

1	2	3	4	5	6	7	8
DO: TM150					fp_9626_51_eng.vsd	Function diagram	- 9626 -
Terminal Module 150 (TM150) - Temperature evaluation 1x2, 3, 4 wire (channels 0 … 5)					28.09.18 V01.05.01	SINAMICS	

Fig. 3-167 9626 – Temperature evaluation 1x2-, 3-, 4-wire (channels 0 ... 5)



<1> For p4102[0...23] = 251 °C the evaluation of the appropriate threshold is deactivated.
<2> p4100[0...11]
= 0: Evaluation deactivated
= 1: PTC thermistor (with monitoring for short-circuit)
= 2: KTY84 (with monitoring for wire break and short-circuit)
= 4: Bimetal NC contact (no monitoring)
= 5: PT100 (with monitoring for wire break and short-circuit)
= 6: PT1000 (with monitoring for wire break and short-circuit)
<3> For p4103 = 0 s and sensor type "KTY84", "PT100", "PT1000" (p4100[0...11] = 2, 5, 6) the following applies:
- The relevant fault can only be triggered via the fault threshold (the timer output is always logical 0).
For p4103 = 0 s and sensor type "PTC thermistor", "Bimetal NC contact" (p4100[0...11] = 1, 4) the following applies:
- The corresponding alarm and fault are output simultaneously (delay time = 0 s).

1	2	3	4	5	6	7	8
DO: TM150					fp_9627_51_eng.vsd	Function diagram	- 9627 -
Terminal Module 150 (TM150) - Temperature evaluation 2x2 wire (channels 0 … 11)					28.09.18 V01.05.01	SINAMICS	

Fig. 3-168 9627 – Temperature evaluation 2x2-wire (channels 0 … 11)

3.23 Basic Operator Panel 20 (BOP20)

Function diagrams

PROFIdrive sampling time

Interconnection of STW BOP (r0019)		<1>
Signal	**Meaning**	**Interconnection parameter**
STW BOP.0	**1 = ON** **0 = OFF (OFF1)**	p0840[0] = r0019.0
STW BOP.1	**1 = No coast down** 0 = Coast down (OFF2)	p0844[0] = r0019.1
STW BOP.2	**1 = No quick stop** 0 = Quick stop (OFF3)	p0848[0] = r0019.2
STW BOP.3	Reserved	-
STW BOP.4	Reserved	-
STW BOP.5	Reserved	-
STW BOP.6	Reserved	-
STW BOP.7	**= Acknowledge fault**	p2102[0] = r0019.7
STW BOP.8	Reserved	-
STW BOP.9	Reserved	-
STW BOP.10	Reserved	-
STW BOP.11	Reserved	-
STW BOP.12	Reserved	-
STW BOP.13	**1 = Motorized potentiometer, raise** <2>	p1035[0] = r0019.13
STW BOP.14	**1 = Motorized potentiometer, lower** <2>	p1036[0] = r0019.14
STW BOP.15	Reserved	-

<1> The BICO interconnection represents an example that can be be changed by the user.
<2> Only for CU_DC (SINAMICS DCM).

1	2	3	4	5	6	7	8
DO: CU_DC, CU_DCP					fp_9912_70_eng.vsd	Function diagram	- 9912 -
Basic Operator Panel 20 (BOP20) - Control word interconnection					20.08.18 V01.05.01	SINAMICS DCM/DCP	

Fig. 3-169 9912 – Control word interconnection

Faults and alarms

4

Content

4.1 Overview of faults and alarms

4.1.1 General information on faults and alarms

Display of faults/alarms

In the case of a fault, the drive signals the corresponding fault(s) and/or alarm(s).

The following methods are available for displaying faults and alarms:

- Display via the fault and alarm buffer for PROFIBUS.
- Display via the commissioning software in online operation.

Differences between faults and alarms

The differences between faults and alarms are as follows:

Table 4-1 Differences between faults and alarms

Type	Description
Faults	What happens when a fault occurs? • The appropriate fault response is triggered. • Status signal ZSW1.3 is set. • The fault is entered in the fault buffer. How are faults eliminated? • Remove the original cause of the fault. • Acknowledge the fault.
Alarms	What happens when an alarm occurs? • Status signal ZSW1.7 is set. • The alarm is entered into the alarm buffer. How are alarms eliminated? • Alarms acknowledge themselves. If the cause of the alarm is no longer present, they automatically reset themselves.

Fault reactions

The following fault reactions are defined:

Table 4-2 Fault reactions

List	PROFIdrive	Reaction	Description
NONE	-	None	No response when a fault occurs.
OFF1	ON/ OFF	Brake along the ramp-function generator down ramp followed by pulse inhibit	**Closed-loop speed control (p50084 = 1)** • n_set = 0 is input immediately to brake the drive along the ramp-function generator down ramp. • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the closing time (p50088) expires. Zero speed is detected when the actual speed value falls below the speed threshold (p50370). **Closed-loop torque control (p50084 = 2)** • The following applies for closed-loop torque control: Reaction as for OFF2.
OFF2	COAST STOP	Internal/external pulse disable	**Closed-loop speed and torque control** • Instantaneous pulse suppression, the drive “coasts” to a standstill. • Switching-on inhibited is activated.
OFF3	QUICK STOP	Brake along the OFF3 down ramp followed by pulse inhibit	**Closed-loop speed control (p50084 = 1)** • n_set = 0 is input immediately to brake the drive along the OFF3 down ramp (p50296). • When zero speed is detected, the motor holding brake (if parameterized) is closed. The pulses are suppressed when the holding brake's closing time (p50088) expires. Zero speed is detected when the actual speed value falls below the speed threshold (p50370). • Switching-on inhibited is activated. **Closed-loop torque control (p50084 = 2)** • Reaction as for OFF2.
STOP2	-	OFF2	For SINAMICS DCM, these fault reactions have the same effect as for OFF2.
IASC/ DCBRAKE			
ENCODER			

Acknowledging faults

The list of faults and alarms specifies how to acknowledge each fault after the cause has been eliminated.

Table 4-3 Acknowledging faults

Acknowledgment	Description
POWER ON	The fault is acknowledged by a POWER ON (switch drive unit off and on again). **Note:** If this action has not removed the fault cause, the fault is displayed again immediately after power up.
IMMEDIATELY	Faults can be acknowledged on one drive object (Points 1 to 3) or on all drive objects (Point 4) as follows: 1 Set acknowledgment by parameter: p3981 = 0 --> 1 2 Acknowledging via binector inputs: p2103 BI: 1. Acknowledge faults p2104 BI: 2. Acknowledge faults p2105 BI: 3. Acknowledge faults 3 Acknowledging via a PROFIdrive control signal: STW1.7 = 0 --> 1 (edge) 4 Acknowledge all faults p2102 BI: Acknowledge all faults All of the faults on all of the drive objects of the drive system can be acknowledged using this binector input. **Note:** • These faults can also be acknowledged by a POWER ON operation. • If this action has not eliminated the fault cause, the fault will continue to be displayed after acknowledgment.
PULSE SUPPRESSION	The fault can only be acknowledged when the pulses are inhibited (r0899.11 = 0). The same options are available for acknowledging as described under acknowledge IMMEDIATELY.

Fault buffer - saved when switching off

The contents of the fault buffer are saved to non-volatile memory when the Control Unit is powered down, i.e. the fault buffer history is still available when the unit is powered up again.

The fault buffer of a drive object comprises the following parameters:

- r0945[0...63], r0947[0...63], r0948[0...63], r0949[0...63]
- r2109[0...63], r2130[0...63], r2133[0...63], r2136[0...63]

The fault buffer contents can be deleted manually as follows:

- Delete fault buffer for all drive objects:
  p2147 = 1 --> p2147 = 0 is automatically set after execution.
- Delete fault buffer for a specific drive object:
  p0952 = 0 --> The parameter belongs to the specified drive object.

The fault buffer contents are automatically deleted when the following occurs:

- Restore factory setting (p0009 = 30 and p0976 = 1).
- Download with modified structure (e.g. number of drive objects changed).
- Power-up after other parameter values have been loaded (e.g. p0976 = 10).
- Upgrade firmware to later version.

4.1.2 Explanation of the list of faults and alarms

The data in the following example have been chosen at random. The information listed below is the maximum amount of information that a description can contain. Some of the information is optional.

The "List of faults and alarms (Page 927)" has the following layout:

- - - - - - - - - - - - Start of example -

Axxxxx (F, N)	**Fault location (optional): Name**
Message value:	Component number: %1, fault cause: %2
Message class:	Text of the message class (number according to PROFIdrive)
Drive object:	List of objects.
Reaction:	NONE
Acknowledgment:	NONE
Cause:	Description of possible causes.
	Fault value (r0949, interpret format): or alarm value (r2124, interpret format): (optional)
	Information about fault or alarm values (optional).
Remedy:	Description of possible remedies.
Reaction to F:	NO (OFF1, OFF2, OFF3)
Acknowledgment for F:	IMMEDIATELY (POWER ON)
Reaction to N:	NONE
Acknowledgment for N:	NONE

- - - - - - - - - - - - End of example -

Axxxxx	**Alarm xxxxx**
Axxxxx (F, N)	**Alarm xxxxx (message type can be changed in F or N)**
Fxxxxx	**Fault xxxxx**
Fxxxxx (A, N)	**Fault xxxxx (message type can be changed in A or N)**
Nxxxxx	**No message**
Nxxxxx (A)	**No message (message type can be changed in A)**

A message comprises a letter followed by the relevant number.

The meaning of the letters is as follows:

- A means "Alarm"
- F means "Fault"
- N means "No report" or "Internal report"

The optional brackets indicate whether the type specified for this message can be changed and which message types can be adjusted via parameters (p2118, p2119).

Information on reaction and acknowledgment is specified independently for a message with an adjustable message type (e.g. reaction to F, acknowledgment for F).

Note:

You can change the default properties of a fault or alarm by setting parameters.

References: SINAMICS DC MASTER operating instructions

The "List of faults and alarms (Page 927)" supplies information referred to the properties of a message set as default. If the properties of a specific message are changed, the corresponding information may have to be modified in this list.

Fault location (optional): Name

The fault location (optional), the name of the fault or alarm and the message number are all used to identify the message (e.g. with the commissioning software).

Message value:

The information provided under the message value informs you about the compositionof the fault/alarm value.

Example:

Message value: Component number: %1, fault cause: %2

This message value contains information about the component number and cause of the fault. The entries %1 and %2 are placeholders, which are filled appropriately in online operation (e.g. with the commissioning software).

Message class:

For each message, specifies the associated message class with the following structure:

Text of the message class (number according to PROFIdrive)

The message classes are transferred at different interfaces to higher-level control systems and their associated display and operating units.

The message classes that are available are shown in Table "Message classes and coding of various diagnostic interfaces (Page 922)". In addition to the text of the message class and their number according to PROFIdrive – as well as a brief help text regarding the cause and remedy – they also include information about the various diagnostic interfaces:

- PN (hex)

  Specifies the "Channel error type" of the PROFINET channel diagnostics.

  When activating the channel diagnostics, using the GSDML file, the texts listed in the table can be displayed.

- DS1 (dec)

  Specifies the bit number in date set DS1 of the diagnostic alarm for SIMATIC S7.

  When the diagnostic alarms are activated, the texts listed in the table can be displayed.

- DP (dec)

  Specifies the "Error type" of the channel-related diagnostics for PROFIBUS.

  When the channel diagnostics are activated, the texts listed in the standard and the GSD file can be displayed.

- ET 200 (dec)

  Specifies the "Error type" of the channel-related diagnostics for the SIMATIC ET 200pro FC-2 device.

  When the channel diagnostics are activated, the texts listed in the standard and the GSD file of the ET 200pro can be displayed.

- NAMUR (r3113.x)

  Specifies the bit number in parameter r3113.

For the interfaces DP, ET 200, NAMUR, in some instances, the message classes are combined.

Table 4-4 Message classes and coding of various diagnostic interfaces

Text of the message class (number according to PROFIdrive) Cause and remedy.	**Diagnostics interface**				
	PN (hex)	**DS1 (dec)**	**DP (dec)**	**ET 200 (dec)**	**NAMUR (r3113.x)**
Hardware/software errors (1) A hardware or software malfunction was detected. Carry out a POWER ON for the relevant component. If it occurs again, contact the hotline.	9000	0	16	9	0
Line fault (2) A line supply fault has occurred (phase failure, voltage level ...). Check the line supply and fuses. Check the supply voltage. Check the wiring.	9001	1	17	24	1
Supply voltage fault (3) An electronics supply voltage fault (48 V, 24 V, 5 V …) was detected. Check the wiring. Check the voltage level.	9002	2	2 [1] 3 [2]	2 [1] 3 [2]	15
DC-link overvoltage (4) The DC-link voltage has assumed an inadmissibly high value. Check the dimensioning of the system (line supply, reactor, voltages). Check the infeed settings.	9003	3	18	24	2
Power electronics fault (5) An impermissible operating state of the power electronics was detected (overcurrent, overtemperature, IGBT failure …). Check compliance with the permissible load cycles. Check the ambient temperatures (fan).	9004	4	19	24	3
Overtemperature of the electronic component (6) The temperature in the component has exceeded the highest permissible limit. Check the ambient temperature / control cabinet ventilation.	9005	5	20	5	4
Ground fault / inter-phase short-circuit detected (7) A ground fault / inter-phase short-circuit was detected in the power cables or in the motor windings. Check the power cables (connection). Check the motor.	9006	6	21	20	5
Motor overload (8) The motor was operated outside the permissible limits (temperature, current, torque …). Check the load cycles and set limits. Check the ambient temperature / motor cooling.	9007	7	22	24	6

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

Text of the message class (number according to PROFIdrive) Cause and remedy.	**Diagnostics interface**				
	PN (hex)	**DS1 (dec)**	**DP (dec)**	**ET 200 (dec)**	**NAMUR (r3113.x)**
Communication to the higher-level controller faulted (9) The communication to the higher-level controller (internal coupling, PROFIBUS, PROFINET …) is faulted or interrupted. Check the state of the higher-level controller. Check the communication connection/-wiring. Check the bus configuration/cycles.	9008	8	23	19	7
Safety monitoring channel has detected an error (10) A safe operation monitoring function has detected an error.	9009	9	24	25	8
Actual position/speed value incorrect or not available (11) An illegal signal state was detected while evaluating the encoder signals (track signals, zero marks, absolute values …). Check the encoder / state of the encoder signals. Observe the maximum permissible frequencies.	900A	10	25	29	9
Internal (DRIVE-CLiQ) communication faulted (12) The internal communication between the SINAMICS components is faulted or interrupted. Check the DRIVE-CLiQ wiring. Ensure an EMC-compliant installation. Observe the maximum permissible quantity structures / cycles.	900B	11	26	31	10
Infeed fault (13) The infeed is faulty or has failed. Check the infeed and its environment (line supply, filters, reactors, fuses …). Check the infeed control.	900C	12	27	24	11
Braking controller / Braking Module faulted (14) The internal or external Braking Module is faulted or overloaded (temperature). Check the connection/state of the Braking Module. Comply with the permissible number of braking operations and their duration.	900D	13	28	24	15
Line filter fault (15) The line filter monitoring has detected an excessively high temperature or another impermissible state. Check the temperature / temperature monitoring. Check the configuration to ensure that it is permissible (filter type, infeed, thresholds).	900E	14	17	24	15
External measured value / signal state outside of the permissible range (16) A measured value / signal state read in via the input area (digital/analog/temperature) has assumed an impermissible value/state. Identify and check the relevant signal. Check the set thresholds.	900F	15	29	26	15
Application / technological function faulty (17) The application / technological function has exceeded a (set) limit (position, velocity, torque …). Identify and check the relevant limit. Check the setpoint specification of the higher-level controller.	9010	16	30	9	15

Table 4-4 Message classes and coding of various diagnostic interfaces, continued

Text of the message class (number according to PROFIdrive) Cause and remedy.	Diagnostics interface				
	PN (hex)	DS1 (dec)	DP (dec)	ET 200 (dec)	NAMUR (r3113.x)
Error in the parameterization/configuration/commissioning procedure (18) An error was identified in the parameterization or in a commissioning procedure, or the parameterization does not match the actual device configuration. Determine the precise cause of the fault using the commissioning tool. Adapt the parameterization or device configuration.	9011	17	31	16	15
General drive fault (19) Group fault. Determine the precise cause of the fault using the commissioning tool.	9012	18	9	9	15
Auxiliary unit fault (20) The monitoring of an auxiliary unit (incoming transformer, cooling unit …) has detected an illegal state. Determine the exact cause of the fault and check the relevant device.	9013	19	29	26	15

1. Undervoltage condition of the electronics power supply

2. Overvoltage condition of the electronics power supply

Drive object:

Each message (fault/alarm) specifies the drive object in which it can be found.

A message can belong to either one, several, or all drive objects.

Reaction: Default fault reaction (adjustable fault reaction)

Specifies the default reaction in the event of a fault.

The optional parentheses indicate whether the default fault reactions can be changed and which fault reactions can be adjusted via parameters (p2100, p2101).

Note

See Table "Fault reactions (Page 917)"

Acknowledgment: Default acknowledgment (adjustable acknowledgment)

Specifies the default method of acknowledging faults after the cause has been eliminated.

The optional parentheses indicate whether the default acknowledgment can be changed and which acknowledgment can be adjusted via parameters (p2126, p2127).

Note

See Table "Acknowledging faults (Page 918)"

Cause:

Describes the possible causes of the fault or alarm. A fault or alarm value can also be specified (optional).

Fault value (r0949, format):

The fault value is entered in the fault buffer in r0949[0...63] and specifies additional, more precise information about a fault.

Alarm value (r2124, format):

The alarm value specifies additional, more precise information about an alarm.

The alarm value is entered in the alarm buffer in r2124[0...7] and specifies additional, more precise information about an alarm.

Remedy:

Describes the methods available for eliminating the cause of the active fault or alarm.

⚠ **WARNING**
In certain cases, service and maintenance personnel are responsible for choosing a suitable method for eliminating the cause of faults.

4.1.3 Number ranges of faults and alarms

Note:

The following number ranges represent an overview of all faults and alarms used in the SINAMICS drive family.

The faults and alarms for the product described in this List Manual are described in detail in "List of faults and alarms (Page 927)".

Faults and alarms are organized into the following number ranges:

Table 4-5 Number ranges of faults and alarms

of	To	Area
1000	3999	Control Unit
4000	4999	Reserved
5000	5999	Power section
6000	6899	Infeed
6900	6999	Braking Module
7000	7999	Drive
8000	8999	Option Board
9000	12999	Reserved
13000	13033	Licensing
13034	13099	Reserved

Table 4-5 Number ranges of faults and alarms, continued

of	To	Area
13100	13102	Know-how protection
13103	19999	Reserved
20000	29999	OEM
30000	30999	DRIVE-CLiQ component power unit
31000	31999	DRIVE-CLiQ component encoder 1
32000	32999	DRIVE-CLiQ component encoder 2 **Note** Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control.
33000	33999	DRIVE-CLiQ component encoder 3 **Note** Faults that occur are automatically output as an alarm if the encoder is parameterized as a direct measuring system and does not intervene in the motor control.
34000	34999	Voltage Sensing Module (VSM)
35000	35199	Terminal Module 54F (TM54F)
35200	35999	Terminal Module 31 (TM31)
36000	36999	DRIVE-CLiQ Hub Module
37000	37999	HF Damping Module
40000	40999	Controller Extension 32 (CX32)
41000	48999	Reserved
49000	49999	SINAMICS GM/SM/GL
50000	50499	Communication Board (COMM BOARD)
50500	59999	OEM Siemens
60000	65535	SINAMICS DC MASTER (closed-loop DC current control)

4.2 List of faults and alarms

Product: SINAMICS DC MASTER, Version: 5104032, Language: eng
Objects: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

F01000 Internal software error

Message value: Module: %1, line: %2
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - evaluate fault buffer (r0945).
- carry out a POWER ON (switch-off/switch-on) for all components.
- if required, check the data on the non-volatile memory (e.g. memory card).
- upgrade firmware to later version.
- contact Technical Support.
- replace the Control Unit.

F01001 FloatingPoint exception

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: An exception occurred during an operation with the FloatingPoint data type.
The error may be caused by the basic system or a technology function (e.g. FBLOCKS, DCC, TEC).
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Note:
Refer to r9999 for further information about this fault.
r9999[0]: Fault number.
r9999[1]: Program counter at the time when the exception occurred.
r9999[2]: Cause of the FloatingPoint exception.
Bit 0 = 1: Operation invalid
Bit 1 = 1: Division by zero
Bit 2 = 1: Overflow
Bit 3 = 1: Underflow
Bit 4 = 1: Inaccurate result
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- check configuration and signals of the blocks in FBLOCKS.
- check configuration and signals of DCC charts.
- check configuration and signals of TEC charts.
- upgrade firmware to later version.
- contact Technical Support.

F01002 Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

F01003 Acknowledgment delay when accessing the memory

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A memory area was accessed that does not return a "READY".
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- contact Technical Support.

N01004 (F, A) Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: An internal software error has occurred.
Fault value (r0949, hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - read out diagnostics parameter (r9999).
- contact Technical Support.
See also: r9999 (Software error internal supplementary diagnostics)
Reaction upon F: OFF2
Acknowl. upon F: POWER ON
Reaction upon A: NONE
Acknowl. upon A: NONE

F01005 Firmware download for DRIVE-CLiQ component unsuccessful

Message value: Component number: %1, fault cause: %2
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: It was not possible to download the firmware to a DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = component number, xxxx = fault cause
xxxx = 000B hex = 11 dec:
DRIVE-CLiQ component has detected a checksum error.
xxxx = 000F hex = 15 dec:
The selected DRIVE-CLiQ component did not accept the contents of the firmware file.
xxxx = 0012 hex = 18 dec:
Firmware version is too old and is not accepted by the component.
xxxx = 0013 hex = 19 dec:
Firmware version is not suitable for the hardware release of the component.
xxxx = 0065 hex = 101 dec:
After several communication attempts, no response from the DRIVE-CLiQ component.
xxxx = 008B hex = 139 dec:
Initially, a new boot loader is loaded (must be repeated after POWER ON).
xxxx = 008C hex = 140 dec:
Firmware file for the DRIVE-CLiQ component not available on the memory card.
xxxx = 008D hex = 141 dec:
An inconsistent length of the firmware file was signaled. The firmware download may have been caused by a loss of connection to the firmware file. This can occur during a project download/reset in the case of a SINAMICS Integrated Control Unit, for example.
xxxx = 008F hex = 143 dec:
Component has not changed to the mode for firmware download. It was not possible to delete the existing firmware.
xxxx = 0090 hex = 144 dec:
When checking the firmware that was downloaded (checksum), the component detected a fault. It is possible that the file on the memory card is defective.
xxxx = 0091 hex = 145 dec:
Checking the loaded firmware (checksum) was not completed by the component in the appropriate time.
xxxx = 009C hex = 156 dec:
Component with the specified component number is not available (p7828).
xxxx = Additional values:
Only for internal Siemens troubleshooting.

Remedy: - check the selected component number (p7828).
- check the DRIVE-CLiQ wiring.
- save suitable firmware file for download in the directory "/siemens/sinamics/code/sac/".
- use a component with a suitable hardware version
- after POWER ON has been carried out again for the DRIVE-CLiQ component, download firmware again. Depending on p7826, the firmware will be automatically downloaded.

A01006 Firmware update for DRIVE-CLiQ component required

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The firmware of a DRIVE-CLiQ component must be updated as there is no suitable firmware or firmware version in the component for operation with the Control Unit.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.

Remedy: Update the firmware using the commissioning tool:
The firmware version of all of the components on the "Version overview" page can be read in the Project Navigator under "Configuration" of the associated drive unit and an appropriate firmware update can be carried out.
Firmware update via parameter:
- take the component number from the alarm value and enter into p7828.
- start the firmware download with p7829 = 1.

A01007 POWER ON for DRIVE-CLiQ component required

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ component must be switched on again (POWER ON) (e.g. due to a firmware update).
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
Note:
For a component number = 1, a POWER ON of the Control Unit is required.
Remedy: - Switch off the power supply of the specified DRIVE-CLiQ component and switch it on again.
- For SINUMERIK, auto commissioning is prevented. In this case, a POWER ON is required for all components and the auto commissioning must be restarted.

F01010 Drive type unknown

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An unknown drive type was found.
Fault value (r0949, interpret decimal):
Drive object number (refer to p0101, p0107).
Remedy: - replace Power Module.
- carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

F01011 (N) Download interrupted

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The project download was interrupted.
Fault value (r0949, interpret decimal):
1: The user prematurely interrupted the project download.
2: The communication cable was interrupted (e.g. cable breakage, cable withdrawn).
3: The project download was prematurely exited by the commissioning tool.
100: Different versions between the firmware version and project files which were loaded by loading into the file system "Download from memory card".
Note:
The response to an interrupted download is the state "first commissioning".
Remedy: - check the communication cable.
- download the project again.
- boot from previously saved files (switch-off/switch-on or p0976).
- when loading into the file system (download from memory card), use the matching version.
Reaction upon N: NONE
Acknowl. upon N: NONE

F01015 Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

A01016 (F) Firmware changed

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one firmware file in the directory was illegally changed on the non-volatile memory (memory card/device memory) with respect to the version when shipped from the factory.
Alarm value (r2124, interpret decimal):
0: Checksum of one file is incorrect.
1: File missing.
2: File too many.
3: Incorrect firmware version.
4: Incorrect checksum of the back-up file.
Remedy: For the non-volatile memory for the firmware (memory card/device memory), restore the delivery condition.
Note:
The file involved can be read out using parameter r9925.
The status of the firmware check is displayed using r9926.
See also: r9925 (Firmware file incorrect), r9926 (Firmware check status)
Reaction upon F: OFF2
Acknowl. upon F: POWER ON

A01017 Component lists changed

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: On the memory card, one file in the directory /SIEMENS/SINAMICS/DATA or /ADDON/SINAMICS/DATA has been illegally changed with respect to that supplied from the factory. No changes are permitted in this directory.
Alarm value (r2124, interpret decimal):
zyx dec: x = Problem, y = Directory, z = File name
x = 1: File does not exist.
x = 2: Firmware version of the file does not match the software version.
x = 3: File checksum is incorrect.
y = 0: Directory /SIEMENS/SINAMICS/DATA/
y = 1: Directory /ADDON/SINAMICS/DATA/
z = 0: File MOTARM.ACX
z = 1: File MOTSRM.ACX
z = 2: File MOTSLM.ACX
z = 3: File ENCDATA.ACX
z = 4: File FILTDATA.ACX
z = 5: File BRKDATA.ACX
z = 6: File DAT_BEAR.ACX
z = 7: File CFG_BEAR.ACX
z = 8: File ENC_GEAR.ACX
z = 9: File CFG_BRK.ACX
z = 10: File THERMMOTMOD.ACX
z = 11: File MAPPING.ACX
z = 12: File LOADGEAR.ACX
z = 13: File MOTRSM.ACX

Remedy: For the file on the memory card involved, restore the status originally supplied from the factory.

F01018 Booting has been interrupted several times

Message value: -
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: POWER ON
Cause: Module booting was interrupted several times. As a consequence, the module boots with the factory setting.
Possible reasons for booting being interrupted:
- power supply interrupted.
- CPU crashed.
- parameterization invalid.

Remedy: - carry out a POWER ON (switch-off/switch-on). After switching on, the module reboots from the valid parameterization (if available).
- restore the valid parameterization.
Examples:
a) Carry out a first commissioning, save, carry out a POWER ON (switch-off/switch-on).
b) Load another valid parameter backup (e.g. from the memory card), save, carry out a POWER ON (switch-off/switch-on).
Note:
If the fault situation is repeated, then this fault is again output after several interrupted boots.

A01019 Writing to the removable data medium unsuccessful

Message value: -
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The write access to the removable data medium was unsuccessful.
Remedy: Remove and check the removable data medium. Then run the data backup again.

A01020 Writing to RAM disk unsuccessful

Message value: -
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A write access to the internal RAM disk was unsuccessful.
Remedy: Adapt the file size for the system logbook to the internal RAM disk (p9930).
See also: p9930 (System logbook activation)

F01023 Software timeout (internal)

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An internal software timeout has occurred.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

F01030 Sign-of-life failure for master control

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: For active PC master control, no sign-of-life was received within the monitoring time.
The master control was returned to the active BICO interconnection.
Remedy: Set the monitoring time higher at the PC or, if required, completely disable the monitoring function.
The monitoring time is set as follows using the commissioning tool:
<Drive> -> Commissioning -> Control panel -> Button "Fetch master control" -> A window is displayed to set the monitoring time in milliseconds.
Notice:
The monitoring time should be set as short as possible. A long monitoring time means a late response when the communication fails!

F01031 Sign-of-life failure for OFF in REMOTE

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: With the "OFF in REMOTE" mode active, no sign-of-life was received within 3 seconds.
Remedy: - check the data cable connection at the serial interface for the Control Unit (CU) and operator panel.
- check the data cable between the Control Unit and operator panel.

A01032 (F) ACX: all parameters must be saved

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The parameters of an individual drive object were saved (p0971 = 1), although there is still no backup of all drive system parameters.
The saved object-specific parameters are not loaded the next time that the system powers up.
For the system to successfully power up, all of the parameters must have been completely backed up.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0971 (Save drive object parameters)
Remedy: Save all parameters (p0977 = 1 or "copy RAM to ROM").
See also: p0977 (Save all parameters)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F01033 Units changeover: Reference parameter value invalid

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When changing over the units to the referred representation type, it is not permissible for any of the required reference parameters to be equal to 0.0
Fault value (r0949, parameter):
Reference parameter whose value is 0.0.
See also: p0595 (Technological unit selection)
Remedy: Set the value of the reference parameter to a number different than 0.0.
See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)

F01034 Units changeover: Calculation parameter values after reference value change unsuccessful

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The change of a reference parameter meant that for an involved parameter the selected value was not able to be re-calculated in the per unit representation. The change was rejected and the original parameter value restored.
Fault value (r0949, parameter):
Parameter whose value was not able to be re-calculated.
See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)
Remedy: - Select the value of the reference parameter such that the parameter involved can be calculated in the per unit representation.
- Technology unit selection (p0595) before changing the reference parameter p0596, set p0595 = 1.

A01035 (F) ACX: Parameter back-up file corrupted

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When the Control Unit is booted, no complete data set was found from the parameter back-up files. The last time that the parameterization was saved, it was not completely carried out.
It is possible that the backup was interrupted by switching off or withdrawing the memory card.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
aa = 01 hex:
Power up was realized without data backup. The drive is in the factory setting.
aa = 02 hex:
The last available backup data record was loaded. The parameterization must be checked. It is recommended that the parameterization is downloaded again.
dd, cc, bb:
Only for internal Siemens troubleshooting.
See also: p0971 (Save drive object parameters), p0977 (Save all parameters)
Remedy: - download the project again using the commissioning tool.
- save all parameters (p0977 = 1 or "copy RAM to ROM").
See also: p0977 (Save all parameters)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F01036 (A) ACX: Parameter back-up file missing

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When downloading the device parameterization, a parameter back-up file PSxxxyyy.ACX associated with a drive object cannot be found.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file
yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2, 3, 4:
Only for internal Siemens troubleshooting.
Remedy: If you have saved your project data using the commissioning tool, carry-out a new download for your project.
Save using the function "Copy RAM to ROM" or with p0977 = 1.
This means that the parameter files are again completely written into the non-volatile memory.
Note:
If the project data have not been backed up, then a new first commissioning is required.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01038 (A) ACX: Loading the parameter back-up file unsuccessful

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error has occurred when downloading PSxxxyyy.ACX or PTxxxyyy.ACX files from the non-volatile memory.
Fault value (r0949, interpret hexadecimal):
Byte 1: yyy in the file name PSxxxyyy.ACX
yyy = 000 --> consistency back-up file
yyy = 001 ... 062 --> drive object number
yyy = 099 --> PROFIBUS parameter back-up file
Byte 2:
255: Incorrect drive object type.
254: Topology comparison unsuccessful -> drive object type was not able to be identified.
Reasons could be:
- incorrect component type in the actual topology
- Component does not exist in the actual topology.
- Component not active.
Additional values:
Only for internal Siemens troubleshooting.
Byte 4, 3:
Only for internal Siemens troubleshooting.
Remedy: - if you have saved the project data using the commissioning tool, download the project again. Save using the function "Copy RAM to ROM" or with p0977 = 1. This means that the parameter files are again completely written to the non-volatile memory.
- replace the memory card or Control Unit.
For byte 2 = 255:
- correct the drive object type (see p0107).
Reaction upon A: NONE
Acknowl. upon A: NONE

F01039 (A) ACX: Writing to the parameter back-up file was unsuccessful

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: Writing to at least one parameter back-up file PSxxxyyy.*** in the non-volatile memory was unsuccessful.
- in the directory /USER/SINAMICS/DATA/ at least one parameter back-up file PSxxxyyy.*** has the "read only" file attribute and cannot be overwritten.
- there is not sufficient free memory space available.
- the non-volatile memory is defective and cannot be written to.

Fault value (r0949, interpret hexadecimal):
dcba hex
a = yyy in the file names PSxxxyyy.***
a = 000 --> consistency back-up file
a = 001 ... 062 --> drive object number
a = 070 --> FEPROM.BIN
a = 080 --> DEL4BOOT.TXT
a = 099 --> PROFIBUS parameter back-up file
b = xxx in the file names PSxxxyyy.***
b = 000 --> data save started with p0977 = 1 or p0971 = 1
b = 010 --> data save started with p0977 = 10
b = 011 --> data save started with p0977 = 11
b = 012 --> data save started with p0977 = 12
d, c:
Only for internal Siemens troubleshooting.

Remedy:
- check the file attribute of the files (PSxxxyyy.***, CAxxxyyy.***, CCxxxyyy.***) and, if required, change from "read only" to "writeable".
- check the free memory space in the non-volatile memory. Approx. 80 kbyte of free memory space is required for every drive object in the system.
- replace the memory card or Control Unit.

Reaction upon A: NONE
Acknowl. upon A: NONE

F01040 Save parameter settings and carry out a POWER ON

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: A parameter was changed in the drive system which means that it is necessary to save the parameters and re-boot.
Remedy:
- save parameters (p0971, p0977).
- carry out a POWER ON (switch-off/switch-on) for all components.

Then:
- upload the drive unit (commissioning tool).

F01041 Parameter save necessary

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: Defective or missing files were detected on the memory card when booting.
Fault value (r0949, interpret decimal):
1: Source file cannot be opened.
2: Source file cannot be read.
3: Target directory cannot be set up.
4. Target file cannot be set up/opened.
5. Target file cannot be written to.
Additional values:
Only for internal Siemens troubleshooting.

Remedy: - save the parameters.
- download the project again to the drive unit.
- update the firmware
- if required, replace the Control Unit and/or memory card card.

F01042 Parameter error during project download

Message value: Parameter: %1, Index: %2, fault cause: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: An error was detected when downloading a project using the commissioning software (e.g. incorrect parameter value). It is possible that the parameter limits are dependent on other parameters.
The detailed cause of the fault can be determined using the fault value.
Fault value (r0949, interpret hexadecimal):
ccbbaaaa hex
aaaa = Parameter
bb = Index
cc = fault cause
0: Parameter number illegal.
1: Parameter value cannot be changed.
2: Lower or upper value limit exceeded.
3: Sub-index incorrect.
4: No array, no sub-index.
5: Data type incorrect.
6: Setting not permitted (only resetting).
7: Descriptive element cannot be changed.
9: Descriptive data not available.
11: No master control.
15: No text array available.
17: Task cannot be executed due to operating state.
20: Illegal value.
21: Response too long.
22: Parameter address illegal.
23: Format illegal.
24: Number of values not consistent.
25: Drive object does not exist.
101: Presently deactivated.
104: Illegal value.
107: Write access not permitted when controller enabled.
108: Unit unknown.
109: Write access only in the commissioning state, encoder (p0010 = 4).
110: Write access only in the commissioning state, motor (p0010 = 3).
111: Write access only in the commissioning state, power unit (p0010 = 2).
112: Write access only in the quick commissioning mode (p0010 = 1).
113: Write access only in the ready mode (p0010 = 0).
114: Write access only in the commissioning state, parameter reset (p0010 = 30).
115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
116: Write access only in the commissioning state, technological application/units (p0010 = 5).
117: Write access only in the commissioning state (p0010 not equal to 0).
118: Write access only in the commissioning state, download (p0010 = 29).
119: Parameter may not be written in download.
120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3).
121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4).
123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
124: Write access only in the commissioning state, device download (device: p0009 = 29).
125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
126: Write access only in the commissioning state, device ready (device: p0009 = 0).
127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
129: Parameter may not be written in download.
130: Transfer of the master control is inhibited via binector input p0806.
131: Required BICO interconnection not possible because BICO output does not supply floating value
132: Free BICO interconnection inhibited via p0922.
133: Access method not defined.
200: Below the valid values.

201: Above the valid values.
202: Cannot be accessed from the Basic Operator Panel (BOP).
203: Cannot be read from the Basic Operator Panel (BOP).
204: Write access not permitted.

Remedy: - correct the parameterization in the commissioning tool and download the project again.
- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

F01043 Fatal error at project download

Message value: Fault cause: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A fatal error was detected when downloading a project using the commissioning tool.
Fault value (r0949, interpret decimal):
1: Device status cannot be changed to Device Download (drive object ON?).
2: Incorrect drive object number.
3: A drive object that has already been deleted is deleted again.
4: Deleting of a drive object that has already been registered for generation.
5: Deleting a drive object that does not exist.
6: Generating an undeleted drive object that already existed.
7: Regenerating a drive object already registered for generation.
8: Maximum number of drive objects that can be generated exceeded.
9: Error while generating a device drive object.
10: Error while generating target topology parameters (p9902 and p9903).
11: Error while generating a drive object (global component).
12: Error while generating a drive object (drive component).
13: Unknown drive object type.
14: Drive status cannot be changed to "ready for operation" (r0947 and r0949).
15: Drive status cannot be changed to drive download.
16: Device status cannot be changed to "ready for operation".
17: It is not possible to download the topology. The component wiring should be checked, taking into account the various messages/signals.
18: A new download is only possible if the factory settings are restored for the drive unit.
19: The slot for the option module has been configured several times (e.g. CAN and COMM BOARD)
20: The configuration is inconsistent (e.g. CAN for Control Unit, however no CAN configured for drive objects A_INF, SERVO or VECTOR).
21: Error when accepting the download parameters.
22: Software-internal download error.
23: download not possible when know-how protection is activated.
24: download not possible during a partial power up after inserting a component.
25: The configuration is inconsistent. Know-how protection is either not activated or only partially.
Additional values:
Only for internal Siemens troubleshooting.

Remedy: - use the current version of the commissioning tool.
- modify the offline project and carry out a new download (e.g. compare the number of drive objects, motor, encoder, power unit in the offline project and at the drive).
- change the drive state (is a drive rotating or is there a message/signal?).
- carefully note any other active messages/signals and remove their cause (e.g. correct any incorrectly set parameters).
- automatically calculate the control parameters (p0340). Then set p0010 = 0.
- boot from previously saved files (switch-off/switch-on or p0976).
- before a new download, restore the factory setting if the know-how protection was not activated on all drive objects.

F01044 CU: Descriptive data error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: An error was detected when loading the descriptive data saved in the non-volatile memory.
Remedy: Replace the memory card or Control Unit.

A01045 CU: Configuring data invalid

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected when evaluating the parameter files PSxxxyyy.ACX, PTxxxyyy.ACX, CAxxxyyy.ACX, or CCxxxyyy.ACX saved in the non-volatile memory. Because of this, under certain circumstances, several of the saved parameter values were not able to be accepted. Also see r9406 up to r9408.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - check the parameters displayed in r9406 up to r9408, and correct these if required.
- Restore the factory setting using (p0976 = 1) and re-load the project into the drive unit.
Then save the parameterization in STARTER using the function "Copy RAM to ROM" or with p0977 = 1. This overwrites the incorrect parameter files in the non-volatile memory – and the alarm is withdrawn.
See also: r9406 (PS file parameter number parameter not transferred), r9407 (PS file parameter index parameter not transferred), r9408 (PS file fault code parameter not transferred)

A01049 CU: It is not possible to write to file

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to write into a write-protected file (PSxxxxxx.acx). The write request was interrupted.
Alarm value (r2124, interpret decimal):
Drive object number.
Remedy: Check whether the "write protected" attribute has been set for the files in the non-volatile memory under .../USER/SINAMICS/DATA/...
When required, remove write protection and save again (e.g. set p0977 to 1).

F01050 Memory card and device incompatible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The memory card and the device type do not match (e.g. a memory card for SINAMICS S is inserted in SINAMICS G).
Remedy: - insert the matching memory card.
- use the matching Control Unit or power unit.

F01054 CU: System limit exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one system overload has been identified.
Fault value (r0949, interpret decimal):
1: Computing time load too high (r9976[1]).
5: Peak load too high (r9976[5]).
Note:
As long as this fault is present, it is not possible to save the parameters (p0971, p0977).
See also: r9976 (System utilization)
Remedy: For fault value = 1, 5:
- reduce the computing time load of the drive unit (r9976[1] and r9976[5]) to under 100 %.
- check the sampling times and adjust if necessary (p0115, p0799, p4099).
- deactivate function modules.
- deactivate drive objects.
- remove drive objects from the target topology.
- note the DRIVE-CLiQ topology rules and if required, change the DRIVE-CLiQ topology.
When using the Drive Control Chart (DCC) or free function blocks (FBLOCKS), the following applies:
- the computing time load of the individual run-time groups on a drive object can be read out in r21005 (DCC) or r20005 (FBLOCKS).
- if necessary, the assignment of the run-time group (p21000, p20000) can be changed in order to increase the sampling time (r21001, r20001).
- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

F01055 CU: Internal error (SYNO of port and application not identical)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: All applications that operate with slaves at one port must be derived from the same SYNO clock cycle.
The first application whose registration (log-on) connects a slave to a port defines the SYNO clock cycle that will be used as basis for the port.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01056 CU: Internal error (clock cycle of parameter group already assigned differently)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The requested parameter group (IREG, NREG, ...) is already being used in a different clock cycle.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01057 CU: Internal error (different DRIVE-CLiQ type for the slave)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested DRIVE-CLiQ type (hps_ps, hps_enc, ...) has been specified differently for the same slave component.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01058 CU: Internal error (slave missing in topology)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested slave component does not exist in the topology.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01059 CU: Internal error (port does not exist)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The port object assigned according to the topology of the requested slave component does not exist.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01060 CU: Internal error (parameter group not available)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The requested parameter group (IREG, NREG, ...) is not offered by this slave type.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01061 CU: Internal error (application not known)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** DRIVE
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An application that is not registered with TSM has attempted to register with registerSlaves().
The cause can be an unsuccessful TSM registration or an incorrect registration sequence. It is always necessary to log in to the TSM before registerSlaves() can be used.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01063 CU: Internal error (PDM)

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An internal software error has occurred.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

F01068 CU: Data memory memory overflow

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The utilization for a data memory area is too large.
Fault value (r0949, interpret binary):
Bit 0 = 1: High-speed data memory 1 overloaded
Bit 1 = 1: High-speed data memory 2 overloaded
Bit 2 = 1: High-speed data memory 3 overloaded
Bit 3 = 1: High-speed data memory 4 overloaded
Remedy: - deactivate the function module.
- deactivate drive object.
- remove the drive object from the target topology.

A01069 Parameter backup and device incompatible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The parameter backup on the memory card and the drive unit do not match.
The module boots with the factory settings.
Example:
Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.
Remedy: - insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- if required, withdraw the memory card and carry out POWER ON.
- save the parameters (p0971 = 1).

A01069 Parameter backup and device incompatible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The parameter backup on the memory card and the drive unit do not match.
The module boots with the factory settings.
Example:
Devices A and B. are not compatible and a memory card with the parameter backup for device A is inserted in device B.
Remedy: - insert a memory card with compatible parameter backup and carry out a POWER ON.
- insert a memory card without parameter backup and carry out a POWER ON.
- save the parameters (p0977 = 1).

F01072 Memory card restored from the backup copy

Message value: -
Message class: General drive fault (19)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The Control Unit was switched-off while writing to the memory card. This is why the visible partition became defective.
After switching on, the data from the non-visible partition (backup copy) were written to the visible partition.
Remedy: Check that the firmware and parameterization is up-to-date.

A01073 (N) POWER ON required for backup copy on memory card

Message value: -
Message class: General drive fault (19)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The parameter assignment on the visible partition of the memory card has changed.
In order that the backup copy on the memory card is updated on the non-visible partition, it is necessary to carry out a POWER ON or hardware reset (p0972) of the Control Unit.
Note:
It is possible that a new POWER ON is requested via this alarm (e.g. after saving with p0971 = 1).

Remedy: - carry out a POWER ON (switch-off/switch-on) for the Control Unit.
- carry out a hardware reset (RESET button, p0972).

Reaction upon N: NONE

Acknowl. upon N: NONE

F01082 Parameter error when powering up from data backup

Message value: Parameter: %1, Index: %2, fault cause: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: Parameterizing errors have been detected (e.g. incorrect parameter value). It is possible that the parameter limits are dependent on other parameters.
The detailed cause of the fault can be determined using the fault value.
Fault value (r0949, interpret hexadecimal):
ccbbaaaa hex
aaaa = Parameter
bb = Index
cc = fault cause
0: Parameter number illegal.
1: Parameter value cannot be changed.
2: Lower or upper value limit exceeded.
3: Sub-index incorrect.
4: No array, no sub-index.
5: Data type incorrect.
6: Setting not permitted (only resetting).
7: Descriptive element cannot be changed.
9: Descriptive data not available.
11: No master control.
15: No text array available.
17: Task cannot be executed due to operating state.
20: Illegal value.
21: Response too long.
22: Parameter address illegal.
23: Format illegal.
24: Number of values not consistent.
25: Drive object does not exist.
101: Presently deactivated.
104: Illegal value.
107: Write access not permitted when controller enabled.
108: Unit unknown.
109: Write access only in the commissioning state, encoder (p0010 = 4).
110: Write access only in the commissioning state, motor (p0010 = 3).
111: Write access only in the commissioning state, power unit (p0010 = 2).
112: Write access only in the quick commissioning mode (p0010 = 1).
113: Write access only in the ready mode (p0010 = 0).
114: Write access only in the commissioning state, parameter reset (p0010 = 30).
115: Write access only in the Safety Integrated commissioning state (p0010 = 95).
116: Write access only in the commissioning state, technological application/units (p0010 = 5).
117: Write access only in the commissioning state (p0010 not equal to 0).
118: Write access only in the commissioning state, download (p0010 = 29).
119: Parameter may not be written in download.
120: Write access only in the commissioning state, drive basic configuration (device: p0009 = 3).
121: Write access only in the commissioning state, define drive type (device: p0009 = 2).
122: Write access only in the commissioning state, data set basic configuration (device: p0009 = 4).
123: Write access only in the commissioning state, device configuration (device: p0009 = 1).
124: Write access only in the commissioning state, device download (device: p0009 = 29).
125: Write access only in the commissioning state, device parameter reset (device: p0009 = 30).
126: Write access only in the commissioning state, device ready (device: p0009 = 0).
127: Write access only in the commissioning state, device (device: p0009 not equal to 0).
129: Parameter may not be written in download.
130: Transfer of the master control is inhibited via binector input p0806.
131: Required BICO interconnection not possible because BICO output does not supply floating value
132: Free BICO interconnection inhibited via p0922.
133: Access method not defined.
200: Below the valid values.

201: Above the valid values.
202: Cannot be accessed from the Basic Operator Panel (BOP).
203: Cannot be read from the Basic Operator Panel (BOP).
204: Write access not permitted.

Remedy: - correct the parameterization in the commissioning tool and download the project again.
- enter the correct value in the specified parameter.
- identify the parameter that restricts the limits of the specified parameter.

A01099 (N) UTC synchronization tolerance violated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The tolerance (p3109) set for UTC synchronization was violated.
Note:
UTC: Universal Time Coordinates
See also: p3109 (UTC synchronization tolerance)
Remedy: Select the synchronization intervals shorter so that the deviation between the time of day master and drive system lies within the tolerance.
Note:
The deviation when synchronizing is shown in r3107.
See also: r3107 (UTC synchronization time out of tolerance)
Reaction upon N: NONE
Acknowl. upon N: NONE

A01100 CU: Memory card withdrawn

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The memory card (non-volatile memory) was withdrawn during operation.
Notice:
It is not permissible for the memory card to be withdrawn or inserted under voltage.
Remedy: - switch off the drive system.
- re-insert the memory card that was withdrawn - this card must match the drive system.
- switch on the drive system again.

A01104 CU: Do not switch off. File system being optimized.

Message value: -
Message class: General drive fault (19)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The file system is currently being optimized in the non-volatile device memory of the Control Unit. This process may take several minutes.
Notice:
The Control Unit must not be switched off during optimization, as this can lead to user data being lost.
Remedy: Leave the Control Unit switched on during optimization.
Note:
The alarm is automatically withdrawn once the file system has been optimized.

F01105 (A) CU: Insufficient memory

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF1
Acknowledge: POWER ON
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, Technology Extensions, blocks, etc).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, Technology Extensions, blocks, etc).
- use an additional Control Unit.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01106 CU: Insufficient memory

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: There is not sufficient free memory space available.
Remedy: Not necessary.

F01107 CU: Save to memory card unsuccessful

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A data save in the non-volatile memory was not able to be successfully carried out.
- non-volatile memory is defective.
- insufficient space in the non-volatile memory.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - try to save again.
- replace the memory card or Control Unit.

F01110 CU: More than one SINAMICS G on one Control Unit

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: More than one SINAMICS G type power unit is being operated from the Control Unit.
Fault value (r0949, interpret decimal):
Number of the second drive with a SINAMICS G type power unit.
Remedy: Only one SINAMICS G drive type is permitted.

F01111 CU: Mixed operation of drive units illegal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Illegal operation of various drive units on one Control Unit:
- SINAMICS S together with SINAMICS G
- SINAMICS S together with SINAMICS S Value or Combi

Fault value (r0949, interpret decimal):
Number of the first drive object with a different power unit type.
Remedy: Only power units of one particular drive type may be operated with one Control Unit.

F01112 CU: Power unit not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The connected power unit cannot be used together with this Control Unit.
Fault value (r0949, interpret decimal):
1: Power unit is not supported (e.g. PM240).
2: DC/AC power unit connected to CU310 not permissible.
3: Power unit (S120M) not permitted for vector control.
Remedy: Replace the power unit that is not permissible by a component that is permissible.

F01120 (A) Terminal initialization has failed

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error occurred while the terminal functions were being initialized.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.
- replace the Control Unit.

Reaction upon A: NONE
Acknowl. upon A: NONE

F01122 (A) Frequency at the measuring probe input too high

Message value: %1
Message class: Application/technological function faulted (17)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: The frequency of the pulses at the measuring probe input is too high.
Fault value (r0949, interpret decimal):
1: DI/DO 9 (X122.8)
2: DI/DO 10 (X122.10)
4: DI/DO 11 (X122.11)
8: DI/DO 13 (X132.8)
16: DI/DO 14 (X132.10)
32: DI/DO 15 (X132.11)
64: DI/DO 8 (X122.7)
128: DI/DO 12 (X132.7)
Remedy: Reduce the frequency of the pulses at the measuring probe input.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01150 CU: Number of instances of a drive object type exceeded

Message value: Drive object type: %1, number permitted: %2, actual number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of instances of a drive object type was exceeded.
Drive object type:
Drive object type (p0107), for which the maximum permissible number of instances was exceeded.
Number permitted:
Max. permissible number of instances for this drive object type.
Actual number:
Current number of instances for this drive object type.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
ddccbbaa hex: aa = drive object type, bb = number limited, cc = actual number, dd = no significance
Remedy: - switch off the unit.
- suitably restrict the number of instances of a drive object type by reducing the number of inserted components.
- re-commission the unit.

F01151 CU: Number of drive objects of a category exceeded

Message value: Drive object category: %1, number permitted: %2, actual number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The maximum permissible number of drive objects of a category was exceeded.
Drive object category:
Drive object category, for which the maximum permissible number of drive objects was exceeded.
Number permitted:
Max. permissible number for this drive object category.
Actual number:
Actual number for this drive object category.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
ddccbbaa hex: aa = drive object category, bb = number limited, cc = actual number, dd = no significance

Remedy: - switch off the unit.
- suitably restrict the number of drive objects of the specified category by reducing the number of inserted components.
- re-commission the unit.

F01152 CU: Invalid constellation of drive object types

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: POWER ON
Cause: It is not possible to simultaneously operate drive object types SERVO, VECTOR and HLA.
A maximum of 2 of these drive object types can be operated on a Control Unit.
Remedy: - switch off the unit.
- restrict the use of drive object types SERVO, VECTOR, HLA to a maximum of 2.
- re-commission the unit.

F01200 CU: Time slice management internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A time slice management error has occurred.
It is possible that the sampling times have been inadmissibly set.
Fault value (r0949, interpret hexadecimal):
998:
Too many time slices occupied by technology functions (e.g. DCC).
999:
Too many time slices occupied by the basic system. Too many different sampling times may have been set.
Additional values:
Only for internal Siemens troubleshooting.
Remedy: - check the sampling time setting (p0112, p0115, p4099, p9500, p9511).
- contact Technical Support.

F01205 CU: Time slice overflow

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: Insufficient processing time is available for the existing topology.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - reduce the number of drives.
- increase the sampling times.

F01221 CU: Basic clock cycle too low

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The closed-loop control / monitoring cannot maintain the envisaged clock cycle.
The runtime of the closed-loop control/monitoring is too long for the particular clock cycle or the computing time remaining in the system is not sufficient for the closed-loop control/monitoring.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: Increase the basic clock cycle of DRIVE-CLiQ communication.
See also: p0112 (Sampling times pre-setting p0115)

F01222 CU: Basic clock cycle too low (computing time for communication not available)

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A time slice has not been defined that fulfills the requirements.
The port cannot be correctly operated as the alternating cyclic clock cycle cannot be maintained.
Fault value (r0949, interpret hexadecimal):
Method ID.
Note:
Only for internal Siemens troubleshooting.
Remedy: Contact Technical Support.

A01223 CU: Sampling time inconsistent

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: When changing a sampling time (p0115[0], p0799 or p4099), inconsistency between the clock cycles has been identified.

Alarm value (r2124, interpret decimal):

1: Value lower than minimum value.

2: Value higher than maximum value.

3: Value not a multiple of 1.25 µs.

4: Value does not match isochronous PROFIBUS operation.

5: Value not a multiple of 125 µs.

6: Value not a multiple of 250 µs.

7: Value not a multiple of 375 µs.

8: Value not a multiple of 400 µs.

10: Special restriction of the drive object violated.

20: On a SERVO with a sampling time of 62.5 µs, more than two drive objects or one drive object of a type other than SERVO have been detected on the same DRIVE-CLiQ line (a maximum of two SERVO type drive objects are permitted).

21: Value can be a multiple of the current controller sampling time of a servo or vector drive in the system (e.g. for TB30, the values of all of the indices should be taken into account).

30: Value less than 31.25 µs.

31: Value less than 62.5 µs (31.25 µs is not supported for SMC10, SMC30, SMI10 and Double Motor Modules).

32: Value less than 125 µs.

33: Value less than 250 µs.

40: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 µs. Further, none of the nodes has a sampling time of less than 125 µs.

41: A chassis unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 250 µs.

42: An Active Line Module was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 125 µs.

43: A Voltage Sensing Module (VSM) was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is not equal to the current controller sampling time of the drive object of the VSM.

44: The highest common denominator of the sampling times of all of the components connected to the DRIVE-CLiQ line is not the same for all components of this drive object (e.g. there are components on different DRIVE-CLiQ lines on which different highest common denominators are generated).

45: A chassis parallel unit was identified on the DRIVE-CLiQ line as a node. Further, the highest common denominator of the sampling times of all of the nodes connected to the line is less than 162.5 µs or 187.5 µs (for a 2x or 3x parallel connection).

46: A node has been identified on the DRIVE-CLiQ line whose sampling time is not a multiple of the lowest sampling time on this line.

52: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 31.25 µs.

54: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 62.5 µs.

56: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 125 µs.

58: Nodes have been identified on the DRIVE-CLiQ line whose highest common denominator of the sampling times is less than 250 µs.

99: Inconsistency of cross drive objects detected.

116: Recommended clock cycle in r0116[0...1].

General note:

The topology rules should be noted when connecting up DRIVE-CLiQ (refer to the appropriate product documentation).

The parameters of the sampling times can also be changed with automatic calculations.

Example for highest common denominator: 125 s, 125 µs, 62.5 µs --> 62.5 µs

Remedy: - check the DRIVE-CLiQ cables.

- set a valid sampling time.

See also: p0115, p4099

A01224 CU: Pulse frequency inconsistent

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When changing the minimum pulse frequency (p0113) inconsistency between the pulse frequencies was identified.
Alarm value (r2124, interpret decimal):
1: Value lower than minimum value.
2: Value higher than maximum value.
3: Resulting sampling time is not a multiple of 1.25 µs.
4: Value does not match isochronous PROFIBUS operation.
10: Special restriction of the drive object violated.
99: Inconsistency of cross drive objects detected.
116: Recommended clock cycle in r0116[0...1].
Remedy: Set a valid pulse frequency.

F01250 CU: CU-EEPROM incorrect read-only data

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE (OFF2)
Acknowledge: POWER ON
Cause: Error when reading the read-only data of the EEPROM in the Control Unit.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on).
- replace the Control Unit.

A01251 CU: CU-EEPROM incorrect read-write data

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when reading the read-write data of the EEPROM in the Control Unit.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: For alarm value r2124 < 256, the following applies:
- carry out a POWER ON (switch-off/switch-on).
- replace the Control Unit.
For alarm value r2124 >= 256, the following applies:
- for the drive object with this alarm, clear the fault memory (p0952 = 0).
- as an alternative, clear the fault memory of all drive objects (p2147 = 1).
- replace the Control Unit.

F01255 CU: Option Board EEPROM read-only data error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE (OFF2)
Acknowledge: POWER ON
Cause: Error when reading the read-only data of the EEPROM in the Option Board.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on).
- replace the Control Unit.

A01256 CU: Option Board EEPROM read-write data error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when reading the read-write data of the EEPROM in the Option Board.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on).
- replace the Control Unit.

F01303 Component does not support the required function

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
Fault value (r0949, interpret decimal):
1: The component does not support the deactivation.
101: The Motor Module does not support an internal armature short-circuit.
102: The Motor Module does not support the deactivation.
201: The Sensor Module does not support actual value inversion (p0410.0 = 1) when using a Hall sensor (p0404.6 = 1) for the commutation.
202: The Sensor Module does not support parking/unparking.
203: The Sensor Module does not support the deactivation.
204: The firmware of this Terminal Module 15 (TM15) does not support the application TM15DI/DO.
205: The Sensor Module does not support the selected temperature evaluation (r0458, r0459).
206: The firmware of this Terminal Modules TM41/TM31/TM15 refers to an old firmware version. It is urgently necessary to upgrade the firmware to ensure disturbance-free operation.
207: The power unit with this hardware version does not support operation with device supply voltages of less than 380 V.
208: The Sensor Module does not support de-selection of commutation with zero mark (via p0430.23).
211: The Sensor Module does not support single-track encoders (r0459.10).
212: The Sensor Module does not support LVDT sensors (p4677.0).
213: The Sensor Module does not support the characteristic type (p4662).
214: The power unit does not support the temperature evaluation via PT1000 (r0193).
215: The Terminal Module does not support the temperature evaluation via PT1000
216: The Voltage Sensing Module (VSM) does not support operation with a PT1000 temperature sensor.

Remedy: Upgrade the firmware of the DRIVE-CLiQ component involved.
For fault value = 205, 214, 215:
- check parameter p0600 and p0601 and if required, adapt.
For fault value = 207:
- replace the power unit or if required set the device supply voltage higher (p0210).
For fault value = 208:
- check parameter p0430.23 and reset if necessary.
For fault value = 216:
- check the setting of the sensor type (p3665).
- use a Voltage Sensing module that supports operation with PT1000 (MLFB ...-xxx1).

A01304 (F) Firmware version of DRIVE-CLiQ component is not up-to-date

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The non-volatile memory has a more recent firmware version than the one in the connected DRIVE-CLiQ component.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component involved.
Remedy: Update the firmware (p7828, p7829 - or commissioning tool).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01305 Topology: Component number missing

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The component number from the topology was not parameterized (p0121 (for power unit, refer to p0107), p0131 (for servo/vector drives, refer to p0107), p0141, p0151, p0161).
Fault value (r0949, interpret decimal):
Data set number.
Note:
The fault also occurs if encoders have been configured (p0187 to p0189) but no component numbers exist for them.
In this case, the fault value includes the drive data set number plus 100 * encoder number (e.g. 3xx, if a component number was not entered in p0141 for encoder 3 (p0189)).
See also: p0121 (Power unit component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Terminal Module component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)
Remedy: - enter missing component number.
- if required, remove the component and restart commissioning.
See also: p0121 (Power unit component number), p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0151 (Terminal Module component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

A01306 Firmware of the DRIVE-CLiQ component being updated

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: Firmware update is active for at least one DRIVE-CLiQ component.
Alarm value (r2124, interpret decimal):
Component number of the DRIVE-CLiQ component.
Remedy: Not necessary.
This alarm is automatically withdrawn after the firmware update has been completed.

A01314 Topology: Component must not be present

Message value: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For a component, "deactivate and not present" is set but this component is still in the topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
aa = component number
bb = component class of the component
cc = connection number
Note:
Component class and connection number are described in F01375.
Remedy: - remove the corresponding component.
- change the setting "deactivate and not present".
Note:
Under "Topology --> Topology view", the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p0105 (Activate/deactivate drive object), p0125 (Activate/deactivate power unit components), p0145 (Activate/deactivate encoder interface)

A01317 (N) Deactivated component again present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: If a component of the target topology for an active drive object is inserted and the associated parameter of the component is set to "deactivate" (p0125, p0145, p0155, p0165).
Note:
This is the only message that is displayed for a deactivated component.
Remedy: The alarm is automatically withdrawn for the following actions:
- activate the components involved (p0125 = 1, p0145 = 1, p0155 = 1, p0165 = 1).
- again withdraw the component involved.
See also: p0125 (Activate/deactivate power unit components), p0145 (Activate/deactivate encoder interface)
Reaction upon N: NONE
Acknowl. upon N: NONE

A01318 BICO: Deactivated interconnections present

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: This alarm is used in the following cases:
- if an inactive/non-operational drive object is active again/ready for operation
- if there are items in the list of BI/CI parameters (r9498[0...29], r9499[0...29])
- if the BICO interconnections saved in the list of BI/CI parameters (r9498[0...29], r9499[0...29]) have actually been changed

Remedy: Reset alarm:
- set p9496 to 1 or 2

or
- deactivate the drive object again.

A01319 Inserted component not initialized

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Initialization is required for at least one inserted component.
This is only possible if the pulses are inhibited for all the drive objects.
Remedy: Activate pulse inhibit for all drive objects.

A01320 Topology: Drive object number does not exist in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is missing in p0978
Alarm value (r2124, interpret decimal):
Index of p0101 under which the missing drive object number can be determined.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01321 Topology: Drive object number does not exist in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: p0978 contains a drive object number that does not exist.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the drive object number can be determined.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01322 Topology: Drive object number present twice in configuration

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A drive object number is present more than once in p0978.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the involved drive object number is located.
Remedy: Set parameter p0009 = 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01323 Topology: More than two partial lists created

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Partial lists are available more than twice in p0978. After the second 0, all must be 0.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

A01324 Topology: Dummy drive object number incorrectly created

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: In p0978, dummy drive object numbers (255) are only permitted in the first partial list.
Alarm value (r2124, interpret decimal):
Index of p0978 under which the illegal value is located.
Remedy: Set p0009 to 1 and change p0978:
Rules:
- p0978 must include all of the drive object numbers (p0101).
- it is not permissible for a drive object number to be repeated.
- by entering a 0, the drive objects with PZD are separated from those without PZD.
- only 2 partial lists are permitted. After the second 0, all values must be 0.
- dummy drive object numbers (255) are only permitted in the first partial list.

F01325 Topology: Component number not present in target topology

Message value: Component number: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The component configured in a parameter (e.g. p0121, p0131, etc.) is not present in the target topology.
Fault value (r0949, interpret decimal):
Configured component number that is not present in target topology.
Remedy: Establish topology and DO configuration consistency.

A01330 Topology: Quick commissioning not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary component number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: Unable to carry out a quick commissioning. The existing actual topology does not fulfill the requirements.
Alarm value (r2124, interpret hexadecimal):
ccccbbaa hex: cccc = preliminary component number, bb = supplementary information, aa = fault cause
aa = 01 hex = 1 dec:
On one component illegal connections were detected.
- bb = 01 hex = 1 dec: For a Motor Module, more than one motor with DRIVE-CLiQ was detected.
- bb = 02 hex = 2 dec: For a motor with DRIVE-CLiQ, the DRIVE-CLiQ cable is not connected to a Motor Module.
aa = 02 hex = 2 dec:
The topology contains too many components of a particular type.
- bb = 01 hex = 1 dec: There is more than one master Control Unit.
- bb = 02 hex = 2 dec: There is more than 1 infeed (8 for a parallel circuit configuration).
- bb = 03 hex = 3 dec: There are more than 10 Motor Modules (8 for a parallel circuit configuration).
- bb = 04 hex = 4 dec: There are more than 9 encoders.
- bb = 05 hex = 5 dec: There are more than 8 Terminal Modules.
- bb = 07 hex = 7 dec: Unknown component type
- bb = 08 hex = 8 dec: There are more than 6 drive slaves.
- bb = 09 hex = 9 dec: Connection of a drive slave not permitted.
- bb = 0a hex = 10 dec: There is no drive master.
- bb = 0b hex = 11 dec: There is more than one motor with DRIVE-CLiQ for a parallel circuit.
- bb = 0c hex = 12 dec: Different power units are being used in a parallel connection.
- cccc: Not used.
aa = 03 hex = 3 dec:
More than 16 components are connected at a DRIVE-CLiQ socket of the Control Unit.
- bb = 0, 1, 2, 3 means e.g. detected at the DRIVE-CLiQ socket X100, X101, X102, X103.
- cccc: Not used.
aa = 04 hex = 4 dec:
The number of components connected one after the other is greater than 125.
- bb: Not used.
- cccc = preliminary component number of the first component and component that resulted in the fault.
aa = 05 hex = 5 dec:
The component is not permissible for SERVO.
- bb = 01 hex = 1 dec: SINAMICS G available.
- bb = 02 hex = 2 dec: Chassis available.
- cccc = preliminary component number of the first component and component that resulted in the fault.
aa = 06 hex = 6 dec:
On one component illegal EEPROM data was detected. These must be corrected before the system continues to boot.
- bb = 01 hex = 1 dec: The Article No. [MLFB] of the power unit that was replaced includes a space retainer. The space retainer (*) must be replaced by a correct character.
- cccc = preliminary component number of the component with illegal EEPROM data.
aa = 07 hex = 7 dec:
The actual topology contains an illegal combination of components.
- bb = 01 hex = 1 dec: Active Line Module (ALM) and Basic Line Module (BLM).
- bb = 02 hex = 2 dec: Active Line Module (ALM) and Smart Line Module (SLM).
- bb = 03 hex = 3 dec: SIMOTION control (e.g. SIMOTION D445) and SINUMERIK component (e.g. NX15).
- bb = 04 hex = 4 dec: SINUMERIK control (e.g. SINUMERIK 730.net) and SIMOTION component (e.g. CX32).
- cccc: Not used.
aa = 08 hex = 8 dec:
The motor is not completely connected.
- bb: Not used.
- cccc: Not used.
Note:
Connection type and connection number are described in F01375.
See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

Remedy: - adapt the output topology to the permissible requirements.
- commission the device using the commissioning tool.
- for motors with DRIVE-CLiQ, connect the power and DRIVE-CLiQ cable to the same Motor Module (Single Motor Module: DRIVE-CLiQ at X202, Double Motor Module: DRIVE-CLiQ from motor 1 (X1) to X202, from motor 2 (X2) to X203).
For aa = 06 hex = 6 dec and bb = 01 hex = 1 dec:
Correct the Article No. when commissioning using the commissioning tool.
See also: p0097 (Select drive object type), r0098 (Actual device topology), p0099 (Device target topology)

A01331 Topology: At least one component not assigned to a drive object

Message value: Component number: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one component is not assigned to a drive object.
- when commissioning, a component was not able to be automatically assigned to a drive object.
- the parameters for the data sets are not correctly set.
Alarm value (r2124, interpret decimal):
Component number of the unassigned component.

Remedy: This component is assigned to a drive object.
Check the parameters for the data sets.
Examples:
- power unit (p0121).
- motor (p0131, p0186).
- encoder interface (p0140, p0141, p0187 ... p0189).
- encoder (p0140, p0142, p0187 ... p0189).
- Terminal Module (p0151).
- option board (p0161).

F01340 Topology: Too many components on one line

Message value: Component number or connection number: %1, fault cause: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: For the selected communications clock cycle, too many DRIVE-CLiQ components are connected to one line of the Control Unit.

Fault value (r0949, interpret hexadecimal):

xyy hex: x = fault cause, yy = component number or connection number.

1yy:

The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all read transfers.

2yy:

The communications clock cycle of the DRIVE-CLiQ connection on the Control Unit is not sufficient for all write transfers.

3yy:

Cyclic communication is fully utilized.

4yy:

The DRIVE-CLiQ cycle starts before the earliest end of the application. An additional dead time must be added to the control. Sign-of-life errors can be expected.

The conditions of operation with a current controller sampling time of 31.25 µs have not been maintained.

5yy:

Internal buffer overflow for net data of a DRIVE-CLiQ connection.

6yy:

Internal buffer overflow for receive data of a DRIVE-CLiQ connection.

7yy:

Internal buffer overflow for send data of a DRIVE-CLiQ connection.

8yy:

The component clock cycles cannot be combined with one another

900:

The lowest common multiple of the clock cycles in the system is too high to be determined.

901:

The lowest common multiple of the clock cycles in the system cannot be generated with the hardware.

Remedy: - check the DRIVE-CLiQ wiring.

- reduce the number of components on the DRIVE-CLiQ line involved and distribute these to other DRIVE-CLiQ sockets of the Control Unit. This means that communication is uniformly distributed over several lines.

For fault value = 1yy - 4yy in addition:

- increase the sampling times (p0112, p0115, p4099). If necessary, for DCC or FBLOCKS, change the assignment of the run-time group (p21000, p20000) so that the sampling time (r21001, r20001) is increased.

- if necessary, reduce the number of cyclically calculated blocks (DCC) and/or function blocks (FBLOCKS).

- reduce the function modules (r0108).

- establish the conditions for operation with a current controller sampling time of 31.25 µs (at the DRIVE-CLiQ line, only operate Motor Modules and Sensor Modules with this sampling time and only use a permitted Sensor Module (e.g. SMC20, this means a 3 at the last position of the Article No.)).

- For an NX, the corresponding Sensor Module for a possibly existing second measuring system should be connected to a free DRIVE-CLiQ socket of the NX.

For fault value = 8yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). Clock cycles on a DRIVE-CLiQ line must be perfect integer multiples of one another. As clock cycle on a line, all clock cycles of all drive objects in the previously mentioned parameters apply, which have components on the line involved.

For fault value = 9yy in addition:

- check the clock cycles settings (p0112, p0115, p4099). The lower the numerical value difference between two clock cycles, the higher the lowest common multiple. This behavior has a significantly stronger influence, the higher the numerical values of the clock cycles.

F01341 Topology: Maximum number of DRIVE-CLiQ components exceeded

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: Too many DRIVE-CLiQ components were defined in the actual topology.
Note:
Pulse enable is withdrawn and prevented.
Remedy: - check the DRIVE-CLiQ wiring.
- reduce the number components on the DRIVE-CLiQ line involved in order to maintain the maximum quantity structure.

F01354 Topology: Actual topology indicates an illegal component

Message value: Fault cause: %1, component number: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The actual topology indicates at least one illegal component.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = component number, xx = cause.
xx = 1: Component at this Control Unit not permissible.
xx = 2: Component in combination with another component not permissible.
Note:
Pulse enable is prevented.
Remedy: Remove the illegal components and restart the system.

F01355 Topology: Actual topology changed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The device target topology (p0099) does not correspond to the device actual topology (r0098).
The fault only occurs if the topology was commissioned using the automatic internal device mechanism and not using the commissioning tool.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: r0098 (Actual device topology), p0099 (Device target topology)

Remedy: One of the following counter-measures can be selected if no faults have occurred in the topology detection itself:
If commissioning is still not completed:
- carry out a self-commissioning routine (starting from p0009 = 1).
In general:
Set p0099 = r0098, set p0009 = 0; for existing Motor Modules, this results in servo drives being automatically generated (p0107).
Generating servo drives: Set p0097 to 1, set p0009 to 0.
Generating vector drives: Set p0097 to 2, set p0009 to 0.
Generating vector drives with parallel circuit: Set p0097 to 12, set p0009 to 0.
In order to set configurations in p0108, before setting p0009 to 0, it is possible to first set p0009 to 2 and modify p0108. The index corresponds to the drive object (p0107).
If commissioning has already been completed:
- re-establish the original connections and re-connect power to the Control Unit.
- restore the factory setting for the complete equipment (all of the drives) and allow automatic self-commissioning again.
- change the device parameterization to match the connections (this is only possible using the commissioning tool).
Notice:
Topology changes that result in this fault being generated cannot be accepted by the automatic function in the device, but must be transferred using the commissioning tool and parameter download. The automatic function in the device only allows constant topology to be used. Otherwise, when the topology is changed, all of the previous parameter settings are lost and replaced by the factory setting.
See also: r0098 (Actual device topology)

F01356 Topology: There is a defective DRIVE-CLiQ component

Message value: Fault cause: %1, Component number: %2, Connection number: %3
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE (OFF2)
Acknowledge: IMMEDIATELY
Cause: The actual topology indicates at least one defective DRIVE-CLiQ component.
Fault value (r0949, interpret hexadecimal):
zzyyxx hex:
zz = connection number of the component at which the defective component is connected
yy = component number of the component at which the defective component is connected
xx = fault cause
xx = 1: Component at this Control Unit not permissible.
xx = 2: component with communication defect.
Note:
Pulse enable is withdrawn and prevented.
Remedy: Replace the defective component and restart the system.

F01357 Topology: Two Control Units identified on the DRIVE-CLiQ line

Message value: component number: %1, connection number: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE (OFF2)
Acknowledge: IMMEDIATELY

Cause: In the actual topology, 2 Control Units are connected with one another through DRIVE-CLiQ.
As standard, this is not permitted.
This is only permitted if the Technology Extension OALINK has already been installed on the two Control Units and has been commissioned online.
Fault value (r0949, interpret hexadecimal):
yyxx hex:
yy = connection number of the Control Unit at which the second Control Unit is connected
xx = component number of the Control Unit at which the second Control Unit is connected
Note:
Pulse enable is withdrawn and prevented.

Remedy: In general:
- remove the connection to the second Control Unit and restart.
- for the S120M component DRIVE-CLiQ extension, interchange the hybrid cable (IN/OUT).
When using OALINK:
- remove the DRIVE-CLiQ connection and restart the systems.
- install OALINK on both Control Units and activate.
- Check the configuration of the DRIVE-CLiQ sockets in OALINK.

A01358 Topology: Line termination not available

Message value: CU connection number: %1, component number: %2, connection number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one line with distributed drives is not terminated. The last participant on the line must be terminated with a line termination connector.
This therefore ensures the degree of protection of the distributed drives.
Alarm value (r2124, interpret hexadecimal):
zzyyxx hex:
zz = connection number of the distributed drive with missing termination connector
yy = component number
xx = CU connection number
Remedy: Install the line terminating connector for the last distributed drive.

F01359 Topology: DRIVE-CLiQ performance not sufficient

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ performance is not sufficient at one line in order to identify an inserted component.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on).
- Distribute components across several DRIVE-CLiQ lines.
Note:
For this topology, do not withdraw and insert components in operation.

F01360 Topology: Actual topology not permissible

Message value: Fault cause: %1, preliminary component number: %2

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: The detected actual topology is not permissible.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex:
cccc = preliminary component number, bb = no significance, aa = fault cause
aa = 01 hex = 1 dec:
Too many components were detected at the Control Unit. A maximum of 199 components is permissible.
aa = 02 hex = 2 dec:
The component type of a component is not known.
aa = 03 hex = 3 dec:
It is illegal to combine ALM and BLM.
aa = 04 hex = 4 dec:
It is illegal to combine ALM and SLM.
aa = 05 hex = 5 dec:
It is illegal to combine BLM and SLM.
aa = 06 hex = 6 dec:
A CX32 was not directly connected to a permitted Control Unit.
aa = 07 hex = 7 dec:
An NX10 or NX15 was not directly connected to a permitted Control Unit.
aa = 08 hex = 8 dec:
A component was connected to a Control Unit that is not permitted for this purpose.
aa = 09 hex = 9 dec:
A component was connected to a Control Unit with out-of-date firmware.
aa = 0A hex = 10 dec:
Too many components of a particular type detected.
aa = 0B hex = 11 dec:
Too many components of a particular type detected on a single line.
Note:
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: For fault cause = 1:
Change the configuration. Connect less than 199 components to the Control Unit.
For fault cause = 2:
Remove the component with unknown component type.
For fault cause = 3, 4, 5:
Establish a valid combination.
For fault cause = 6, 7:
Connect the expansion module directly to a permitted Control Unit.
For fault cause = 8:
Remove component or use a permissible component.
For fault cause = 9:
Upgrade the firmware of the Control Unit to a later version.
For fault cause = 10, 11:
Reduce the number of components.

A01361 Topology: Actual topology contains SINUMERIK and SIMOTION components

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The detected actual topology contains SINUMERIK and SIMOTION components.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: cc = fault cause, bb = component class of the actual topology, aa = component number of the component
cc = 01 hex = 1 dec:
An NX10 or NX15 was connected to a SIMOTION control.
cc = 02 hex = 2 dec:
A CX32 was connected to a SINUMERIK control.
Remedy: For alarm value = 1:
Replace all NX10 or NX15 by a CX32.
For alarm value = 2:
Replace all CX32 by an NX10 or NX15.

A01362 Topology: Topology rule(s) broken

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one topology rule for the SINAMICS S120 Combi has been broken.
In the event of a fault, the ramping up of the drive system is aborted and closed-loop drive control is not enabled.
Alarm value (r2124, interpret decimal):
The alarm value indicates which rule has been violated.
1: The S120 Combi may only be wired via DRIVE-CLiQ socket X200 to X100 on the NCU.
2: Only one Single Motor Module (SMM) or one Double Motor Module (DMM) may be connected via X200 to the DRIVE-CLiQ socket X101 on the NCU.
3: Only one Terminal Module 54F (TM54F) or one DRIVE-CLiQ Hub Module (Hub) may be connected via X500 to the DRIVE-CLiQ socket X102 on the NCU.
4: Only Sensor Modules may be connected to DRIVE-CLiQ sockets X201 up to X203 (3-axis) or X204 (4-axis) on the S120 Combi.
5: Only one Sensor Module, type SMC20 or SME20 may be connected to DRIVE-CLiQ socket X205 (X204 is not available for 3-axis).
6: If a Single Motor Module is being used as the first expansion axis, only one more Single Motor Module may be connected (via X200 to X201 on the first Single Motor Module).
7: Only Sensor Modules may be connected to the corresponding DRIVE-CLiQ socket X202 on any Single Motor Modules which may be present.
8: For a second Single Motor Module or for a Double Motor Module, it is not permissible to connect anything at X201.
9: If a Double Motor Module is used as an expansion axis, only Sensor Modules may be connected to X202 and X203.
10: If a Terminal Module 54F (TM54F) is configured, only one DRIVE-CLiQ Hub Module (DMC20, DME20) may be connected to X501 of the TM54F module via DRIVE-CLiQ socket X500.
11: On the DRIVE-CLiQ Hub Module, only Sensor Modules Cabinet (SMC) and Sensor Modules External (SME) may be connected to X501 through X505.
12: Only certain Motor Modules may be used for expansion axes.
13: For an S120 Combi with 3 axes, nothing must be connected at the DRIVE-CLiQ Hub Module at X503.
Remedy: Evaluate the alarm value and ensure compliance with the corresponding topology rule(s).

F01375 Topology: Connection duplicated between two components

Message value: Component: %1, %2, connection: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: When checking the actual topology, a ring-type connection was detected.
The fault value describes a component contained in the ring.
Fault value (r0949, interpret hexadecimal):
ccbbaaaa hex:
cc = connection number (%3)
bb = component class (% 2)
aaaa = preliminary component number (%1)
Component class:
0: Component unknown.
1: Control Unit
2: Motor Module
3: Line Module
4: Sensor Module
5: Voltage Sensing Module
6: Terminal Module
7: DRIVE-CLiQ Hub Module
8: Controller Extension
9: Filter Module
10: Hydraulic Module.
49: DRIVE-CLiQ component
50: Option slot
60: Encoder
70: DRIVE-CLiQ motor
71: Hydraulic cylinder
72: Hydraulic valve
80: Motor
Connection number:
0: Port 0, 1: Port 1, 2: Port 2, 3: Port 3, 4: Port 4, 5: Port 5
10: X100, 11: X101, 12: X102, 13: X103, 14: X104, 15: X105
20: X200, 21: X201, 22: X202, 23: X203
50: X500, 51: X501, 52: X502, 53: X503, 54: X504, 55: X505
Remedy: Output the fault value and remove the specified connection.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

F01380 Topology: Actual topology EEPROM defective

Message value: Preliminary component number: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: POWER ON
Cause: When detecting the actual topology, a component with a defective EEPROM was detected.
Fault value (r0949, interpret hexadecimal):
bbbbaaaa hex:
bbbb = reserved
aaaa = preliminary component number of the defective components

Remedy: Output the fault value and remove the defected component.

A01381 Topology: power unit incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a power unit in the actual topology that has been incorrectly inserted.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01381 Topology: Motor Module incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a Motor Module in the actual topology that has been incorrectly inserted with respect to the target technology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01382 Topology: Sensor Module incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Sensor Module in the actual topology that has been incorrectly inserted with respect to the target technology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01383 Topology: Terminal Module incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Terminal Module in the actual topology that has been incorrectly inserted with respect to the target technology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01384 Topology: DRIVE-CLiQ Hub Module incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ Hub Module in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01385 Topology: Controller Extension incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a controller extension 32 (CX32) in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01386 Topology: DRIVE-CLiQ component incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ component in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01389 Topology: Motor with DRIVE-CLiQ incorrectly inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a motor with DRIVE-CLiQ in the actual topology that has been incorrectly inserted with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the incorrectly inserted component (% 1)
Note:
The component is described in dd, cc and bb, where the component involved is incorrectly inserted.
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01416 Topology: Component additionally inserted

Message value: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has found a component in the actual topology which is not specified in the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = component class (% 2)
cc = connection number (%4)
bb = component class of the additional component (%1)
aa = component number (%3)
Note:
The component class of the additional component is contained in bb.
The component is described in dd, cc and aa, where the additional component is inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- remove the additional component (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01420 Topology: Component different

Message value: Component: %1, target: %2, actual: %3, difference: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected differences in the actual topology and target topologies in the electronic rating plate.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex: aa = component number (%1), bb = component class of the target topology (%2), cc = component class of the actual topology (%3), dd = difference (%4)
dd = 01 hex = 1 dec:
Different component type.
dd = 02 hex = 2 dec:
Different article number.
dd = 03 hex = 3 dec:
Different manufacturer.
dd = 04 hex = 4 dec:
For a multi-component slave, the incorrect subcomponent (index) is connected (e.g. Double Motor Module X201 instead of X200) - or only a part of a multi-component slave is set to "deactivate and not available".
dd = 05 hex = 5 dec:
NX10 or NX15 used instead of CX32.
dd = 06 hex = 6 dec:
NX10 or NX15 used instead of CX32.
dd = 07 hex = 7 dec:
Different number of connections.
Note:
The component class is described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- connect the expected component (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).

Topology comparison - if required, adapt the comparison level:
- parameterize the topology comparison of all components (p9906).
- parameterize the topology comparison of one components (p9907, p9908).

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01425 Topology: Serial number different

Message value: Component: %1, %2, differences: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. The serial number is different.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = reserved
cc = number of differences (%3)
bb = component class (% 2)
aa = component number (%1)
Note:
The component class is described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.
Remedy: Adapting topologies:
- change over the actual topology to match the target topology.
- load the target topology that matches the actual topology (commissioning tool).

For byte cc:
cc = 1 --> can be acknowledged using p9904 or p9905.
cc > 1 --> can be acknowledged using p9905 and can be deactivated using p9906 or p9907/p9908.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p9904 (Topology comparison acknowledge differences), p9905 (Device specialization), p9906 (Topology comparison all components comparison level), p9907 (Topology comparison component number), p9908 (Topology comparison of a component comparison level)

A01428 Topology: Incorrect connection used

Message value: Component: %1, %2, connection (actual): %3, connection (target): %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The topology comparison has detected differences in the actual and target topologies in relation to one component. For a component, another connection was used.
The different connections of a component are described in the alarm value.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number of the target topology (%4)
cc = connection number of the actual topology (%3)
bb = component class (% 2)
aa = component number (%1)
Note:
Component class and connection number are described in F01375.
The drive system is no longer booted. In this state, the drive control (closed-loop) cannot be enabled.

Remedy: Adapting topologies:
- reinsert the DRIVE-CLiQ cable to the component (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
- automatically remove the topology error (p9904).
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).
See also: p9904 (Topology comparison acknowledge differences)

F01451 Topology: Target topology is invalid

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: An error was detected in the target topology.
The target topology is invalid.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex: cccc = index error, bb = component number, aa = fault cause
aa = 1B hex = 27 dec: Error not specified.
aa = 1C hex = 28 dec: Value illegal.
aa = 1D hex = 29 dec: Incorrect ID.
aa = 1E hex = 30 dec: Incorrect ID length.
aa = 1F hex = 31 dec: Too few indices left.
aa = 20 hex = 32 dec: component not connected to Control Unit.

Remedy: Download the target topology again using the commissioning tool.

A01481 (N) Topology: power unit not connected

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The topology comparison has detected a power unit that is missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

Reaction upon N: NONE

Acknowl. upon N: NONE

A01481 (N) Topology: Motor Module not connected

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Motor Module that is missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

Reaction upon N: NONE

Acknowl. upon N: NONE

A01482 Topology: Sensor Module not connected

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Sensor Module that is missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01483 Topology: Terminal Module not connected

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a Terminal Module that is missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).

Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01484 Topology: DRIVE-CLiQ Hub Module not connected

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The topology comparison has detected a DRIVE-CLiQ Hub Module missing in the actual topology with respect to the target topology.

Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)

Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).

Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01485 Topology: Controller Extension not connected

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The topology comparison has detected a Control Extension (CX32) missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01486 Topology: DRIVE-CLiQ component not connected

Message value: Component: %1, to %2, %3, connection: %4
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The topology comparison has detected a DRIVE-CLiQ component missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01487 Topology: Option slot component not inserted

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected an option slot component missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).
Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.
Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01489 Topology: motor with DRIVE-CLiQ not connected

Message value: Component: %1, to %2, %3, connection: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** LOCAL

Reaction: NONE

Acknowledge: NONE

Cause: The topology comparison has detected a motor with DRIVE-CLiQ missing in the actual topology with respect to the target topology.
Alarm value (r2124, interpret hexadecimal):
ddccbbaa hex:
dd = connection number (%4)
cc = component number (%3)
bb = component class (% 2)
aa = component number of the component that has not been inserted (% 1)
Note:
The component is described in dd, cc and bb, where the component has not been inserted.
Component class and connection number are described in F01375.

Remedy: Adapting topologies:
- insert the components involved at the right connection (correct the actual topology).
- adapt the project/parameterizing in the commissioning tool (correct the target topology).

Check the hardware:
- check the 24 V supply voltage.
- check DRIVE-CLiQ cables for interruption and contact problems.
- check that the component is working properly.

Note:
Under "Topology --> Topology view" the commissioning tool where relevant offers improved diagnostics capability (e.g. setpoint/actual value comparison).

A01507 (F, N) BICO: Interconnections to inactive objects present

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: There are BICO interconnections to an inactive/inoperable drive object.
The BI/CI parameters involved are listed in r9498.
The associated BO/CO parameters are listed in r9499.
The list of the BICO interconnections to other drive objects is displayed in r9491 and r9492 of the deactivated drive object.
Note:
r9498 and r9499 are only written to, if p9495 is not set to 0.
Alarm value (r2124, interpret decimal):
Number of BICO interconnections found to inactive drive objects.
Remedy: - set all open BICO interconnections centrally to the factory setting with p9495 = 2.
- make the non-operational drive object active/operational again (re-insert or activate components).

Reaction upon F: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A01508 BICO: Interconnections to inactive objects exceeded

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The maximum number of BICO interconnections (signal sinks) when deactivating a drive object was exceeded.
When deactivating a drive object, all BICO interconnections (signal sinks) are listed in the following parameters:
- r9498[0...29]: List of the BI/CI parameters involved.
- r9499[0...29]: List of the associated BO/CO parameters.

Remedy: Not necessary.
This alarm is automatically withdrawn as soon as no BICO interconnection is entered in r9498[29] and r9499[29] (value = 0).
Notice:
When re-activating the drive object, all BICO interconnections should be checked and if required, re-established.

F01510 BICO: Signal source is not float type

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested connector output does not have the correct data type. This interconnection is not established.
Fault value (r0949, interpret decimal):
Parameter number to which an interconnection should be made (connector output).
Remedy: Interconnect this connector input with a connector output having a float data type.

F01511 (A) BICO: Interconnection with different scalings

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
- the BICO output has different normalized units than the BICO input.
- message only for interconnections within a drive object.
Example:
The BICO output has, as normalized unit, voltage and the BICO input has current.
This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.
p2002: contains the reference value for current
p2001: contains the reference value for voltage
Fault value (r0949, interpret decimal):
Parameter number of the BICO input (signal sink).
Remedy: Not necessary.
Reaction upon A: NONE
Acknowl. upon A: NONE

F01512 BICO: No scaling available

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: OFF2
Acknowledge: POWER ON
Cause: An attempt was made to determine a conversion factor for a scaling that does not exist.
Fault value (r0949, interpret decimal):
Unit (e.g. corresponding to SPEED) for which an attempt was made to determine a factor.
Remedy: Apply scaling or check the transfer value.

F01513 (N, A) BICO: Interconnection cross DO with different scalings

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The requested BICO interconnection was established. However, a conversion is made between the BICO output and BICO input using the reference values.
An interconnection is made between different drive objects and the BICO output has different normalized units than the BICO input or the normalized units are the same but the reference values are different.
Example 1:
BICO output with voltage normalized unit, BICO input with current normalized unit, BICO output and BICO input lie in different drive objects. This means that the factor p2002/p2001 is calculated between the BICO output and the BICO input.
p2002: contains the reference value for current
p2001: contains the reference value for voltage
Example 2:
BICO output with voltage normalized unit in drive object 1 (DO1), BICO input with voltage normalized unit in drive object 2 (DO2). The reference values for voltage (p2001) of the two drive objects have different values. This means that the factor p2001(DO1)/p2001(DO2) is calculated between the BICO output and the BICO input.
p2001: contains the reference value for voltage, drive objects 1, 2
Fault value (r0949, interpret decimal):
Parameter number of the BICO input (signal sink).

Remedy: Not necessary.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

A01514 (F) BICO: Error when writing during a reconnect

Message value: Parameter: %1

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** BICO

Reaction: NONE

Acknowledge: NONE

Cause: During a reconnect operation (e.g. while booting or downloading - but can also occur in normal operation) a parameter was not able to be written to.
Example:
When writing to BICO input with double word format (DWORD), in the second index, the memory areas overlap (e.g. p8861). The parameter is then reset to the factory setting.
Alarm value (r2124, interpret decimal):
Parameter number of the BICO input (signal sink).

Remedy: Not necessary.

Reaction upon F: NONE

Acknowl. upon F: IMMEDIATELY

F01515 (A) BICO: Writing to parameter not permitted as the master control is active

Message value: -

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: All objects

Component: None **Propagation:** GLOBAL

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When changing the number of CDS or when copying from CDS, the master control is active.

Remedy: If required, return the master control and repeat the operation.

Reaction upon A: NONE

Acknowl. upon A: NONE

A01590 (F) Drive: Motor maintenance interval expired

Message value: Fault cause: %1 bin
Message class: General drive fault (19)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: Motor **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The selected service/maintenance interval for this motor was reached.
Alarm value (r2124, interpret decimal):
Motor data set number.
Remedy: carry out service/maintenance and reset the service/maintenance interval (p0651).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

F01800 DRIVE-CLiQ: Hardware/configuration error

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A DRIVE-CLiQ connection fault has occurred.
Fault value (r0949, interpret decimal):
100 ... 107:
Communication via DRIVE-CLiQ socket X100 ... X107 has not been switched to cyclic operation. The cause may be an incorrect structure or a configuration that results in an impossible bus timing.
10:
Loss of the DRIVE-CLiQ connection. The cause may be, for example, that the DRIVE-CLiQ cable was withdrawn from the Control Unit or as a result of a short-circuit for motors with DRIVE-CLiQ. This fault can only be acknowledged in cyclic communication.
11:
Repeated faults when detecting the connection. This fault can only be acknowledged in cyclic communication.
12:
A connection was detected but the node ID exchange mechanism does not function. The reason is probably that the component is defective. This fault can only be acknowledged in cyclic communication.
Remedy: For fault value = 100 ... 107:
- ensure that the DRIVE-CLiQ components have the same firmware versions.
- avoid longer topologies for short current controller sampling times.
For fault value = 10:
- check the DRIVE-CLiQ cables at the Control Unit.
- remove any short-circuit for motors with DRIVE-CLiQ.
- carry out a POWER ON.
For fault value = 11:
- check the electrical cabinet design and cable routing for EMC compliance
For fault value = 12:
- replace the component involved.

A01839 DRIVE-CLiQ diagnostics: cable fault to the component

Message value: Component number: %1
Message class: General drive fault (19)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The fault counter (r9936[0...199]) to monitor the DRIVE-CLiQ connections/cables has been incremented.
Alarm value (r2124, interpret decimal):
Component number.
Note:
The component number specifies the component whose feeder cable from the direction of the Control Unit is faulted.
The alarm automatically disappears after 5 seconds, assuming that no other data transfer error has occurred.
See also: r9936 (DRIVE-CLiQ diagnostic error counter connection)

Remedy: - check the corresponding DRIVE-CLiQ cables.
- check the electrical cabinet design and cable routing for EMC compliance

A01900 (F) PB/PN: Configuration telegram error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A controller attempts to establish a connection using an incorrect configuring telegram.
Alarm value (r2124, interpret decimal):
1:
Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978.
2:
Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051.
3:
Uneven number of bytes for input or output.
4:
Setting data for synchronization not accepted. For more information, see A01902.
211:
Unknown parameterizing block.
223:
Clock synchronization for the PZD interface set in p8815[0] is not permissible.
More than one PZD interface is operated in clock synchronism.
253:
PN Shared Device: Illegal mixed configuration of PROFIsafe and PZD.
254:
PN Shared Device: Illegal double assignment of a slot/subslot.
255:
PN: Configured drive object and existing drive object do not match.
256:
PN: configured telegram cannot be set.
500:
Illegal PROFIsafe configuration for the interface set in p8815[1].
More than one PZD interface is operated with PROFIsafe.
501:
PROFIsafe parameter error (e.g. F_dest).
502:
PROFIsafe telegram does not match.
503:
PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).
Additional values:
Only for internal Siemens troubleshooting.

Remedy: Check the bus configuration on the master and the slave sides.
For alarm value = 1, 2:
- check the list of the drive objects with process data exchange (p0978).
Note:
With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
For alarm value = 2:
- check the number of data words for output and input to a drive object.
For alarm value = 211:
- Ensure offline version <= online version.
For alarm value = 223, 500:
- check the setting in p8839 and p8815.
- check for inserted but not configured CBE20.
- ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.
For alarm value = 255:
- check configured drive objects.
For alarm value = 256:
- check the configured telegram.
For alarm value = 501:
- check the set PROFIsafe address (p9610).
For alarm value = 502:
- check the set PROFIsafe telegram (p60022, p9611).

Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A01902 PB/PN: clock cycle synchronous operation parameterization not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Parameterization for isochronous operation is not permissible.
Alarm value (r2124, interpret decimal):
0: Bus cycle time Tdp < 0.5 ms.
1: Bus cycle time Tdp > 32 ms.
2: Bus cycle time Tdp is not an integer multiple of the current controller sampling time.
3: Instant of the actual value sensing Ti > Bus cycle time Tdp or Ti = 0.
4: Instant of the actual value sensing Ti is not an integer multiple of the current controller sampling time.
5: Instant of the setpoint acceptance To >= Bus cycle time Tdp or To = 0.
6: Instant of the setpoint acceptance To is not an integer multiple of the current controller sampling time.
7: Master application cycle time Tmapc is not an integer multiple of the speed controller sampling time.
8: Bus reserve bus cycle time Tdp - data exchange time Tdx less than two current controller sampling times.
10: Instant of the setpoint acceptance To <= data exchange time Tdx + current controller sampling time
11: Master application cycle time Tmapc > 14 x Tdp or Tmapc = 0.
12: PLL tolerance window Tpll_w > Tpll_w_max.
13: Bus cycle time Tdp is not a multiple of all basic clock cycles p0110[x].
16: For COMM BOARD, the instant in time for the actual value sensing Ti is less than two current controller sampling times.

Remedy: - Adapt the bus parameterization Tdp, Ti, To.
- adapt the sampling time for the current controller or speed controller.
For alarm value = 10:
- reduce Tdx by using fewer bus participants or shorter telegrams.
Note:
PB: PROFIBUS
PN: PROFINET

F01910 (N, A) Fieldbus: setpoint timeout

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the fieldbus interface (onboard, PROFIBUS/PROFINET/USS) has been interrupted.
- bus connection interrupted.
- controller switched off.
- controller set into the STOP state.

See also: p2040 (Fieldbus interface monitoring time), p2047 (PROFIBUS additional monitoring time)
Remedy: Restore the bus connection and set the controller to RUN.
Note regarding PROFIBUS slave redundancy:
For operation on a Y link, it must be ensured that "DP alarm mode = DPV1" is set in the slave parameterization.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01911 (N, A) PB/PN: clock cycle synchronous operation clock cycle failure

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (OFF3)
Acknowledge: IMMEDIATELY
Cause: The global control telegram to synchronize the clock cycles has failed - in cyclic operation - for several DP clock cycles or has violated the time grid specified in the parameterizing telegram over several consecutive DP clock cycles (refer to the bus cycle time, Tdp and Tpllw).
Remedy: - check the physical bus configuration (cable, connector, terminating resistor, shielding, etc.).
- check whether communication was briefly or permanently interrupted.
- check the bus and controller for utilization level (e.g. bus cycle time Tdp was set too short).

PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01915 (N, A) PB/PN: clock cycle synchronous operation sign-of-life failure drive object 1

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Group display for problems with the sign-of-life of the master (isochronous operation) on the drive object 1 (Control Unit).
For central measurements, synchronism with the central master is lost.
Remedy: Note:
PB: PROFIBUS
PN: PROFINET
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

A01920 (F) PROFIBUS: Interruption cyclic connection

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic connection to the PROFIBUS master is interrupted.
Remedy: Establish the PROFIBUS connection and activate the PROFIBUS master in the cyclic mode.
Note:
If there is no communication to a higher-level control system, then p2030 should be set = 0 to suppress this message.
See also: p2030 (Field bus interface protocol selection)
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A01921 (F) PROFIBUS: Receive setpoints after To

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Output data of PROFIBUS master (setpoints) received at the incorrect instant in time within the PROFIBUS clock cycle.
Remedy: - check bus configuration.
- check parameters for clock cycle synchronization (ensure To > Tdx).
Note:
To: Time of setpoint acceptance
Tdx: Data exchange time
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A01925 (F) Modbus TCP: connection interrupted

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The Ethernet connection to the Modbus controller is interrupted.
Remedy: - establish an Ethernet connection.
- activate the Modbus controller.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY

A01930 PB/PN: current controller sampling time clock cycle synch. not equal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The current controller sampling time of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with different current controller sampling time.
Remedy: Set current controller sampling time to identical values (p0115[0]).
Note:
PB: PROFIBUS
PN: PROFINET
See also: p0115

A01931 PB/PN: speed controller sampling time clock cycle synch. not equal

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The speed controller sampling time of all drives must be set the same for the clock cycle synchronous operation.
Alarm value (r2124, interpret decimal):
Number of the drive object with the different speed controller sampling time.
Remedy: Set the speed controller sampling times to identical values (p0115[1]).
Note:
PB: PROFIBUS
PN: PROFINET
See also: p0115

A01940 PB/PN: clock cycle synchronism not reached

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. It was not possible to synchronize to the clock cycle specified by the master.
- the master does not send a clock synchronous global control telegram although clock synchronous operation was selected when configuring the bus.
- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.
- at least one drive object has a pulse enable (not controlled from PROFIBUS/PROFINET either).

Remedy: - check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
- check that no drive object has a pulse enable. Only enable the pulses after synchronizing the PROFIBUS/PROFINET drives.

Note:
PB: PROFIBUS
PN: PROFINET

A01941 PB/PN: clock cycle signal missing when establishing bus communication

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram. The global control telegram for synchronization is not being received.

Remedy: Check the master application and bus configuration.
Note:
PB: PROFIBUS
PN: PROFINET

A01943 PB/PN: clock cycle signal error when establishing bus communication

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The bus is in the data exchange state and clock synchronous operation has been selected using the parameterizing telegram.
The global control telegram for synchronization is being irregularly received.
-.the master is sending an irregular global control telegram.
- the master is using another clock synchronous DP clock cycle than was transferred to the slave in the parameterizing telegram.

Remedy: - check the master application and bus configuration.
- check the consistency between the clock cycle input when configuring the slave and clock cycle setting at the master.
Note:
PB: PROFIBUS
PN: PROFINET

A01945 PROFIBUS: Connection to the Publisher failed

Message value: Fault cause: %1 bin
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: For PROFIBUS peer-to-peer data transfer, the connection to at least one Publisher has failed.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection failed.
...
Bit 15 = 1: Publisher with address in r2077[15], connection failed.

Remedy: - check the PROFIBUS cables.
- carry out a first commissioning of the Publisher that has the failed connection.
See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

F01946 (A) PROFIBUS: Connection to the Publisher aborted

Message value: Fault cause: %1 bin
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: At this drive object, the connection to at least one Publisher for PROFIBUS peer-to-peer data transfer in cyclic operation has been aborted.
Fault value (r0949, interpret binary):
Bit 0 = 1: Publisher with address in r2077[0], connection aborted.
...
Bit 15 = 1: Publisher with address in r2077[15], connection aborted.

Remedy: - check the PROFIBUS cables.
- check the state of the Publisher that has the aborted connection.
See also: r2077 (PROFIBUS diagnostics peer-to-peer data transfer addresses)

Reaction upon A: NONE
Acknowl. upon A: NONE

F01950 (N, A) PB/PN: clock cycle synchronous operation synchronization unsuccessful

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF1 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Synchronization of the internal clock cycle to the global control telegram has failed. The internal clock cycle exhibits an unexpected shift.
Remedy: Only for internal Siemens troubleshooting.
Note:
PB: PROFIBUS
PN: PROFINET

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F01951 CU SYNC: Synchronization application clock cycle missing

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: If DRIVE-CLiQ components with different application clock cycle are operated on a DRIVE-CLiQ port, this requires synchronization with the Control Unit. This synchronization routine was unsuccessful.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade the software of the DRIVE-CLiQ components.
- upgrade the Control Unit software.
Note:
If a Controller Extension is being used (e.g. CX32, NX10), then the following applies:
Check whether the Controller Extension is issuing error messages, and if required, remove these.

F01952 CU DRIVE-CLiQ: Synchronization of component not supported

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** DRIVE
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The existing system configuration requires that the connected DRIVE-CLiQ components support the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and the application clock cycle.
However, not all DRIVE-CLiQ components have this functionality.
Fault value (r0949, interpret decimal):
Component number of the first faulty DRIVE-CLiQ component.

Remedy: Upgrade the firmware of the component specified in the fault value.
Note:
If required, also upgrade additional components in the DRIVE-CLiQ line.

A01953 CU SYNC: Synchronization not completed

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: After the drive system is switched on, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
If the error occurs after the drive sampling times were changed, and if a Terminal Module 31 (TM31) is being used, the sampling times (p0115, p4099) should be set as integer multiples to the drive clock cycles (p0115).

F01954 CU DRIVE-CLiQ: Synchronization unsuccessful

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started and was not able to be successfully completed (e.g. after switch-on).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: 1. Remove the cause of a possible DRIVE-CLiQ fault.
2. Initiate a new synchronization, e.g. as follows:
- remove the PROFIBUS master and re-insert again.
- restart the PROFIBUS master.
- switch off the Control Unit and switch on again.
- carry out a Control Unit hardware reset (RESET button, p0972).
- carry out a parameter reset and download the saved parameters (p0009 = 30, p0976 = 2, 3).

A01955 CU DRIVE-CLiQ: Synchronization DO not completed

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: After the drive system is switched on, the synchronization between the basic clock cycle, DRIVE-CLiQ clock cycle and application clock cycle was started but was not completed within the selected time tolerance.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components of the DO.

A01970 CBE25: cyclic connection interrupted

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic connection to the PROFINET controller is interrupted.
Remedy: Establish the PROFINET connection and activate the PROFINET controller in the cyclic mode.

A01971 CBE2x: maximum number of controllers exceeded

Message value: Info 1: %1, Info 2: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A controller attempts to establish a connection to the drive, and as a consequence exceeds the permitted number of PROFINET connections.
The alarm disappears automatically after approx. 30 seconds.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info 1 = 0: number of RT connections exceeded
Info 1 > 0: number of IRT connections exceeded
Info 2: permitted number of connections
Remedy: Check the configuration of the PROFINET controllers.

A01979 CBE2x: internal error for cyclic data transfer

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic actual values and/or setpoints were not transferred within the specified times.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: Correctly set T_io_input or T_io_output.

A01990 (F) USS: PZD configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The configuration of the process data (PZD) for the USS protocol is incorrect.
Alarm value (r2124, interpret decimal):
2: PZD amount (p2022) too great for the first drive object (p978[0]).
The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051.
Remedy: For alarm value = 2:
Check the amount of USS PZD (p2022) and the maximum PZD amount (r2050/p2051) for the first drive object (p0978[0]).
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A02000 Function generator: Start not possible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The function generator has already been started.
Remedy: Stop the function generator and restart again if necessary.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02005 Function generator: Drive does not exist

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection does not exist.
Remedy: Use the existing drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02006 Function generator: No drive specified for connection

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: No drive specified for connection in p4815.
Remedy: At least one drive to be connected must be specified in p4815.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02007 Function generator: Drive not SERVO / VECTOR / DC_CTRL

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection is not a SERVO / VECTOR or DC_CTRL.

Remedy: Use a SERVO / VECTOR / DC_CTRL drive object with the corresponding number.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02008 Function generator: Drive specified a multiple number of times

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The drive object specified for connection is already specified.
Alarm value (r2124, interpret decimal):
Drive object number of the drive object that is specified a multiple number of times.
Remedy: Specify a different drive object.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02009 Function generator: Illegal mode

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The set operating mode (p1300) of the drive object is not permissible when using the function generator.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
Remedy: Change the operating mode for this drive object to p1300 = 20 (encoderless speed control) or p1300 = 21 (speed control with encoder).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02010 Function generator: Speed setpoint from the drive is not zero

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The speed setpoint of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy: For all of the drives specified for connection, set the speed setpoints to zero.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02011 Function generator: The actual drive speed is not zero

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The speed actual value of a drive selected for connection is greater than the value for the standstill detection set using p1226.
Remedy: Set the relevant drives to zero speed before starting the function generator.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02015 Function generator: Drive enable signals missing

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The master control and/or enable signals are missing to connect to the specified drive.
Remedy: Fetch the master control to the specified drive object and set all enable signals.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02016 Function generator: Magnetizing running

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: Magnetizing has not yet been completed on a drive object specified for connection.
Alarm value (r2124, interpret decimal):
Number of the drive object involved.
Remedy: Wait for magnetizing of the motor (r0056.4).
Note:
The alarm is reset as follows:
- restart the function generator.
See also: r0056 (Status word, closed-loop control)

A02020 Function generator: Parameter cannot be changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: This parameter setting cannot be changed when the function generator is active (p4800 = 1).
See also: p4810, p4812, p4813, p4820, p4821, p4822, p4823, p4824, p4825, p4826, p4827, p4828, p4829

Remedy: - stop the function generator before parameterizing (p4800 = 0).
- if required, start the function generator (p4800 = 1).
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4800 (Function generator control)

A02025 Function generator: Period too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The value for the period is too short.
See also: p4821 (Function generator period)
Remedy: Check and adapt the value for the period.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period)

A02026 Function generator: Pulse width too high

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The selected pulse width is too high.
The pulse width must be less than the period duration.
See also: p4822 (Function generator pulse width)
Remedy: Reduce pulse width.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4821 (Function generator period), p4822 (Function generator pulse width)

A02030 Function generator: Physical address equals zero

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The specified physical address is zero.
See also: p4812 (Function generator physical address)

Remedy: Set a physical address with a value other than zero.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4812 (Function generator physical address)

A02040 Function generator: Illegal value for offset

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The value for the offset is higher than the value for the upper limit or lower than the value for the lower limit.
See also: p4826 (Function generator offset)
Remedy: Adjust the offset value accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: p4826 (Function generator offset), p4828 (Function generator lower limit), p4829 (Function generator upper limit)

A02041 Function generator: Illegal value for bandwidth

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The bandwidth referred to the time slice clock cycle of the function generator has either been set too low or too high.
Depending on the time slice clock cycle, the bandwidth is defined as follows:
Bandwidth_max = 1 / (2 x time slice clock cycle)
Bandwidth_min = Bandwidth_max / 100000
Example:
Assumption: p4830 = 125 µs
--> Bandwidth_max = 1 / (2 x 125 µs) = 4000 Hz
--> Bandwidth_min = 4000 Hz / 100000 = 0.04 Hz
Note:
p4823: Function generator bandwidth
p4830: Function generator time slice clock cycle
See also: p4823 (Function generator bandwidth), p4830 (Function generator time slice cycle)
Remedy: Check the value for the bandwidth and adapt accordingly.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.

A02047 Function generator: Time slice clock cycle invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE

Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4830 (Function generator time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
Note:
The alarm is reset as follows:
- remove the cause of this alarm.
- restart the function generator.
See also: r7901 (Sampling times)

A02050 Trace: Start not possible

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The trace has already been started.
See also: p4700 (Trace control)
Remedy: Stop the trace and, if necessary, start again.

A02051 Trace: recording not possible as a result of know-how protection

Message value: initiating recorder: %1, parameter %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: TRACE recording is not possible as at least one signal or trigger signal being used is under know-how protection.
Alarm value (r2124, interpret hexadecimal):
bbbbaaaa hex:
aaaa = 1: recorder 0
aaaa = 2: recorder 1
aaaa = 3: recorders 0 and 1
bbbb = parameter number (hexadecimal), that was not able to be written to.
See also: p4700, p4711, p4730, p4731, p4732, p4733, p4734, p4735, p4736, p4737
Remedy: - Temporarily activate or deactivate know-how protection (p7766).
- include the signal in the OEM exception list (p7763, p7764).
- Where relevant do not record the signal.
See also: p7763 (KHP OEM exception list number of indices for p7764), p7764 (KHP OEM exception list)

A02055 Trace: Recording time too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The trace duration is too short.
The minimum is twice the value of the trace clock cycle.
See also: p4721 (Trace recording time)
Remedy: Check the selected recording time and, if necessary, adjust.

A02056 Trace: Recording cycle too short

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The selected recording cycle is shorter than the selected basic clock cycle 0 (p0110[0]).
See also: p4720 (Trace recording cycle)
Remedy: Increase the value for the trace cycle.

A02057 Trace: Time slice clock cycle invalid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The time slice clock cycle selected does not match any of the existing time slices.
See also: p4723 (Trace time slice cycle)
Remedy: Enter an existing time slice clock cycle. The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02058 Trace: Time slice clock cycle for endless trace not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for the endless trace
See also: p4723 (Trace time slice cycle)
Remedy: Enter the clock cycle of an existing time slice with a cycle time >= 2 ms for up to 4 recording channels or >= 4 ms from 5 recording channels per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02059 Trace: Time slice clock cycle for 2 x 8 recording channels not valid

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The selected time slice clock cycle cannot be used for more than 4 recording channels.
See also: p4723 (Trace time slice cycle)
Remedy: Enter the clock cycle of an existing time slice with a cycle time >= 4 ms or reduce the number of recording channels to 4 per trace.
The existing time slices can be read out via p7901.
See also: r7901 (Sampling times)

A02060 Trace: Signal to be traced missing

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: - a signal to be traced was not specified.
- the specified signals are not valid.
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02061 Trace: Invalid signal

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: - the specified signal does not exist.
- the specified signal can no longer be traced (recorded).
See also: p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: - specify the signal to be traced.
- check whether the relevant signal can be traced.

A02062 Trace: Invalid trigger signal

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: - a trigger signal was not specified.
- the specified signal does not exist.
- the specified signal is not a fixed-point signal.
- the specified signal cannot be used as a trigger signal for the trace.
See also: p4711 (Trace trigger signal)
Remedy: Specify a valid trigger signal.

A02063 Trace: Invalid data type

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The specified data type to select a signal using a physical address is invalid.
See also: p4711 (Trace trigger signal), p4730 (Trace record signal 0), p4731 (Trace record signal 1), p4732 (Trace record signal 2), p4733 (Trace record signal 3)
Remedy: Use a valid data type.

A02070 Trace: Parameter cannot be changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The trace parameter settings cannot be changed when the trace is active.
See also: p4700, p4710, p4711, p4712, p4713, p4714, p4715, p4716, p4720, p4721, p4722, p4730, p4731, p4732, p4733, p4780, p4781, p4782, p4783, p4789, p4795
Remedy: - stop the trace before parameterization.
- if required, start the trace.

A02075 Trace: Pretrigger time too long

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The selected pretrigger time must be shorter than the trace time.
See also: p4721 (Trace recording time), p4722 (Trace trigger delay)
Remedy: Check the pretrigger time setting and change if necessary.

F02080 Trace: Parameterization deleted due to unit changeover

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The trace parameterization in the drive unit was deleted due to a unit changeover or a change in the reference parameters.
Remedy: Restart trace.

A02095 MTrace 0: multiple trace cannot be activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 0):
- measuring function
- long-time trace
- trigger condition "immediate recording start" (IMMEDIATE)
- trigger condition "start with function generator" (FG_START)

Remedy: - if required, deactivate the multiple trace (p4840[0] = 0).
- deactivate function or setting that is not permissible
See also: p4840 (MTrace cycle number setting)

A02096 MTrace 0: cannot be saved

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 0).
A multiple trace is not started or is canceled.
Alarm value (r2124, interpret decimal):
1: Memory card cannot be accessed.
- card is not inserted or is blocked by a mounted USB drive.
3: data save operation to slow.
- a second trace has been completed before the measurement results of the first trace were able to be saved.
- writing the measurement result files to the card is blocked by the parameter save.
4: Data save operation canceled.
- for instance, the file required for the data save operation was not able to be found.
See also: p4840 (MTrace cycle number setting)
Remedy: - insert or remove the memory card.
- use a larger memory card.
- configure a longer trace time or use an endless trace.
- avoid saving parameters while a multiple trace is running.
- check whether other functions are presently accessing measurement result files.

A02097 MTrace 1: multiple trace cannot be activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The following functions or settings are not permissible in conjunction with a multiple trace (trace recorder 1):
- measuring function
- long-time trace
- trigger condition "immediate recording start" (IMMEDIATE)
- trigger condition "start with function generator" (FG_START)
Remedy: - if required, deactivate the multiple trace (p4840[1] = 0).
- deactivate function or setting that is not permissible
See also: p4840 (MTrace cycle number setting)

A02098 MTrace 1: cannot be saved

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: It is not possible to save the measurement results of a multiple trace on the memory card (trace recorder 1).
A multiple trace is not started or is canceled.
Alarm value (r2124, interpret decimal):
1: Memory card cannot be accessed.
- card is not inserted or is blocked by a mounted USB drive.
3: data save operation to slow.
- a second trace has been completed before the measurement results of the first trace were able to be saved.
- writing the measurement result files to the card is blocked by the parameter save.
4: Data save operation canceled.
- for instance, the file required for the data save operation was not able to be found.
See also: p4840 (MTrace cycle number setting)

Remedy:
- insert or remove the memory card.
- use a larger memory card.
- configure a longer trace time or use an endless trace.
- avoid saving parameters while a multiple trace is running.
- check whether other functions are presently accessing measurement result files.

A02099 Trace: Insufficient Control Unit memory

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The memory space still available on the Control Unit is no longer sufficient for the trace function.
Remedy: Reduce the memory required, e.g. as follows:
- reduce the trace time.
- increase the trace clock cycle.
- reduce the number of signals to be traced.
See also: r4708 (Trace memory space required), r4799 (Trace memory location free)

A02100 Drive: Computing dead time current controller too short

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The value in p0118 produces a dead time of one clock cycle because it is prior to setpoint availability.
Possible causes:
- a parameter backup with a version higher than 4.3 was loaded to a version less than or equal to 4.3.
- the system properties after replacing a component no longer match the parameter assignment.
Alarm value (r2134, floating point):
Minimum value for p0118 where dead time no longer occurs.

Remedy:
- set p0118 to zero.
- set p0118 to a value greater than or equal to the alarm value (for p1810.11 = 1)
- set p0117 (from the device) to an automatic setting (p0117 = 1).
- check the firmware versions of the components involved.

A02150 TEC: Technology Extension cannot be loaded

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The system was not able to load a Technology Extension.
Alarm value (r2124, interpret hexadecimal):
10 hex (16 dec):
The interface version in the DCB user library is not compatible to the DCC standard library that has been loaded.
12 hex (18 dec):
A technology package was not able to be downloaded to a Control Unit because the warm restart necessary was not able to be performed.
Only for internal Siemens troubleshooting.
Remedy: - carry out a warm restart (p0009 = 30, p0976 = 2, 3).
- carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.
For alarm value = 10 hex (16 dec):
Load a compatible DCB user library (compatible to the interface of the DCC standard library).
For alarm value = 12 hex (18 dec):
Carry out a POWER ON (switch-off/switch-on) for all components.
Note:
DCB: Drive Control Block
DCC: Drive Control Chart
TEC: Technology Extension
See also: r4950, r4955, p4956, r4957

F02151 (A) TEC: internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An internal software error has occurred within a Technology Extension.
Fault value (r0949, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.
- replace the Control Unit.
Note:
TEC: Technology Extension
See also: r4950, r4955, p4956, r4957
Reaction upon A: NONE
Acknowl. upon A: NONE

F02152 (A) TEC: insufficient memory

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF1
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Too many functions have been configured on this Control Unit (e.g. too many drives, function modules, data sets, Technology Extensions, blocks, etc).
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - change the configuration on this Control Unit (e.g. fewer drives, function modules, data sets, Technology Extensions, blocks, etc).
- use an additional Control Unit.
Note:
TEC: Technology Extension
Reaction upon A: NONE
Acknowl. upon A: NONE

F02153 TEC: technology function does not exist

Message value: -
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A technology function (e.g. Technology Extension, DCB library) does not exist on the drive device.
When configuring, a technology function is activated, which does not exist on the drive device. This can occur when downloading a project or when powering up.
Remedy: - load the required technology function to the drive device.
- if required, deactivate the technology function not required in the configuration.
Note:
DCB: Drive Control Block
TEC: Technology Extension

F03000 NVRAM fault on action

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault occurred during execution of action p7770 = 1 or 2 for the NVRAM data.
Fault value (r0949, interpret hexadecimal):
yyxx hex: yy = fault cause, xx = application ID
yy = 1:
The action p7770 = 1 is not supported by this version if Drive Control Chart (DCC) is activated for the drive object concerned.
yy = 2:
The data length of the specified application is not the same in the NVRAM and the backup.
yy = 3:
The data checksum in p7774 is not correct.
yy = 4:
No data available to load.
See also: p7770 (NVRAM action)

Remedy: - Perform the remedy according to the results of the troubleshooting.
- if necessary, start the action again.

F03001 NVRAM checksum incorrect

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A checksum error occurred when evaluating the non-volatile data (NVRAM) on the Control Unit.
The NVRAM data affected was deleted.
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.

F03500 (A) TM: Initialization

Message value: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: When initializing the Terminal Modules, the terminals of the Control Unit or the Terminal Board 30, an internal software error has occurred.
Fault value (r0949, interpret decimal):
yxxx dex
y = Only for internal Siemens troubleshooting
xxx = component number (p0151)
Remedy: - switch-off/switch-on the power supply for the Control Unit.
- check the DRIVE-CLiQ connection.
- if required, replace the Terminal Module.
The Terminal Module should be directly connected to a DRIVE-CLiQ socket of the Control Unit.
If the fault occurs again, replace the Terminal Module.
Reaction upon A: NONE
Acknowl. upon A: NONE

A03501 TM: Sampling time change

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The sampling times of the inputs/outputs were changed.
This change only becomes valid after the next boot.
Remedy: Carry out a POWER ON.

F03505 (N, A) Analog input wire breakage

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)

Cause: The wire-break monitoring for an analog input has responded.
The input value of the analog input has exceeded the threshold value parameterized in p4061[x].
Index x = 0: Analog input 0 (X521.1/X521.2)
Index x = 1: Analog input 1 (X521.3/X521.4)
Fault value (r0949, interpret decimal):
yxxx dec
y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
xxx = component number (p0151)
Note:
For the following analog input type, the wire breakage monitoring is active:
p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)
Remedy: - check the wiring for interruptions.
- check the magnitude of the injected current - it is possible that the infed signal is too low.
- check the load resistor (250 Ohm).
Note:
The input current measured by the Terminal Module can be read out from r4052[x].
For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F03505 (N, A) Analog input wire breakage

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (NONE, OFF2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The wire-break monitoring for an analog input has responded.
Remedy: Check the wiring for interruptions.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F03505 (N, A) TM: Analog input wire breakage

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The wire-break monitoring for an analog input has responded.
The input value of the analog input has exceeded the threshold value parameterized in p4061[x].
Index x = 0: Analog input 0 (X521.1/X521.2)
Index x = 1: Analog input 1 (X521.3/X521.4)
Fault value (r0949, interpret decimal):
yxxx dec
y = analog input (0 = analog input 0 (AI 0), 1 = analog input 1 (AI 1))
xxx = component number (p0151)
Note:
For the following analog input type, the wire breakage monitoring is active:
p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)

Remedy: - check the wiring for interruptions.
- check the magnitude of the injected current - it is possible that the infed signal is too low.
- check the load resistor (250 Ohm).
Note:
The input current measured by the Terminal Module can be read out from r4052[x].
For p4056[x] = 3 (unipolar current input monitored (+4 ... +20 mA)) the following applies:
A current less than 4 mA is not displayed in r4052[x] - but instead r4052[x] = 4 mA is output.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A03510 (F, N) Calibration data not plausible

Message value: %1
Message class: Hardware/software error (1)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S, DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility.
At least one calibration data point was determined to be invalid.
Alarm value (r2124, interpret binary):
Bit 1: 10 V value, analog input 0 invalid.
Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.
Remedy: - switch-off/switch-on the power supply for the Control Unit.
- check the DRIVE-CLiQ wiring.
Note:
If it reoccurs, then replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.

Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03510 (F, N) TM: Calibration data not plausible

Message value: %1
Message class: Hardware/software error (1)
Drive object: TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: During ramp-up, the Terminal Module 31 (TM31) calibration data is read in and checked for plausibility.
At least one calibration data point was determined to be invalid.
Alarm value (r2124, interpret binary):
Bit 1: 10 V value, analog input 0 invalid.
Bit 3: 10 V value, analog input 1 invalid.
Bit 4: Offset, analog output 0 invalid.
Bit 5: 10 V value, analog output 0 invalid.
Bit 6: Offset, analog output 1 invalid.
Bit 7: 10 V value, analog input 1 invalid.

Remedy: - switch-off/switch-on the power supply for the Control Unit.
- check the DRIVE-CLiQ wiring.
Note:
If it reoccurs, then replace the module.
In principle, operation could continue.
The analog channel involved possibly does not achieve the specified accuracy.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A03550 TM: Speed setpoint filter natural frequency > Shannon frequency

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The natural filter frequency of the speed setpoint filter (p1417) is greater than or equal to the Shannon frequency.
The Shannon frequency is calculated according to the following formula:
0.5 / p4099[3]
Remedy: Reduce the natural frequency of the speed setpoint filter (PT2 low pass) (p1417).

F03590 (N, A) TM: Module not ready

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Terminal Module (TM) **Propagation:** GLOBAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The Terminal Module involved does not send a ready signal and no valid cyclic data.
Fault value (r0949, interpret decimal):
Drive object number of the Terminal Module involved.
Remedy: - check the 24 V power supply.
- check the DRIVE-CLiQ wiring.
- check whether the sampling time of the drive object involved is not equal to zero (p4099[0]).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F07082 Macro: Execution not possible

Message value: Fault cause: %1, supplementary information: %2, preliminary parameter number: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The macro cannot be executed.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex:
cccc = preliminary parameter number, bb = supplementary information, aa = fault cause
Fault causes for the trigger parameter itself:
19: Called file is not valid for the trigger parameter.
20: Called file is not valid for parameter 15.
21: Called file is not valid for parameter 700.
22: Called file is not valid for parameter 1000.
23: Called file is not valid for parameter 1500.
24: Data type of a TAG is incorrect (e.g. Index, number or bit is not U16).
Fault causes for the parameters to be set:
25: Error level has an undefined value.
26: Mode has an undefined value.
27: A value was entered as string in the tag value that is not "DEFAULT".
31: Entered drive object type unknown.
32: A device was not able to be found for the determined drive object number.
34: A trigger parameter was recursively called.
35: It is not permissible to write to the parameter via macro.
36: Check, writing to a parameter unsuccessful, parameter can only be read, not available, incorrect data type, value range or assignment incorrect.
37: Source parameter for a BICO interconnection was not able to be determined.
38: An index was set for a non-indexed (or CDS-dependent) parameter.
39: No index was set for an indexed parameter.
41: A bit operation is only permissible for parameters with the parameter format DISPLAY_BIN.
42: A value not equal to 0 or 1 was set for a BitOperation.
43: Reading the parameter to be changed by the BitOperation was unsuccessful.
51: Factory setting for DEVICE may only be executed on the DEVICE.
61: The setting of a value was unsuccessful.

Remedy: - check the parameter involved.
- check the macro file and BICO interconnection.
See also: p0015, p0700, p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

F07083 Macro: ACX file not found

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The ACX file (macro) to be executed was not able to be found in the appropriate directory.
Fault value (r0949, interpret decimal):
Parameter number with which the execution was started.
See also: p0015, p0700, p1000 (Macro Connector Inputs (CI) for speed setpoints), p1500 (Macro Connector Inputs (CI) for torque setpoints)

Remedy: - check whether the file is saved in the appropriate directory on the memory card.
Example:
If p0015 is set to 1501, then the selected ACX file must be located in the following directory:
... /PMACROS/DEVICE/P15/PM001501.ACX

F07084 Macro: Condition for WaitUntil not fulfilled

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The WaitUntil condition set in the macro was not fulfilled in a certain number of attempts.
Fault value (r0949, interpret decimal):
Parameter number for which the condition was set.
Remedy: Check and correct the conditions for the WaitUntil loop.

F07085 Drive: Open-loop/closed-loop control parameters changed

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Open-loop/closed-loop control parameters have had to be changed.
Possible causes:
1. As a result of other parameters, they have exceeded the dynamic limits.
2. They cannot be used due to the fact that the hardware detected not having certain features.
3. The value is estimated as the thermal time constant is missing.
4. Motor temperature model 1 is activated as thermal motor protection is missing.
Fault value (r0949, interpret decimal):
Changed parameter number.
340:
The motor and control parameters were automatically calculated (p0340 = 1), because the vector control was subsequently activated as configuration (r0108.2).
611:
The time constant for thermal motor model 1 was estimated.
612:
Thermal motor model 1 was activated (p0612.0 = 1).
Remedy: Not necessary.
It is not necessary to change the parameters as they have already been correctly limited.

F07086 Units changeover: Parameter limit violation due to reference value change

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A reference parameter was changed in the system. This resulted in the fact that for the parameters involved, the selected value was not able to be written in the per unit notation.
The values of the parameters were set to the corresponding violated minimum limit/maximum limit or to the factory setting.
Possible causes:
- the steady-state minimum limit/maximum limit or that defined in the application was violated.
Fault value (r0949, parameter):
Diagnostics parameter to display the parameters that were not able to be re-calculated.
See also: p0596 (Technological unit reference quantity), p2000 (Reference speed), p2001 (Reference voltage), p2002 (Reference current), p2003 (Reference torque), r2004 (Reference power)

Remedy: Check the adapted parameter value and if required correct.
See also: r9450 (Reference value change parameter with unsuccessful calculation)

F07088 Units changeover: Parameter limit violation due to units changeover

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A changeover of units was initiated. This resulted in a violation of a parameter limit
Possible causes for the violation of a parameter limit:
- When rounding off a parameter corresponding to its decimal places, the steady-state minimum limit or maximum limit was violated.
- inaccuracies for the data type "FloatingPoint".
In these cases, when the minimum limit is violated then the parameter value is rounded up and when the maximum limited is violated the parameter value is rounded down.
Fault value (r0949, interpret decimal):
Diagnostics parameter r9451 to display all parameters whose value had to be adapted.
See also: p0595 (Technological unit selection)
Remedy: Check the adapted parameter values and if required correct.
See also: r9451 (Units changeover adapted parameters)

A07089 Changing over units: Function module activation is blocked because the units have been changed over

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An attempt was made to activate a function module. This is not permissible if the units have already been changed over.
Remedy: Restore units that have been changed over to the factory setting.

A07094 General parameter limit violation

Message value: Parameter: %1
Message class: Hardware/software error (1)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: As a result of the violation of a parameter limit, the parameter value was automatically corrected.
Minimum limit violated --> parameter is set to the minimum value.
Maximum limit violated --> parameter is set to the maximum value.
Alarm value (r2124, interpret decimal):
Parameter number, whose value had to be adapted.
Remedy: Check the adapted parameter values and if required correct.

F07110 Drive: Sampling times and basic clock cycle do not match

Message value: Parameter: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The parameterized sampling times do not match the basic clock cycle.
Fault value (r0949, interpret decimal):
The fault value specifies the parameter involved.
See also: r0110, r0111, p0115

Remedy: Enter the current controller sampling times so that they are identical to the basic clock cycle, e.g. by selecting p0112. Note which basic clock cycle is selected in p0111.
The sampling times in p0115 can only be changed manually in the sampling times pre-setting "Expert" (p0112).
See also: r0110, r0111, p0112, p0115

A07200 Drive: Master control ON command present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The ON/OFF1 command is present (no 0 signal).
The command is either influenced via binector input p0840 (current CDS) or control word bit 0 via the master control.
Remedy: Switch the signal via binector input p0840 (current CDS) or control word bit 0 via the master control to 0.

F07220 (N, A) Drive: Master control by PLC missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The "master control by PLC" signal was missing in operation.
- interconnection of the binector input for "master control by PLC" is incorrect (p0854).
- the higher-level control has withdrawn the "master control by PLC" signal.
- data transfer via the fieldbus (master/drive) was interrupted.

Remedy: - check the interconnection of the binector input for "master control by PLC" (p0854).
- check the "master control by PLC" signal and, if required, switch in.
- check the data transfer via the fieldbus (master/drive).
Note:
If the drive should continue to operate after withdrawing "master control by PLC" then fault response must be parameterized to NONE or the message type should be parameterized as alarm.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A07350 (F) Drive: Measuring probe parameterized to a digital output

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The measuring probe is connected to a bi-directional digital input/output and the terminal is set as output.
Alarm value (r2124, interpret decimal):
8: DI/DO 8 (X122.9/X132.1)
9: DI/DO 9 (X122.10/X132.2)
10: DI/DO 10 (X122.12/X132.3)
11: DI/DO 11 (X122.13/X132.4)
12: DI/DO 12 (X132.9)
13: DI/DO 13 (X132.10)
14: DI/DO 14 (X132.12)
15: DI/DO 15 (X132.13)
Regarding the terminal designation:
The first designation is valid for CU320, the second for CU305.
Remedy: - set the terminal as input (p0728).
- de-select the measuring probe (p0488, p0489, p0580).
Reaction upon F: OFF1
Acknowl. upon F: IMMEDIATELY

F07426 (A) Technology controller actual value limited

Message value: %1
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The actual value for the technology controller, interconnected via connector input p2264, has reached a limit.
Fault value (r0949, interpret decimal):
1: upper limit reached.
2: lower limit reached.
Remedy: - adapt the limits to the signal level (p2267, p2268).
- check the actual value normalization (p0595, p0596).
- Deactivate evaluation of the limits (p2252.3)
See also: p0595 (Technological unit selection), p0596 (Technological unit reference quantity), p2264 (Technology controller actual value), p2267 (Technology controller upper limit actual value), p2268 (Technology controller lower limit actual value)
Reaction upon A: NONE
Acknowl. upon A: NONE

A07428 (N) Technology controller parameterizing error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The technology controller has a parameterizing error.
Alarm value (r2124, interpret decimal):
1:
The upper output limit in p2291 is set lower than the lower output limit in p2292.
Remedy: For alarm value = 1:
Set the output limit in p2291 higher than in p2292.
See also: p2291 (Technology controller maximum limiting), p2292 (Technology controller minimum limiting)
Reaction upon N: NONE
Acknowl. upon N: NONE

F07447 Load gear: Position tracking, maximum actual value exceeded

Message value: Component number: %1, encoder data set: %2, drive data set: %3

Message class: Application/technological function faulted (17)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: None **Propagation:** GLOBAL

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: When the position tracking of the load gear is configured, the drive/encoder (motor encoder) identifies a maximum possible absolute position actual value (r2723) that can no longer be represented within 32 bits.

Maximum value: p0408 * p2721 * 2^p0419

Fault value (r0949, interpret hexadecimal):

ccbbaa hex

aa = encoder data set

bb = component number

cc = drive data set

See also: p0408 (Rotary encoder pulse number), p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)

Remedy: - reduce the fine resolution (p0419).

- reduce the multiturn resolution (p2721).

See also: p0419 (Fine resolution absolute value Gx_XIST2 (in bits)), p2721 (Load gear rotary absolute encoder revolutions virtual)

F07448 (A) Load gear: Position tracking, linear axis has exceeded the maximum range

Message value: -

Message class: Application/technological function faulted (17)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: None **Propagation:** GLOBAL

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: For a configured linear axis/no modulo axis, the currently effective motor encoder (encoder 1) has exceeded the maximum possible traversing range.

For the configured linear axis, the maximum traversing range is defined to be 64x (+/- 32x) of p0421. It should be read in p2721 and interpreted as the number of load revolutions.

Note:

Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].

Remedy: The fault should be resolved as follows:

- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- deselect encoder commissioning (p0010 = 0).

The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon A: NONE

Acknowl. upon A: NONE

F07449 (A) Load gear: Position tracking actual position outside tolerance window

Message value: %1

Message class: Application/technological function faulted (17)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: None **Propagation:** GLOBAL

Reaction: OFF1 (NONE, OFF2, OFF3)

Acknowledge: IMMEDIATELY

Cause: When switched off, the currently effective motor encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Note:
Only the motor encoder in the currently effective drive data set is monitored here. The actual effective drive data set is displayed in x = r0051 and the corresponding motor encoder is specified in in p0187[x].
Fault value (r0949, interpret decimal):
Deviation (difference) to the last encoder position in increments of the absolute value after the measuring gear - if one is being used. The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r2724.
See also: p2722 (Load gear position tracking tolerance window), r2724 (Load gear position difference)
Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset position tracking, position (p2720.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010
Reaction upon A: NONE
Acknowl. upon A: NONE

F07500 Drive: Power unit data set PDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Only for controlled line supply infeed/regenerative feedback units:
The power unit data set was not configured - this means that a data set number was not entered into the drive data set.
Fault value (r0949, interpret decimal):
Drive data set number of p0185.
Remedy: The index of the power unit data set associated with the drive data set should be entered into p0185.

F07501 Drive: Motor Data Set MDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Only for power units:
The motor data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0186.
Remedy: The index of the motor data set associated with the drive data set should be entered into p0186.

F07502 Drive: Encoder Data Set EDS not configured

Message value: Drive data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: Only for power units:
The encoder data set was not configured - this means that a data set number was not entered into the associated drive data set.
Fault value (r0949, interpret decimal):
The fault value includes the drive data set number of p0187, p0188 and p0189.
The fault value is increased by 100 * encoder number (e.g. for p0189: Fault value 3xx with xx = data set number).
Remedy: The index of the encoder data set associated with the drive data set should be entered into p0187 (1st encoder), p0188 (2nd encoder) and p0189 (3rd encoder).

A07504 Drive: Motor data set is not assigned to a drive data set

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: A motor data set is not assigned to a drive object.
All of the existing motor data sets in the drive data sets must be assigned using the MDS number (p0186[0...n]). There must be at least as many drive data sets as motor data sets.
Alarm value (r2124, interpret decimal):
Number of the motor data set that has not been assigned.
Remedy: In the drive data sets, assign the non-assigned motor data set using the MDS number (p0186[0...n]).
- check whether all of the motor data sets are assigned to drive data sets.
- if required, delete superfluous motor data sets.
- if required, set up new drive data sets and assign to the corresponding motor data sets.

F07509 Drive: Component assignment missing

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A Drive Data Set (DDS) is assigned to a Motor Data Set (MDS) or Encoder Data Set (EDS) that does not have a component number.
Fault value (r0949, interpret decimal):
nnmmmxxyyy
nn: Number of the MDS/EDS.
mmm: Parameter number of the missing component number.
xx: Number of the DDS that is assigned to the MDS/EDS.
yyy: Parameter number that references the MDS/EDS.
Example:
p0186[7] = 5: DDS 7 is assigned MDS 5.
p0131[5] = 0: There is no component number set in MDS 5.
Alarm value = 0513107186
Remedy: In the drive data sets, no longer assign MDS/EDS using p0186, p0187, p0188, p0189 or set a valid component number.
See also: p0141 (Encoder interface (Sensor Module) component number), p0142 (Encoder component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

F07510 Drive: Identical encoder in the drive data set

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: More than one encoder with identical component number is assigned to a single drive data set. In one drive data set, it is not permissible that identical encoders are operated together.
Fault value (r0949, interpret decimal):
1000 * first identical encoder + 100 * second identical encoder + drive data set.
Example:
Fault value = 1203 means:
In drive data set 3, the first (p0187[3]) and second encoder (p0188[3]) are identical.
Remedy: Assign the drive data set to different encoders.
See also: p0141 (Encoder interface (Sensor Module) component number), p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)

F07511 Drive: Encoder used a multiple number of times

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Each encoder may only be assigned to one drive and within a drive must - in each drive data set - either always be encoder 1, always encoder 2 or always encoder 3. This unique assignment has been violated.
Fault value (r0949, interpret decimal):
The two parameters in coded form, that refer to the same component number.
First parameter:
Index: First and second decimal place (99 for EDS, not assigned DDS)
Parameter number: Third decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS not assigned DDS)
Drive number: Fourth and fifth decimal place
Second parameter:
Index: Sixth and seventh decimal place (99 for EDS, not assigned DDS)
Parameter number: Eighth decimal place (1 for p0187, 2 for p0188, 3 for p0189, 4 for EDS, not assigned DDS)
Drive number: Ninth and tenth decimal place
See also: p0141 (Encoder interface (Sensor Module) component number)
Remedy: Correct the double use of a component number using the two parameters coded in the fault value.

F07512 Drive: Encoder data set changeover cannot be parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Using p0141, a changeover of the encoder data set is prepared that is illegal. In this firmware release, an encoder data set changeover is only permitted for the components in the actual topology.
Fault value (r0949, interpret decimal):
Incorrect EDS data set number.
See also: p0187 (Encoder 1 encoder data set number), p0188 (Encoder 2 encoder data set number)
Remedy: Every encoder data set must be assigned its own dedicated DRIVE-CLiQ socket. The component numbers of the encoder interfaces (p0141) must have different values within a drive object.
The following must apply:
p0141[0] not equal to p0141[1] not equal to ... not equal to p0141[n]

F07515 Drive: Power unit and motor incorrectly connected

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A power unit (via PDS) was assigned to a motor (via MDS) in a drive data set that is not connected in the target topology. It is possible that a motor has not been assigned to the power unit (p0131).
Fault value (r0949, interpret decimal):
Number of the incorrectly parameterized drive data set.
Remedy: - assign the drive data set to a combination of motor and power unit permitted by the target topology.
- adapt the target topology.
- if required, for a missing motor, recreate the component (drive Wizard).
See also: p0121 (Power unit component number)

F07516 Drive: Re-commission the data set

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The assignment between the drive data set and motor data set (p0186) or between the drive data set and the encoder data set was modified (p0187). This is the reason that the drive data set must re-commissioned.
Fault value (r0949, interpret decimal):
Drive data set to be re-commissioned.
Remedy: Commission the drive data set specified in the fault value (r0949).

F07517 Drive: Encoder data set changeover incorrectly parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: In at least two drive data sets (DDS), the same motor data set (MDS) is assigned different encoder data sets (EDS) for the motor encoder. In various DDSs, it is not permissible for an MDS to have different motor encoders.
The following parameterization therefore results results in an error:
DDS0: p0186[0] = 0, p0187[0] = 0
DDS1: p0186[1] = 0, p0187[1] = 1
Fault value (r0949, interpret decimal):
The lower 16 bits indicate the first DDS. The upper 16 bits indicate the second DDS.
Remedy: Create two MDS with the same motor data in order to operate one motor with different motor encoders.
Example:
DDS0: p0186[0] = 0, p0187[0] = 0
DDS1: p0186[1] = 1, p0187[1] = 1

F07518 Drive: Motor data set changeover incorrectly parameterized

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: The system has identified that two motor data sets were incorrectly parameterized.
Parameter r0313 (calculated from p0314, p0310, p0311), r0315 and p1982 may only have different values if the motor data sets are assigned different motors. p0827 is used to assign the motors and/contactors.
It is not possible to toggle between motor data sets.
Fault value (r0949, interpret hexadecimal):
xxxxyyyy:
xxxx: First DDS with assigned MDS, yyyy: Second DDS with assigned MDS
Remedy: Correct the parameterization of the motor data sets.

A07530 Drive: Drive Data Set DDS not present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The selected drive data set is not available (p0837 > p0180). The drive data set was not changed over.
See also: p0180 (Number of Drive Data Sets (DDS)), p0820 (Drive Data Set selection DDS bit 0), p0821 (Drive Data Set selection DDS bit 1), r0837 (Drive Data Set DDS selected)
Remedy: - select the existing drive data set.
- set up additional drive data sets.

A07531 Drive: Command Data Set CDS not present

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The selected command data set is not available (p0836 > p0170). The command data set was not changed over.
See also: p0810 (Command data set selection CDS bit 0), r0836 (Command Data Set CDS selected)
Remedy: - select the existing command data set.
- set up additional command data sets.

A07541 Drive: Data set changeover not possible

Message value: -
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The selected drive data set changeover and the assigned motor changeover are not possible and are not carried out.
For synchronous motors, the motor contactor may only be switched for actual speeds less than the speed at the start of field weakening (r0063 < p0348).
See also: r0063 (Speed actual value)
Remedy: Reduce the speed to below the speed at the start of field weakening (r0063 < p0348).

A07550 (F, N) Drive: Not possible to reset encoder parameters

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: When carrying out a factory setting (e.g. using p0970 = 1), it was not possible to reset the encoder parameters. The encoder parameters are directly read out of the encoder via DRIVE-CLiQ.
Alarm value (r2124, interpret decimal):
Component number of the encoder involved.
Remedy: - repeat the operation.
- check the DRIVE-CLiQ connection.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F07551 Drive encoder: No commutation angle information

Message value: Fault cause: %1, drive data set: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The commutation angle information is missing. This means that synchronous motors cannot be controlled (closed-loop control)
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = fault cause, xxxx = drive data set
yyyy = 1 dec:
The motor encoder used does not supply an absolute commutation angle.
yyyy = 2 dec:
The selected ratio of the measuring gear does not match the motor pole pair number.
Remedy: For fault cause = 1:
- check the encoder parameterization (p0404).
- use an encoder with track C/D, EnDat interface of Hall sensors.
- use an encoder with sinusoidal A/B track for which the motor pole pair number (r0313) multiplied by the gear ratio (p0432/p0433) is less than the encoder pulse number (p0408) – or is an integer multiple of the encoder pulse number (p0408).
- activate the pole position identification routine (p1982 = 1).
For fault cause = 2:
- the quotient of the pole pair number divided by the ratio of the measuring gear must be an integer number: (p0314 * p0433) / p0432.
Note:
For operation with track C/D, this quotient must be less than 8.
See also: p0402 (Gearbox type selection), p0404 (Encoder configuration effective), p0432 (Gearbox factor encoder revolutions), p0433 (Gearbox factor motor/load revolutions)

F07552 (A) Drive encoder: Encoder configuration not supported

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: The requested encoder configuration is not supported. Only bits may be requested in p0404 that are signaled as being supported by the encoder evaluation in r0456.
Fault value (r0949, interpret decimal):
ccccbbaa hex: cccc = fault cause, bb = component number, aa = encoder data set
cccc = 1: encoder sin/cos with absolute track (is supported by SME25).
cccc = 3: Squarewave encoder (this is supported by SMC30).
cccc = 4: sin/cos encoder (this is supported by SMC20, SMI20, SME20, SME25).
cccc = 10: DRIVE-CLiQ encoder (is supported by DQI).
cccc = 12: sin/cos encoder with reference mark (this is supported by SME20).
cccc = 15: Commutation with zero mark for separately excited synchronous motors with VECTORMV.
cccc = 23: Resolver (this is supported by SMC10, SMI10).
cccc = 65535: Other function (compare r0456 and p0404).
See also: p0404 (Encoder configuration effective), r0456 (Encoder configuration supported)

Remedy: - check the encoder parameterization (p0400, p0404).
- use the matching encoder evaluation (r0456).

Reaction upon A: NONE

Acknowl. upon A: NONE

F07553 (A) Drive encoder: Sensor Module configuration not supported

Message value: Encoder data set: %1, first incorrect bit: %2, incorrect parameter: %3

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: None **Propagation:** GLOBAL

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: The Sensor Module does not support the requested configuration.
For incorrect p0430 (cc = 0), the following applies:
- in p0430 (requested functions), at least 1 bit was set that is not set in r0458 (supported functions) (exception: Bit 19, 28, 29, 30, 31).
- p1982 > 0 (pole position identification requested), but r0458.16 = 0 (pole position identification not supported).
For incorrect p0437 (cc = 1), the following applies:
- in p0437 (requested functions), at least 1 bit was set that is not set in r0459 (supported functions).
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex
aa: encoder data set number
bb: first incorrect bit
cc: incorrect parameter
cc = 0: incorrect parameter is p0430
cc = 1: incorrect parameter is p0437
cc = 2: incorrect parameter is r0459
dd: reserved (always 0)

Remedy: - check the encoder parameterization (p0430, p0437).
- check the pole position identification routine (p1982).
- use the matching encoder evaluation (r0458, r0459).
See also: p0430 (Sensor Module configuration), p0437 (Sensor Module configuration extended), r0458 (Sensor Module properties), r0459 (Sensor Module properties extended), p1982 (PolID selection)

Reaction upon A: NONE

Acknowl. upon A: NONE

F07555 (A) Drive encoder: Configuration position tracking

Message value: Component number: %1, encoder data set: %2, drive data set: %3, fault cause: %4

Message class: Error in the parameterization / configuration / commissioning procedure (18)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** GLOBAL

Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)

Acknowledge: IMMEDIATELY (POWER ON)

Cause: For position tracking, the configuration is not supported.
Position tracking can only be activated for absolute encoders.
For linear axes, it is not possible to simultaneously activate the position tracking for load and measuring gears.
Fault value (r0949, interpret hexadecimal):
ddccbbaa hex
aa = encoder data set
bb = component number
cc = drive data set
dd = fault cause
dd = 00 hex = 0 dec
An absolute encoder is not being used.
dd = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
dd = 02 hex = 2 dec
For a linear axis, the position tracking was activated for the load and measuring gear.
dd = 03 hex = 3 dec
Position tracking cannot be activated because position tracking with another gear ratio, axis type or tolerance window has already been detected for this encoder data set.
dd = 04 hex = 4 dec
A linear encoder is being used.
See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration)

Remedy: For fault value 0:
- use an absolute encoder.
For fault value 1:
- use a Control Unit with sufficient NVRAM.
For fault value = 2, 4:
- if necessary, de-select the position tracking (p0411 for the measuring gear, p2720 for the load gear).
For fault value 3:
- Only activate position tracking of the load gear in the same encoder data set if the gear ratio (p2504, p2505), axis type (p2720.1) and tolerance window (p2722) are also the same. These parameters must be the same in all drive data sets, which use the same motor encoder (p187).

Reaction upon A: NONE
Acknowl. upon A: NONE

F07556 Measuring gear: Position tracking, maximum actual value exceeded

Message value: Component number: %1, encoder data set: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: When the position tracking of the measuring gear is configured, the drive/encoder identifies a maximum possible absolute position actual value (r0483) that cannot be represented within 32 bits.
Maximum value: p0408 * p0412 * 2^p0419
Fault value (r0949, interpret decimal):
aaaayyxx hex: yy = component number, xx = encoder data set
See also: p0408 (Rotary encoder pulse number), p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

Remedy: - reduce the fine resolution (p0419).
- reduce the multiturn resolution (p0412).
See also: p0412 (Measuring gear absolute encoder rotary revolutions virtual), p0419 (Fine resolution absolute value Gx_XIST2 (in bits))

F07560 Drive encoder: Number of pulses is not to the power of two

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For rotary absolute encoders, the pulse number in p0408 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.
Remedy: - check the parameterization (p0408, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

F07561 Drive encoder: Number of multiturn pulses is not to the power of two

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The multiturn resolution in p0421 must be to the power of two.
Fault value (r0949, interpret decimal):
The fault value includes the encoder data set number involved.
Remedy: - check the parameterization (p0421, p0404.1, r0458.5).
- upgrade the Sensor Module firmware if necessary

F07562 (A) Drive, encoder: Position tracking, incremental encoder not possible

Message value: Fault cause: %1, component number: %2, encoder data set: %3
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The requested position tracking for incremental encoders is not supported.
Fault value (r0949, interpret hexadecimal):
ccccbbaa hex
aa = encoder data set
bb = component number
cccc = fault cause
cccc = 00 hex = 0 dec
The encoder type does not support the "Position tracking incremental encoder" function.
cccc = 01 hex = 1 dec
Position tracking cannot be activated because the memory of the internal NVRAM is not sufficient or a Control Unit does not have an NVRAM.
cccc = 04 hex = 4 dec
A linear encoder is used that does not support the "position tracking" function.
See also: p0404 (Encoder configuration effective), p0411 (Measuring gear configuration), r0456 (Encoder configuration supported)
Remedy: - check the encoder parameterization (p0400, p0404).
- use a Control Unit with sufficient NVRAM.
- if required, de-select position tracking for the incremental encoder (p0411.3 = 0).
Reaction upon A: NONE
Acknowl. upon A: NONE

F07563 (A) Drive encoder: XIST1_ERW configuration incorrect

Message value: Fault cause: %1, encoder data set: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: An incorrect configuration was identified for the "Absolute position for incremental encoder" function.
Fault value (r0949, interpret decimal):
Fault cause:
1 (= 01 hex):
The "Absolute value for incremental encoder" function is not supported (r0459.13 = 0).
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
yyxx dec: yy = fault cause, xx = encoder data set
See also: r0459 (Sensor Module properties extended), p4652 (XIST1_ERW reset mode)
Remedy: For fault value = 1:
- upgrade the Sensor Module firmware version.
- check the mode (p4652 = 1, 3 requires the property r0459.13 = 1).
Reaction upon A: NONE
Acknowl. upon A: NONE

A07565 (F, N) Drive: Encoder error in PROFIdrive encoder interface 1

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 1 via the PROFIdrive encoder interface (G1_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G1_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[0] is not equal to zero.
Encoder control word Gn_STW signal source (p0480[0...2], n = encoder 1, 2, 3)
Encoder status word Gn_ZSW (r0481[0...2], n = encoder 1, 2, 3)
Remedy: Acknowledge the encoder error using the encoder control word (G1_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07566 (F, N) Drive: Encoder error in PROFIdrive encoder interface 2

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: An encoder error was signaled for encoder 2 via the PROFIdrive encoder interface (G2_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G2_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[1] is not equal to zero.
Encoder control word Gn_STW signal source (p0480[0...2], n = encoder 1, 2, 3)
Encoder status word Gn_ZSW (r0481[0...2], n = encoder 1, 2, 3)
Remedy: Acknowledge the encoder error using the encoder control word (G2_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07567 (F, N) Drive: Encoder error in PROFIdrive encoder interface 3

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 3 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: An encoder error was signaled for encoder 3 via the PROFIdrive encoder interface (G3_ZSW.15).
Alarm value (r2124, interpret decimal):
Error code from G3_XIST2, refer to the description regarding r0483.
Note:
This alarm is only output if p0480[2] is not equal to zero.
Encoder control word Gn_STW signal source (p0480[0...2], n = encoder 1, 2, 3)
Encoder status word Gn_ZSW (r0481[0...2], n = encoder 1, 2, 3)
Remedy: Acknowledge the encoder error using the encoder control word (G3_STW.15 = 1).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A07569 (F) Enc identification active

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: During encoder identification (waiting) with p0400 = 10100, the encoder could still not be identified.
Either the wrong encoder has been installed or no encoder has been installed, the wrong encoder cable has been connected or no encoder cable has been connected to the Sensor Module, or the DRIVE-CLiQ component has not been connected.
Note:
Encoder identification must be supported by the encoder and is possible in the following cases:
- Encoder with EnDat interface.
- Encoder with SSI interface.
- Motor with DRIVE-CLiQ.
Remedy: - check and, if necessary, connect the encoder / encoder cable.
- check and, if necessary, establish the DRIVE-CLiQ connection.
- for SSI encoders, carry out the required operator actions (see the Function Manual).
- in the case of encoders that cannot be identified (e.g. encoders without EnDat interface), enter the correct encoder type in p0400.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

N07570 (F) Encoder identification data transfer running

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: NONE
Cause: The encoder type was automatically determined using p0400 = 10100.
Note:
This fault causes the pulses to be suppressed - this is necessary to transfer the encoder parameterization to p0400 and the following.
See also: p0400 (Encoder type selection)
Remedy: Acknowledge the fault without taking additional measures.
Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F07575 Drive: Motor encoder not ready

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: OFF2 (ENCODER)
Acknowledge: IMMEDIATELY
Cause: The motor encoder signals that it is not ready.
- initialization of encoder 1 (motor encoder) was unsuccessful.
- the function "parking encoder" is active (encoder control word G1_STW.14 = 1).
- the encoder interface (Sensor Module) is deactivated (p0145).
- the Sensor Module is defective.
Remedy: Evaluate other queued faults via encoder 1.

A07580 (F, N) Drive: No Sensor Module with matching component number

Message value: Encoder data set: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: A Sensor Module with the component number specified in p0141 was not found.
Alarm value (r2124, interpret decimal):
Encoder data set involved (index of p0141).
Remedy: Correct parameter p0141.
Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A07850 (F) External alarm 1

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The condition for "External alarm 1" is satisfied.
Note:
The "External alarm 1" is initiated by a 1/0 edge via binector input p2112.
See also: p2112 (External alarm 1)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A07851 (F) External alarm 2

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 2" is satisfied.
Note:
The "External alarm 2" is initiated by a 1/0 edge via binector input p2116.
See also: p2116 (External alarm 2)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A07852 (F) External alarm 3

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The condition for "External alarm 3" is satisfied.
Note:
The "External alarm 3" is initiated by a 1/0 edge via binector input p2117.
See also: p2117 (External alarm 3)
Remedy: Eliminate the causes of this alarm.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F07860 (A) External fault 1

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 1" is satisfied.
Note:
The "External fault 1" is initiated by a 1/0 edge via binector input p2106.
See also: p2106 (External fault 1)
Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07861 (A) External fault 2

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 2" is satisfied.
Note:
The "External fault 2" is initiated by a 1/0 edge via binector input p2107.
See also: p2107 (External fault 2)
Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F07862 (A) External fault 3

Message value: -
Message class: External measured value / signal state outside the permissible range (16)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The condition for "External fault 3" is satisfied.
Note:
The "External fault 3" is initiated by a 1/0 edge via the following parameters.
- AND logic operation, binector input p2108, p3111, p3112.
- switch-on delay p3110.
See also: p2108, p3110, p3111, p3112
Remedy: - eliminate the causes of this fault.
- acknowledge fault.
Reaction upon A: NONE
Acknowl. upon A: NONE

F08000 (N, A) TB: +/-15 V power supply faulted

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Controller Extension (CX) **Propagation:** LOCAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Terminal Board 30 detects an incorrect internal power supply voltage.
Fault value (r0949, interpret decimal):
0: Error when testing the monitoring circuit.
1: Fault in normal operation.
Remedy: - replace Terminal Board 30.
- replace Control Unit.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08010 (N, A) TB: Analog-digital converter

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Controller Extension (CX) **Propagation:** LOCAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The analog/digital converter on Terminal Board 30 has not supplied any converted data.
Remedy: - check the power supply.
- replace Terminal Board 30.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08500 (A) COMM BOARD: Monitoring time configuration expired

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The monitoring time for the configuration has expired.
Fault value (r0949, interpret decimal):
0: The transfer time of the send configuration data has been exceeded.
1: The transfer time of the receive configuration data has been exceeded.
Remedy: Check communications link.
Reaction upon A: NONE
Acknowl. upon A: NONE

F08501 (N, A) PN/COMM BOARD: Setpoint timeout

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: OFF3 (IASC/DCBRK, NONE, OFF1, OFF2, STOP2)
Acknowledge: IMMEDIATELY
Cause: The reception of setpoints from the COMM BOARD has been interrupted.
- bus connection interrupted.
- controller switched off.
- controller set into the STOP state.
- COMM BOARD defective.
Remedy: - Restore the bus connection and set the controller to RUN.
- if the error is repeated, check the update time set in the bus configuration (HW Config).
See also: p8840 (COMM BOARD monitoring time)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F08502 (A) PN/COMM BOARD: Monitoring time sign-of-life expired

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The monitoring time for the sign-of-life counter has expired.
The connection to the COMM BOARD was interrupted.
Remedy: - check communications link.
- check COMM BOARD.
Reaction upon A: NONE
Acknowl. upon A: NONE

A08504 (F) PN/COMM BOARD: Internal cyclic data transfer error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The cyclic actual and/or setpoint values were not transferred within the specified times.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: Check the parameterizing telegram (Ti, To, Tdp, etc.).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F08510 (A) PN/COMM BOARD: Send configuration data invalid

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: COMM BOARD did not accept the send-configuration data.
Fault value (r0949, interpret decimal):
Return value of the send-configuration data check.
Remedy: Check the send configuration data.
Reaction upon A: NONE
Acknowl. upon A: NONE

A08511 (F) PN/COMM BOARD: Receive configuration data invalid

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The drive unit did not accept the receive configuration data.
Alarm value (r2124, interpret decimal):
Return value of the receive configuration data check.
1: Connection established to more drive objects than configured in the device. The drive objects for process data exchange and their sequence are defined in p0978.
2: Too many PZD data words for output or input to a drive object. The number of possible PZD items in a drive object is determined by the number of indices in r2050/p2051 for PZD IF1, and in r8850/p8851 for PZD IF2.
3: Uneven number of bytes for input or output.
4: Setting data for synchronization not accepted. For more information, see A01902.
5: Cyclic operation not active.
17: CBE20 Shared Device: Configuration of the F-CPU has been changed.
223: Illegal clock synchronization for the PZD interface set in p8815[0].
500: Illegal PROFIsafe configuration for the interface set in p8815[1].
501: PROFIsafe parameter error (e.g. F_dest).
503: PROFIsafe connection is rejected as long as there is no isochronous connection (p8969).
Additional values:
Only for internal Siemens troubleshooting.
Remedy: Check the receive configuration data.
For alarm value = 1, 2:
- check the list of the drive objects with process data exchange (p0978). With p0978[x] = 0, all of the following drive objects in the list are excluded from the process data exchange.
For alarm value = 2:
- check the number of data words for output and input to a drive object.
For alarm value = 17:
- CBE20 Shared Device: Unplug/plug A-CPU.
For alarm value = 223, 500:
- check the setting in p8839 and p8815.
- ensure that only one PZD interface is operated in clock synchronism or with PROFIsafe.
For alarm value = 501:
- check the set PROFIsafe address (p9610).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A08520 (F) PN/COMM BOARD: Non-cyclic channel error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The memory or the buffer status of the non-cyclic channel has an error.
Alarm value (r2124, interpret decimal):
0: Error in the buffer status.
1: Error in the memory.
Remedy: Check communications link.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A08526 (F) PN/COMM BOARD: No cyclic connection

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: There is no cyclic connection to the control.

Remedy: Establish the cyclic connection and activate the control with cyclic operation.
For PROFINET, check the parameters "Name of Station" and "IP of Station" (r61000, r61001).
If a CBE20 is inserted and PROFIBUS is to communicate via PZD Interface 1, then this must be parameterized using the STARTER commissioning tool or directly using p8839.
Reaction upon F: NONE (OFF1)
Acknowl. upon F: IMMEDIATELY

A08530 (F) PN/COMM BOARD: Message channel error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The memory or the buffer status of the message channel has an error.
Alarm value (r2124, interpret decimal):
0: Error in the buffer status.
1: Error in the memory.
Remedy: Check communications link.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A08531 (F) CBE20 POWER ON required

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one parameter of the CBE20 (e.g. a parameter associated with SINAMICS Link) was changed as a result of a project download. A POWER ON is required to activate the values.
Note:
CBE20: Communication Board Ethernet 20
See also: p8811 (SINAMICS Link project selection), p8812 (SINAMICS Link clock cycle settings), p8835 (CBE20 firmware selection), p8836 (SINAMICS link node address)
Remedy: Back up the parameters and carry out a POWER ON (switch-off/switch-on).
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A08550 PZD Interface Hardware assignment error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The assignment of the hardware to the PZD interface has been incorrectly parameterized.
Alarm value (r2124, interpret decimal):
1: Only one of the two indices is not equal to 99 (automatic).
2: Both PZD interfaces are assigned to the same hardware.
3: Assigned COMM BOARD missing.
See also: p8839 (PZD interface hardware assignment)
Remedy: Check the parameterization and if required, correct (p8839).

A08550 PZD Interface Hardware assignment error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The assignment of the hardware to the PZD interface has been incorrectly parameterized.
Alarm value (r2124, interpret decimal):
1: Only one of the two indices is not equal to 99 (automatic).
2: Both PZD interfaces are assigned to the same hardware.
3: Assigned COMM BOARD missing.
4: CBC10 is assigned to interface 1.
See also: p8839 (PZD interface hardware assignment)
Remedy: Check the parameterization and if required, correct (p8839).

A08555 Modbus TCP: commissioning error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: CU_DC, CU_DC_R, CU_DC_R_S, CU_DC_S
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: A setting for the "Modbus TCP" protocol is incorrect.
Alarm value (r2124, interpret decimal):
2: A drive object supported by Modbus is not available under p0978[0]. Modbus is not activated.
See also: p0978 (List of drive objects), p8835 (CBE20 firmware selection)
Remedy: For alarm value = 2:
Appropriately resort the list of drive objects in p0978.
Modbus supports the following drive object: DC_CTRL

A08564 PN/COMM BOARD: syntax error in the configuration file

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A syntax error has been detected in the ASCII configuration file for the Communication Board Ethernet 20/25 (CBE20/CBE25). The saved configuration file has not been loaded.
Remedy: - check the CBE2x configuration (p8940 and following), correct if necessary, and activate (p8945 = 2).
- reinitialize the CBE2x (e.g. using the STARTER commissioning tool)
Note:
The configuration is not applied until the next POWER ON!
See also: p8945 (CBE2x activate interface configuration)

A08565 PNCOMM BOARD: Consistency error affecting adjustable parameters

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: A consistency error was detected when activating the configuration (p8945) for the Communication Board Ethernet 20/25 (CBE20/CBE25).
Alarm value (r2124, interpret decimal):
0: general consistency error
1: error in the IP configuration (IP address, subnet mask or standard gateway).
2: Error in the station names.
3: DHCP was not able to be activated, as a cyclic PROFINET connection already exists.
4: a cyclic PROFINET connection is not possible as DHCP is activated.
Note:
For all alarm values, the following applies: currently set configuration has not been activated.
DHCP: Dynamic Host Configuration Protocol
See also: p8940 (CBE2x Name of Station), p8941 (CBE2x IP address), p8942 (CBE2x Default Gateway), p8943 (CBE2x Subnet Mask), p8944 (CBE2x DHCP Mode)

Remedy: - check the required interface configuration (p8940 and following), correct if necessary, and activate (p8945).
or
- reinitialize the station using the "Edit Ethernet node" screen form (e.g. with STARTER commissioning tool).
See also: p8945 (CBE2x activate interface configuration)

F13000 License not adequate

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: - for the drive unit, the options that require a license are being used but the licenses are not sufficient.
- an error occurred when checking the existing licenses.
Fault value (r0949, decimal interpretation):
0:
The existing license is not sufficient.
1:
An adequate license was not able to be determined as the memory card with the required licensing data was withdrawn in operation.
2:
An adequate license was not able to be determined as there is no licensing data available on the memory card.
3:
An adequate license was not able to be determined as there is a checksum error in the license key.
4:
An internal error occurred when checking the license.

Remedy: For fault value = 0:
Additional licenses are required and these must be activated (p9920, p9921).
For fault value = 1:
With the system powered down, re-insert the memory card that matches the system.
For fault value = 2:
Enter and activate the license key (p9920, p9921).
For fault value = 3:
Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).
For fault value = 4:
- carry out a POWER ON.
- upgrade firmware to later version.
- contact Technical Support.
Note:
An overview of the drive device functions requiring a license can be displayed using a commissioning tool in the online mode. Depending on the commissioning tool, you can obtain the necessary licenses (serial number, license Key, Trial License Mode).

A13001 Error in license checksum

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When checking the checksum of the license key, an error was detected.
Remedy: Compare the license key (p9920) entered with the license key on the certificate of license.
Re-enter the license key and activate (p9920, p9921).

F13009 Licensing Technology Extension not licensed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: At least one Technology Extension that requires a license does not have a license.
Note:
Refer to r4955 and p4955 for information about the installed Technology Extensions.
Remedy: - enter and activate the license key for Technology Extensions that require a license (p9920, p9921).
- if necessary, deactivate Technology Extensions that are not licensed (p4956).
See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

F13010 Licensing function module not licensed

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: At least one function module requiring a license is not licensed.
Fault value (r0949, interpret hexadecimal):
Bit x = 1: The corresponding function module does not have a license.
Note:
Assigning bit number to function module, see p0108 or r0108.
Remedy: - enter and activate the license key for function modules that require a license license (p9920, p9921).
- if necessary, deactivate unlicensed function modules (p0108, r0108).
See also: p9920 (Licensing enter license key), p9921 (Licensing activate license key)

A13021 License for 600 Hz is not sufficient

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: You have parameterized speeds that result in output frequencies >550Hz. For SINAMICS drives, output frequencies >550Hz are only possible after enabling the corresponding high output frequency license. Without license, the SINAMICS output frequencies are limited to 550 Hz (independent of any other parameterization).
Remedy: - enter and activate the license key for 600Hz.
- if required deactivate use of 600 Hz

A13030 Trial License activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The "Trial License" function was activated. One of the available periods is expiring.
See also: p9918 (Licensing active Trial License), r9919 (Licensing Trial License status)
Remedy: Not necessary.
The alarm is automatically withdrawn after the periods have expired.

A13031 Trial License period expired

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: One of the available periods of the "Trial License" function has expired.
See also: p9918 (Licensing active Trial License), r9919 (Licensing Trial License status)
Remedy: - if required, start an additional period (p9918 = 1).
- deactivate functions requiring a license.
- appropriately license the drive unit.
Note:
A license that is not adequate will only become evident after the next time the system runs up.

A13032 Trial License last period activated

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The "Trial License" function was activated. The last of the available periods is expiring.
See also: p9918 (Licensing active Trial License), r9919 (Licensing Trial License status)
Remedy: Not necessary.
The alarm is automatically withdrawn after the last period has expired.

A13033 Trial License last period expired

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The last period of the "Trial License" function has expired. No additional periods available.
See also: p9918 (Licensing active Trial License), r9919 (Licensing Trial License status)
Remedy: - deactivate functions requiring a license.
- appropriately license the drive unit.
Note:
A license that is not adequate will only become evident after the next time the system runs up.

F13100 Know-how protection: Copy protection error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: The know-how protection with copy protection for the memory card is active.
An error has occurred when checking the memory card.
Fault value (r0949, interpret decimal):
0: A memory card is not inserted.
2: An invalid memory card is inserted.
3: The memory card is being used in another Control Unit.
12: An invalid memory card is inserted (OEM input incorrect, p7769).
13: The memory card is being used in another Control Unit (OEM input incorrect, p7759).
See also: p7765 (KHP configuration)
Remedy: For fault value = 0:
- insert the correct memory card and carry out POWER ON.
For fault value = 2, 3, 12, 13:
- contact the responsible OEM.
- Deactivate copy protection (p7765) and acknowledge the fault (p3981).
- Deactivate know-how protection (p7766 ... p7768) and acknowledge the fault (p3981).
Note:
In general, the copy protection can only be changed when know-how protection is deactivated.
KHP: Know-How Protection
See also: p3981 (Acknowledge drive object faults), p7765 (KHP configuration)

F13101 Know-how protection: Copy protection cannot be activated

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error occurred when attempting to activate the copy protection for the memory card.
Fault value (r0949, interpret decimal):
0: A memory card is not inserted.
Note:
KHP: Know-How Protection
Remedy: - insert the memory card and carry out POWER ON.
- Try to activate copy protection again (p7765).
See also: p7765 (KHP configuration)

F13102 Know-how protection: Consistency error of the protected data

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: All objects
Component: Control Unit (CU) **Propagation:** GLOBAL
Reaction: OFF1
Acknowledge: IMMEDIATELY

Cause: An error was identified when checking the consistency of the protected files. As a consequence, the project on the memory card cannot be run.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: yyyy = object number, xxxx = fault cause
xxxx = 1:
A file has a checksum error.
xxxx = 2:
The files are not consistent with one another.
xxxx = 3:
The project files, which were loaded into the file system via load (download from the memory card), are inconsistent.
Note:
KHP: Know-How Protection

Remedy: - Replace the project on the memory card or replace project files for download from the memory card.
- Restore the factory setting and download again.

F30001 Power unit: Overcurrent

Message value: Fault cause: %1 bin
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an overcurrent condition.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: Rated motor current is significantly greater than that of the Motor Module.
- infeed: High discharge and post-charging currents for line voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at switch-on as there is no commutating reactor.
- power cables are not correctly connected.
- the power cables exceed the maximum permissible length.
- power unit defective.
- line phase interrupted.

Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (switched off) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.

Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.
Bit 3: Overcurrent in the DC link.
Note:
Fault value = 0 means that the phase with overcurrent is not recognized (e.g. for blocksize device).

Remedy:
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star/delta).
- U/f operation: Increase up ramp.
- U/f operation: Check the assignment of the rated currents of the motor and Motor Module.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Check the correct connection of the line filter and the line commutating reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.
- check the line supply phases.

For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30002 Power unit: DC link voltage overvoltage

Message value: %1
Message class: DC link overvoltage (4)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected overvoltage in the DC link.
- motor regenerates too much energy.
- device supply voltage too high.
- when operating with a Voltage Sensing Module (VSM), the phase assignment L1, L2, L3 at the VSM differs from the phase assignment at the power unit.
- line phase interrupted.

Fault value (r0949, interpret decimal):
DC link voltage at the time of trip [0.1 V].

Remedy:
- increase the ramp-down time
- activate the DC link voltage controller (p1240)
- use a brake resistor or Active Line Module
- increase the current limit of the infeed or use a larger module (for the Active Line Module)
- check the device supply voltage
- check and correct the phase assignment at the VSM and at the power unit
- check the line supply phases.

F30003 Power unit: DC link voltage undervoltage

Message value: -
Message class: Infeed faulted (13)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit has detected an undervoltage condition in the DC link.
- line supply failure
- line supply voltage below the permissible value.
- line supply infeed failed or interrupted.
- line phase interrupted.

Note:
The monitoring threshold for undervoltage in the DC link is indicated in r0296.

Remedy: - check the line supply voltage
- check the line supply infeed and observe the fault messages relating to it (if there are any)
- check the line supply phases.
- check the line supply voltage setting (p0210).
- booksize units: check the setting of p0278.
Note:
The ready signal for the infeed (r0863) must be interconnected to the associated drive inputs (p0864).

F30004 Power unit: Overtemperature heat sink AC inverter

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature of the power unit heat sink has exceeded the permissible limit value.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].

Remedy: - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.
Notice:
This fault can only be acknowledged after the alarm threshold for alarm A05000 has been undershot.

F30005 Power unit: Overload I2t

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit was overloaded (r0036 = 100 %).
- the permissible rated power unit current was exceeded for an inadmissibly long time.
- the permissible load duty cycle was not maintained.
Fault value (r0949, interpret decimal):
I2t [100 % = 16384].

Remedy: - reduce the continuous load.
- adapt the load duty cycle.
- check the motor and power unit rated currents.

F30006 Power unit: Thyristor Control Board

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: The Thyristor Control Board (TCB) of the Basic Line Module signals a fault.
- there is no line supply voltage.
- the line contactor is not closed.
- the line supply voltage is too low.
- line supply frequency outside the permissible range (45 ... 66 Hz).
- there is a DC link short-circuit.
- there is a DC link short-circuit (during the precharging phase).
- the motor either has a short-circuit or insulation fault (from an inverter connected to the DC link).
- voltage supply for the Thyristor Control Board outside the nominal range (5 ... 18 V) and line voltage >30 V.
- there is an internal fault in the Thyristor Control Board.

Remedy: The faults must be saved in the Thyristor Control Board and must be acknowledged. To do this, the supply voltage of the Thyristor Control Board must be switched out for at least 10 s!
- check the line supply voltage
- check or energize the line contactor.
- check the monitoring time and, if required, increase (p0857).
- if required, observe additional power unit messages/signals.
- check the DC link regarding short-circuit or ground fault.
- check the motor regarding short-circuit or ground fault.
- evaluate diagnostic LEDs for the Thyristor Control Board.

F30008 Power unit: Sign-of-life error cyclic data

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The Control Unit has not punctually updated the cyclic setpoint telegram to the power unit. The number of consecutive tolerated sign of life errors has exceeded the fault threshold (p7789) set in the power unit.
Remedy:
- for projects with the VECTOR drive object, check whether p0117 = 6 has been set on the Control Unit.
- increase the fault threshold (p7789).
- check the Motor Module, and if required replace.

A30010 (F) Power unit: Sign-of-life error cyclic data

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the power unit involved.
The cyclic setpoint telegrams of the Control Unit were not received on time by the power unit for at least one clock cycle.
Remedy: Check the Motor Module and if required, replace.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30011 Power unit: Line phase failure in main circuit

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (OFF1)
Acknowledge: IMMEDIATELY

Cause: At the power unit, the DC link voltage ripple has exceeded the permissible limit value.
Possible causes:
- a line phase has failed.
- the 3 line phases are inadmissibly asymmetrical.
- the capacitance of the DC link capacitor forms a resonance frequency with the line inductance and the reactor integrated in the power unit.
- the fuse of a phase of a main circuit has ruptured.
- a motor phase has failed.
- for power units operated on a single phase, the permissible active power was exceeded.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:
- check the main circuit fuses.
- check whether a single-phase load is distorting the line voltages.
- Detune the resonant frequency with the line inductance by using an upstream line reactor.
- Dampen the resonant frequency with the line inductance by switching over the DC link voltage compensation in the software (see p1810) – or increase the smoothing (see p1806). However, this can have a negative impact on the torque ripple at the motor output.
- check the motor feeder cables.

F30012 Power unit: Temperature sensor wire breakage

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: The connection to a temperature sensor in the power unit is interrupted.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2
Bit14: capacitor air discharge
Bit15: liquid intake

Remedy: Contact Technical Support.

F30013 Power unit: Temperature sensor short circuit

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: A temperature sensor in the power unit is short-circuited.
Fault value (r0949, interpret hexadecimal):
Bit 0: Module slot (electronics slot)
Bit 1: Air intake
Bit 2: Inverter 1
Bit 3: Inverter 2
Bit 4: Inverter 3
Bit 5: Inverter 4
Bit 6: Inverter 5
Bit 7: Inverter 6
Bit 8: Rectifier 1
Bit 9: Rectifier 2
Bit14: capacitor air discharge
Bit15: liquid intake

Remedy: Contact Technical Support.

F30017 Power unit: Hardware current limit has responded too often

Message value: Fault cause: %1 bin
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The hardware current limitation in the relevant phase (see A30031, A30032, A30033) has responded too often. The number of times the limit has been exceeded depends on the design and type of power unit.
For infeed units, the following applies:
- closed-loop control is incorrectly parameterized.
- load on the infeed is too high.
- Voltage Sensing Module incorrectly connected.
- line reactor missing or the incorrect type.
- power unit defective.

The following applies to Motor Modules:
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Fault value (r0949, interpret binary):
Bit 3: phase U
Bit 4: phase V
Bit 5: phase W
Additional bits:
Only for internal Siemens troubleshooting.
Note:
Fault value = 0 means that the phase with current limiting is not recognized (e.g. for blocksize device).

Remedy: For infeed units, the following applies:
- check the controller settings and reset and identify the controller if necessary (p0340 = 2, p3410 = 5)
- reduce the load and increase the DC link capacitance or use a higher-rating infeed if necessary
- check the connection of the optional Voltage Sensing Module
- check the connection and technical data of the line reactor
- check the power cables for short-circuit or ground fault.
- replace power unit.

The following applies to Motor Modules:
- check the motor data and if required, recalculate the controller parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star-delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

F30021 Power unit: Ground fault

Message value: %1
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power has detected a ground fault.
Possible causes:
- ground fault in the power cables.
- ground fault at the motor.
- CT defective.
- when the brake closes, this causes the hardware DC current monitoring to respond.
- short-circuit at the braking resistor.
- the closed-loop circulating current control for devices connected in parallel (r0108.15 = 1) is either too slow or has been set too fast.

Note:
For power units, a ground fault is also emulated in r3113.5.
Fault value (r0949, interpret decimal):
0:
- the hardware DC current monitoring has responded.
- short-circuit at the braking resistor.

> 0:
Absolute value, total current amplitude [20479 = r0209 * 1.4142].

Remedy:
- check the power cable connections.
- check the motor.
- check the CT.
- check the cables and contacts of the brake connection (a wire is possibly broken).
- check the braking resistor.

For parallel switching devices (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30022 Power unit: Monitoring U_ce

Message value: Fault cause: %1 bin
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: In the power unit, the monitoring of the collector-emitter voltage (U_ce) of the semiconductor has responded.
Possible causes:
- fiber-optic cable interrupted.
- power supply of the IGBT gating module missing.
- short-circuit at the power unit output.
- defective semiconductor in the power unit.

Fault value (r0949, interpret binary):
Bit 0: Short-circuit in phase U
Bit 1: Short circuit in phase V
Bit 2: Short-circuit in phase W
Bit 3: Light transmitter enable defective
Bit 4: U_ce group fault signal interrupted
See also: r0949 (Fault value)

Remedy:
- check the fiber-optic cable and if required, replace.
- check the power supply of the IGBT gating module (24 V).
- check the power cable connections.
- select the defective semiconductor and replace.

F30025 Power unit: Chip overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The chip temperature of the semiconductor has exceeded the permissible limit value.
- the permissible load duty cycle was not maintained.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- pulse frequency too high.

Fault value (r0949, interpret decimal):
Temperature difference between the heat sink and chip [0.01 °C].

Remedy:
- adapt the load duty cycle.
- check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- reduce the pulse frequency if this is higher than the rated pulse frequency.

Notice:
This fault can only be acknowledged after the alarm threshold for alarm A05001 has been undershot.

F30027 Power unit: Precharging DC link time monitoring

Message value: Enable signals: %1, Status: %2
Message class: Infeed faulted (13)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The power unit DC link was not able to be precharged within the expected time.
1) There is no line supply voltage connected.
2) The line contactor/line side switch has not been closed.
3) The line supply voltage is too low.
4) Line supply voltage incorrectly set (p0210).
5) The precharging resistors are overheated as there were too many precharging operations per time unit.
6) The precharging resistors are overheated as the DC link capacitance is too high.
7) The precharging resistors are overheated because when there is no "ready for operation" (r0863.0) of the infeed unit, power is taken from the DC link.
8) The precharging resistors are overheated as the line contactor was closed during the DC link fast discharge through the Braking Module.
9) The DC link has either a ground fault or a short-circuit.
10) The precharging circuit is possibly defective (only for chassis units).
11) Infeed is defective and/or fuse has ruptured in the Motor Module (only Booksize units).
Fault value (r0949, interpret binary):
yyyyxxxx hex:
yyyy = power unit state
0: Fault status (wait for OFF and fault acknowledgment).
1: Restart inhibit (wait for OFF).
2: Overvoltage condition detected -> change into the fault state.
3: Undervoltage condition detected -> change into the fault state.
4: Wait for bridging contactor to open -> change into the fault state.
5: Wait for bridging contactor to open -> change into restart inhibit.
6: Wait for bypass contactor to open
7: Commissioning.
8: Ready for precharging.
9: Precharging started, DC link voltage lower than the minimum switch-on voltage
10: Precharging, DC link voltage end of precharging still not detected
11: Wait for the end of the de-bounce time of the main contactor after precharging has been completed.
12: Precharging completed, ready for pulse enable.
13: It was detected that the STO terminal was energized at the power unit
xxxx = Missing internal enable signals, power unit (inverted bit-coded, FFFF hex -> all internal enable signals available)
Bit 0: Power supply of the IGBT gating shut down.
Bit 1: Ground fault detected.
Bit 2: Peak current intervention.
Bit 3: I2t exceeded.
Bit 4. Thermal model overtemperature calculated.
Bit 5: (heat sink, gating module, power unit) overtemperature measured.
Bit 6: Reserved.
Bit 7: Overvoltage detected.
Bit 8: Power unit has completed precharging, ready for pulse enable.
Bit 9: STO terminal missing.
Bit 10: Overcurrent detected.
Bit 11: Armature short-circuit active.
Bit 12: DRIVE-CLiQ fault active.
Bit 13: Vce fault detected, transistor de-saturated due to overcurrent/short-circuit.
Bit 14: Undervoltage detected.

Remedy: In general:
- check the line supply voltage at the input terminals.
- check the line supply voltage setting (p0210).

For booksize drive units, the following applies:
- wait (approx. 8 minutes) until the precharging resistors have cooled down. For this purpose, preferably disconnect the infeed unit from the line supply.

For 5):
- carefully observe the permissible precharging frequency (refer to the appropriate Equipment Manual).

For 6):
- check the total capacitance of the DC link and reduce in accordance with the maximum permissible DC link capacitance if necessary (refer to the appropriate Equipment Manual)

For 7):
- interconnect the ready-for-operation signal from the infeed unit (r0863.0) in the enable logic of the drives connected to this DC link

For 8):
- check the connections of the external line contactor. The line contactor must be open during DC link fast discharge.

For 9):
- check the DC link for ground faults or short circuits.

For 11):
- check the DC link voltage of the infeed (r0070) and Motor Modules (r0070).

If the DC link voltage generated by the infeed (or external) is not displayed for the Motor Modules (r0070), then a fuse has ruptured in the Motor Module.

A30030 Power unit: Internal overtemperature alarm

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The temperature inside the drive converter has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.

Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.

Remedy:
- possibly use an additional fan.
- check whether the ambient temperature is in the permissible range.

Notice:
This alarm is automatically withdrawn once the permissible temperature limit value has been fallen below minus 5 K.

A30031 Power unit: Hardware current limiting in phase U

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Hardware current limit for phase U responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy: - check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30032 Power unit: Hardware current limiting in phase V

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Hardware current limit for phase V responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy: Check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

A30033 Power unit: Hardware current limiting in phase W

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Hardware current limit for phase W responded. The pulsing in this phase is inhibited for one pulse period.
- closed-loop control is incorrectly parameterized.
- fault in the motor or in the power cables.
- the power cables exceed the maximum permissible length.
- motor load too high
- power unit defective.

Note:
Alarm A30031 is always output if, for a Power Module, the hardware current limiting of phase U, V or W responds.

Remedy: - check the motor data and if required, recalculate the control parameters (p0340 = 3). As an alternative, run a motor data identification (p1910 = 1, p1960 = 1).
- check the motor circuit configuration (star/delta).
- check the motor load.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.

F30035 Power unit: Air intake overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The air intake in the power unit has exceeded the permissible temperature limit.
For air-cooled power units, the temperature limit is at 55 °C.
- ambient temperature too high.
- insufficient cooling, fan failure.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].
Remedy: - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
Notice:
This fault can only be acknowledged after the alarm threshold for alarm A05002 has been undershot.

F30037 Power unit: Rectifier overtemperature

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The temperature in the rectifier of the power unit has exceeded the permissible temperature limit.
- insufficient cooling, fan failure.
- overload.
- ambient temperature too high.
- line supply phase failure.
Fault value (r0949, interpret decimal):
Temperature [0.01 °C].
Remedy: - check whether the fan is running.
- check the fan elements.
- check whether the ambient temperature is in the permissible range.
- check the motor load.
- check the line supply phases.
Notice:
This fault can only be acknowledged after the alarm threshold for alarm A05004 has been undershot.

F30040 Power unit: Undervolt 24/48 V

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)

Cause: The undervoltage threshold of the 24 V power supply for the power unit was fallen below for longer than 3 ms.
Note:
- for booksize power units, the undervoltage threshold is 15 V.
- for CU310-2, CUA31 and CUA32 the undervoltage threshold is 16 V.
- for all other power units (e.g. S120M), the undervoltage threshold depends on the power unit, and is not displayed.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply

Remedy:
- check the power supply of the power unit.
- carry out a POWER ON (switch-off/switch-on) for the component.

A30041 (F) Power unit: Undervolt 24/48 V alarm

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For the power unit power supply, the lower threshold has been violated.
Alarm value (r2124, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply

Remedy:
- check the power supply of the power unit.
- carry out a POWER ON (switch-off/switch-on) for the component.

Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

A30042 Power unit: Fan has reached the maximum operating hours

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The maximum operating time of at least one fan will soon be reached, or has already been exceeded.
Alarm value (r2124, interpret binary):
Bit 0 = 1:
The operating hours counter of the heat sink fan will reach the maximum operating time in 500 hours. After 500 hours has elapsed, bit 0 is cleared and bit 2 is set in the alarm value.
Bit 1 = 1:
The wear counter of the heat sink fan has reached 99 %. The remaining service life is 1%. After this 1% has elapsed, bit 1 is cleared and bit 2 is set in the alarm value.
Bit 2 = 1:
The operating hours counter of the heat sink fan has exceeded the maximum operating time - and/or the wear counter has exceeded 100%.
Bit 8 = 1:
The operating hours counter of the fan inside the device will reach the maximum operating time in 500 hours. After 500 hours has elapsed, bit 8 is cleared and bit 10 is set in the alarm value.
Bit 10 = 1:
The operating hours counter of the fan inside the device has exceeded the maximum operating time.

Remedy: For the fan involved, carry out the following:
- replace the fan.
- reset the operating hours counter (p0251, p0254).

F30043 Power unit: Overvolt 24/48 V

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (overvoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: For the power unit power supply, the upper threshold has been violated.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply
Remedy: Check the power supply of the power unit.

A30044 (F) Power unit: Overvolt 24/48 V alarm

Message value: Channel: %1, voltage: %2 [0.1 V]
Message class: Supply voltage fault (overvoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For the power unit power supply, the upper threshold has been violated.
Alarm value (r2124, interpret hexadecimal):
yyxxxx hex: yy = channel, xxxx = voltage [0.1 V]
yy = 0: 24 V power supply
yy = 1: 48 V power supply
Remedy: Check the power supply of the power unit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30045 Power unit: Supply undervoltage

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Power supply fault in the power unit.
- the voltage monitor signals an undervoltage fault on the module.
The following applies for CU31x:
- the voltage monitoring on the DAC board signals an undervoltage fault on the module.
For S120M, the following applies:
- this message is displayed for undervoltage or overvoltage.
Remedy: - check the power supply of the power unit.
- carry out a POWER ON (switch-off/switch-on) for the component.
- replace the module if necessary.

A30046 (F) Power unit: Undervoltage alarm

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: Before the last restart, a problem occurred at the power unit power supply.
The voltage monitor in the internal FPGA of the PSA signals an undervoltage fault on the module.
Alarm value (r2124, interpret decimal):
Register value of the voltage fault register.
Remedy: - check the 24 V DC voltage supply to power unit.
- carry out a POWER ON (switch-off/switch-on) for the component.
- replace the module if necessary.
Reaction upon F: NONE (OFF1, OFF2)
Acknowl. upon F: IMMEDIATELY (POWER ON)

F30050 Power unit: 24 V supply overvoltage

Message value: -
Message class: Supply voltage fault (overvoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: The voltage monitor signals an overvoltage fault on the module.
Remedy: - check the 24 V power supply.
- replace the module if necessary.

F30051 Power unit: Motor holding brake short circuit detected

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A short-circuit at the motor holding brake terminals has been detected.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - check the motor holding brake for a short-circuit.
- check the connection and cable for the motor holding brake.

F30052 EEPROM data error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: POWER ON
Cause: EEPROM data error of the power unit module.
Fault value (r0949, interpret decimal):
0, 2, 3, 4:
The EEPROM data read in from the power unit module are incorrect.
1:
EEPROM data is not compatible to the firmware of the power unit application.
Additional values:
Only for internal Siemens troubleshooting.
Remedy: For fault value = 0, 2, 3, 4:
Replace the power unit module or update the EEPROM data.
For fault value = 1:
The following applies for CU31x and CUA31:
Update the firmware \SIEMENS\SINAMICS\CODE\SAC\cu31xi.ufw (cua31.ufw)

F30053 FPGA data faulty

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: POWER ON
Cause: The FPGA data of the power unit are faulty. This can be caused, for example, if a firmware update is interrupted.
Remedy: Replace the power unit or update of the FPGA data by updating the firmware.
Note:
If this fault occurs after a firmware update, then update the firmware again.

F30070 Cycle requested by the power unit module not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle is requested that is not supported by the power unit.
Fault value (r0949, interpret hexadecimal):
0: The current control cycle is not supported.
1: The DRIVE-CLiQ cycle is not supported.
2: Internal timing problem (clearance between RX and TX instants too low).
3: Internal timing problem (TX instant too early).
Remedy: The power unit only supports the following cycles:
62.5 µs, 125 µs, 250 µs and 500 µs
For fault value = 0:
Set a permitted current control cycle.
For fault value = 1:
Set a permitted DRIVE-CLiQ cycle.
For fault value = 2, 3:
Contact the manufacturer (you may have an incompatible firmware version).

F30071 No new actual values received from the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The number of actual value telegrams from the power unit module that have failed has exceeded the permissible number.
Remedy: Check the interface (adjustment and locking) to the power unit module.

F30072 Setpoints can no longer be transferred to the power unit

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: The following applies for CU31x and CUA31:
More than one setpoint telegram was not able to be transferred to the power unit module.

Remedy: The following applies for CU31x and CUA31:
Check the interface (adjustment and locking) to the power unit module.

A30073 (N) Actual value/setpoint preprocessing no longer synchronous

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Communication with the power unit module is no longer in synchronism with the current control cycle.
Remedy: Wait until synchronization is re-established.
Reaction upon N: NONE
Acknowl. upon N: NONE

F30074 (A) Communication error between the Control Unit and Power Module

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Communications between the Control Unit (CU) and Power Module (PM) via the interface no longer possible. The CU may have been withdrawn or is incorrectly inserted.
Fault value (r0949, interpret hexadecimal):
0 hex:
- a Control Unit with external 24 V supply was withdrawn from the Power Module during operation.
- with the Power Module switched off, the external 24 V supply for the Control Unit was interrupted for some time.
1 hex:
The Control Unit was withdrawn from the Power Module during operation, although the encoderless safe motion monitoring functions are enabled. This is not supported. After re-inserting the Control Unit in operation, communications to the Power Module no longer possible.
20A hex:
The Control Unit was inserted on a Power Module, which has another code number.
20B hex:
The Control Unit was inserted on a Power Module, which although it has the same code number, has a different serial number.
601 hex:
The Control Unit was inserted on a Power Module, whose power/performance class (chassis unit) is not supported.
Remedy: Reinsert the Control Unit (CU) or the Control Unit Adapter (CUAxx) onto the original Power Module and continue operation. If required, carry out a POWER ON for the CU and/or the CUA.
Reaction upon A: NONE
Acknowl. upon A: NONE

F30081 Power unit: Switching operations too frequent

Message value: Fault cause: %1 bin
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: The power unit has executed too many switching operations for current limitation.
- closed-loop control is incorrectly parameterized.
- motor has a short-circuit or fault to ground (frame).
- U/f operation: Up ramp set too low.
- U/f operation: rated current of motor much greater than that of power unit.
- infeed: High discharge and post-charging currents for line voltage dip.
- infeed: High post-charging currents for overload when motoring and DC link voltage dip.
- infeed: Short-circuit currents at switch-on as there is no commutating reactor.
- power cables are not correctly connected.
- power cables exceed the maximum permissible length.
- power unit defective.

Additional causes for a parallel switching device (r0108.15 = 1):
- a power unit has tripped (switched off) due to a ground fault.
- the closed-loop circulating current control is either too slow or has been set too fast.

Fault value (r0949, interpret bitwise binary):
Bit 0: Phase U.
Bit 1: Phase V.
Bit 2: Phase W.

Remedy:
- check the motor data - if required, carry out commissioning.
- check the motor circuit configuration (star-delta)
- U/f operation: Increase up ramp.
- U/f operation: Check assignment of rated currents of motor and power unit.
- infeed: Check the line supply quality.
- infeed: Reduce the motor load.
- infeed: Correct connection of the line reactor.
- check the power cable connections.
- check the power cables for short-circuit or ground fault.
- check the length of the power cables.
- replace power unit.

For a parallel switching device (r0108.15 = 1) the following additionally applies:
- check the ground fault monitoring thresholds (p0287).
- check the setting of the closed-loop circulating current control (p7036, p7037).

F30105 PU: Actual value sensing fault

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: At least one incorrect actual value channel was detected on the Power Stack Adapter (PSA).
The incorrect actual value channels are displayed in the following diagnostic parameters.
Remedy: Evaluate the diagnostic parameters.
If the actual value channel is incorrect, check the components and if required, replace.

N30800 (F) Power unit: Group signal

Message value: -
Message class: Power electronics faulted (5)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: NONE
Cause: The power unit has detected at least one fault.
Remedy: Evaluate the other messages that are presently available.

Reaction upon F: OFF2
Acknowl. upon F: IMMEDIATELY

F30801 Power unit DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
The computing time load might be too high.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - deselect functions that are not required.
- if required, increase the sampling times (p0112, p0115).
- replace the component involved (power unit, Control Unit).

F30802 Power unit: Time slice overflow

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred.
Fault value (r0949, interpret decimal):
xx: time slice number
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

F30804 (N, A) Power unit: CRC

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A checksum error (CRC error) has occurred for the power unit.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F30805 Power unit: EEPROM checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Internal parameter data is corrupted.
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.

F30809 Power unit: Switching information not valid

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: For 3P gating unit, the following applies:
The last switching status word in the setpoint telegram is identified by the end ID. Such an end ID was not found.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.

A30810 (F) Power unit: Watchdog timer

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When booting it was detected that the cause of the previous reset was an SAC watchdog timer overflow.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- upgrade firmware to later version.
- contact Technical Support.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY

F30820 Power unit DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F30835 Power unit DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.
- replace the component involved (power unit, Control Unit).

F30836 Power unit DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F30837 Power unit DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F30845 Power unit DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the power unit concerned.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).

F30850 Power unit: Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: An internal software error has occurred in the power unit.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
Remedy: - replace power unit.
- if required, upgrade the firmware in the power unit.
- contact Technical Support.

F30851 Power unit DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - deselect functions that are not required.
- if required, increase the sampling times (p0112, p0115).
- replace the component involved (power unit, Control Unit).

F30860 Power unit DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F30875 Power unit: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F30885 CU DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F30886 PU DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F30887 Power unit DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (power unit) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F30895 PU DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the power unit to the Control Unit involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F30896 Power unit DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (power unit), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.

Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F30899 (N, A) Power unit: Unknown fault

Message value: New message: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F30903 Power unit: I2C bus error occurred

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: Communications error with an EEPROM or an analog/digital converter.
Fault value (r0949, interpret hexadecimal):
80000000 hex:
- internal software error.
00000001 hex ... 0000FFFF hex:
- module fault.
Remedy: For fault value = 80000000 hex:
- upgrade firmware to later version.
For fault value = 00000001 hex ... 0000FFFF hex:
- replace the module.

F30907 Power unit: FPGA configuration unsuccessful

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: During initialization within the power unit, an internal software error has occurred.
Remedy: - if required, upgrade the firmware in the power unit.
- replace power unit.
- contact Technical Support.

A30920 (F) Power unit: Temperature sensor fault

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY: R > 1630 Ohm, PT100: R > 375 Ohm, PT1000: R > 1720 Ohm
2: Measured resistance too low.
PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT100: R < 30 Ohm, PT1000: R < 603 Ohm
Note:
A temperature sensor is connected to the following terminals:
- "Booksize" format: X21.1/.2 or X22.1/.2
- "Chassis" format: X41.4/.3
Information on temperature sensors is provided in the following literature for example:
SINAMICS S120 Function Manual Drive Functions
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY

A30999 (F, N) Power unit: Unknown alarm

Message value: New message: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Power Module **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm occurred on the power unit that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the power unit by an older firmware version (r0128).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F31100 (N, A) Encoder 1: Zero mark distance error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31101 (N, A) Encoder 1: Zero mark failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31103 (N, A) Encoder 1: Signal level zero mark (track R) outside tolerance

Message value: R track: %1

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** GLOBAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The zero mark signal level (track R) does not lie within the tolerance bandwidth for encoder 1.

The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)

The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.

The response threshold for the differential signal level of the encoder is < -1600 mV.

A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.

Note:

The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.

The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).

The signal level is not evaluated unless the following conditions are satisfied:

- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).

Remedy:

- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly (not connected with the incorrect polarity).
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31110 (N, A) Encoder 1: Serial communications error

Message value: Fault cause: %1 bin

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: There is an error in the transfer of the serial communication protocol between the encoder and internal or external evaluation module.
Fault value (r0949, interpret binary):
For an EnDat 2.1 encoder, the significance of the fault value is as follows:
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 7: Timeout for the register communication.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Bit 13: Data line incorrect.
Bit 14: Fault for the register communication.
Bit 15: Internal communication error.
Note:
For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.

Remedy: For fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.

For fault value, bit 1 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 2 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.

For fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 6 = 1:
- Update Sensor Module firmware.

For fault value, bit 7 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 8 = 1:
- check parameterization (p0429.2).

For fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 10 = 1:
- check parameterization (p0429.2, p0449).

For fault value, bit 11 = 1:
- check parameterization (p0436).

For fault value, bit 12 = 1:
- check parameterization (p0429.6).

For fault value, bit 13 = 1:
- check data line.

For fault value, bit 14 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F31111 (N, A) Encoder 1: Encoder signals an internal error (detailed information)

Message value: Fault cause: %1 bin, additional information: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder error word provides detailed information (error bit).
For p0404.8 = 0, the following applies:
Fault value for internal Siemens troubleshooting.
For p0404.8 = 1, the following applies:
Fault value (r0949, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.
Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.
Remedy: For yyyy = 0:
For fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
For fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.
For fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).
For yyyy = 1:
Encoder is defective. Replace encoder.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31112 (N, A) Encoder 1: Encoder signals an internal error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The encoder signals an internal error via serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
Remedy: For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31115 (N, A) Encoder 1: Signal level track A or B too low

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The signal level (root from A^2 + B^2) of the encoder falls below the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 170 mV (input frequency <= 256 kHz) or < 120 mV (input frequency > 256 kHz).
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.
The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31116 (N, A) Encoder 1: Signal level track A or B too low

Message value: A track: %1, B-track: %2

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: The signal level of the rectified encoder signals A and B of the encoder fall below the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 130 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31117 (N, A) Encoder 1: Inversion error signals A/B/R

Message value: Fault cause: %1 bin

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: IMMEDIATELY

Cause: For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
Fault value (r0949, interpret binary):
Bits 0 ... 15: Only for internal Siemens troubleshooting.
Bit 16: Error track A.
Bit 17: Error track B.
Bit 18: Error track R.
Note:
For SMC30 (only Article No. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), CUA32, and CU310, the following applies:
A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.

Remedy: - check the encoder/cable.
- Does the encoder supply signals and the associated inverted signals?
Note:
For SMC30 (only Article Number 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), the following applies:
- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31118 (N, A) Encoder 1: Speed change not plausible

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Encoder 1 is used as motor encoder and can be effective has fault response to change over to encoderless operation.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31120 (N, A) Encoder 1: Encoder power supply fault

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: An encoder power supply fault was detected.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.

Remedy: For fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).

For fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 5 = 1:
- Measuring unit correctly connected at the converter?
- Replace the measuring unit or the cable to the measuring unit.

For fault value, bit 6, 7 = 1:
- Replace the defective EnDat 2.2 converter.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31121 (N, A) Encoder 1: Determined commutation position incorrect

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (NONE)
Acknowledge: PULSE INHIBIT
Cause: A commutation position actual value sensing error was detected.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31122 Encoder 1: Sensor Module hardware fault

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER
Acknowledge: IMMEDIATELY
Cause: An internal Sensor Module hardware fault was detected.
Fault value (r0949, interpret decimal):
1: Reference voltage error.
2: Internal undervoltage.
3: Internal overvoltage.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F31123 (N, A) Encoder 1: Signal level A/B outside tolerance

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The unipolar level (AP/AN or BP/BN) for encoder 1 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).
Remedy: - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31125 (N, A) Encoder 1: Signal level track A or B too high

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The signal level (root from A^2 + B^2) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms).
The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31126 (N, A) Encoder 1: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The signal level (|A| + |B|) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = amplitude, i.e. root of A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31129 (N, A) Encoder 1: Position difference hall sensor/track C/D and A/B too large

Message value: %1

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A31429.
Fault value (r0949, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31130 (N, A) Encoder 1: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.

When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.

When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Determined mechanical zero mark position (can only be used for track C/D).

xxxx: Deviation of the zero mark from the expected position as electrical angle.

Scaling: 32768 dec = 180 °

Remedy: - check p0431 and, if necessary, correct (trigger via p1990 = 1 if necessary).

- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F31131 (N, A) Encoder 1: Position deviation incremental/absolute too high

Message value: %1

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** LOCAL

Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31135 Encoder 1: Fault when determining the position (single turn)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: The encoder has identified a position determination fault (singleturn) and supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/switch-on) is necessary to acknowledge the fault.

F31136 Encoder 1: Fault when determining the position (multiturn)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: The encoder has identified a position determination fault (multiturn) and supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/switch-on) is necessary to acknowledge the fault.

F31137 Encoder 1: Fault when determining the position (single turn)

Message value: Fault cause: %1 bin
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
---
For yy = 8 (0000 1000 bin), the following applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: LED monitoring.
Bit 17: Fault when determining the position (multiturn).
Bit 23: Temperature outside the limit values.

For yy = 11 (0000 1011 bin), the following applies:
Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
Bit 4: Power supply overvoltage (MON_OVR_VOLT).
Bit 5: Power supply overcurrent (MON_OVR_CUR).
Bit 6: Power supply undervoltage (MON_UND_VOLT).
Bit 7: Rotation error counter (MT_ERR).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
Bit 13: Position word 1 memory error (MEM_ERR).
Bit 14: Position word 1 absolute position error (MLS_ERR).
Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 21: Position word 2 memory error (MEM_ERR).
Bit 22: Position word 2 absolute position error (MLS_ERR).
Bit 23: position word 2 LED error, lighting unit error (LED_ERR).

For yy = 12 (0000 1100 bin), the following applies:
Bit 8: encoder fault.
Bit 10: error in the internal position data transport.

For yy = 14 (0000 1110 bin), the following applies:
Bit 0: Position word 1 temperature outside limit value.
Bit 1: Position word 1 position determination error (multiturn).
Bit 2: Position word 1 FPGA error.
Bit 3: Position word 1 velocity error.
Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: Position word 2 temperature outside limit value.
Bit 17: Position word 2 position determination error (multiturn).
Bit 18: Position word 2 FPGA error.
Bit 19: Position word 2 velocity error.
Bit 20: Position word 2 communication error between FPGAs.
Bit 21: Position word 2 position determination error (singleturn).
Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).

Bit 23: Position word 2 internal error (self-test/software).

Note:

For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.

- if required, replace the DRIVE-CLiQ encoder.

F31138 Encoder 1: Fault when determining the position (multiturn)

Message value: Fault cause: %1 bin

Message class: Hardware/software error (1)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 1 **Propagation:** GLOBAL

Reaction: ENCODER (IASC/DCBRK, NONE)

Acknowledge: PULSE INHIBIT

Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
---
For yy = 8 (0000 1000 bin), the following applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: LED monitoring.
Bit 17: Fault when determining the position (multiturn).
Bit 23: Temperature outside the limit values.

For yy = 11 (0000 1011 bin), the following applies:
Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
Bit 4: Power supply overvoltage (MON_OVR_VOLT).
Bit 5: Power supply overcurrent (MON_OVR_CUR).
Bit 6: Power supply undervoltage (MON_UND_VOLT).
Bit 7: Rotation error counter (MT_ERR).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
Bit 13: Position word 1 memory error (MEM_ERR).
Bit 14: Position word 1 absolute position error (MLS_ERR).
Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 21: Position word 2 memory error (MEM_ERR).
Bit 22: Position word 2 absolute position error (MLS_ERR).
Bit 23: position word 2 LED error, lighting unit error (LED_ERR).

For yy = 14 (0000 1110 bin), the following applies:
Bit 0: Position word 1 temperature outside limit value.
Bit 1: Position word 1 position determination error (multiturn).
Bit 2: Position word 1 FPGA error.
Bit 3: Position word 1 velocity error.
Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: Position word 2 temperature outside limit value.
Bit 17: Position word 2 position determination error (multiturn).
Bit 18: Position word 2 FPGA error.
Bit 19: Position word 2 velocity error.
Bit 20: Position word 2 communication error between FPGAs.
Bit 21: Position word 2 position determination error (singleturn).
Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).
Bit 23: Position word 2 internal error (self-test/software).

Note:
For an encoder version that is not described here, please contact the encoder manufacturer for more detailed

information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

F31142 (N, A) Encoder 1: Battery voltage fault

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy: Replace battery.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31150 (N, A) Encoder 1: Initialization error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Encoder functionality selected in p0404 cannot be executed.
Fault value (r0949, interpret hexadecimal):
Encoder malfunction.
The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
See also: p0404 (Encoder configuration effective)
Remedy: - check that p0404 is correctly set.
- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31151 (N, A) Encoder 1: Encoder speed for initialization AB too high

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high while initializing the Sensor Module.
Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, deactivate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31152 (N, A) Encoder 1: Max. signal frequency (track A/B) exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum signal frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual signal frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy: - reduce the speed.
- Use an encoder with a lower pulse number (p0408).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31153 (N, A) Encoder 1: Identification error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error has occurred when identifying the encoder (waiting) p0400 = 10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect.
See also: p0400 (Encoder type selection)
Remedy: Manually configure the encoder according to the data sheet.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31160 (N, A) Encoder 1: Analog sensor channel A failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4673).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31161 (N, A) Encoder 1: Analog sensor channel B failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the selected measuring range (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4675).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31163 (N, A) Encoder 1: Analog sensor position value exceeds limit value

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Fault value (r0949, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: For fault value = 1:
- check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31400 (F, N) Encoder 1: Zero mark distance error (alarm threshold exceeded)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31401 (F, N) Encoder 1: Zero mark failed (alarm threshold exceeded)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The 1.5x parameterized zero mark distance was exceeded without a zero mark being detected.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31405 (N, A) Encoder 1: Temperature in the encoder evaluation exceeded

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: An inadmissibly high temperature was detected in the encoder electronics or the encoder evaluation.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = temperature sensor number, xxxx = measured module temperature in 0.1 °C.
Remedy: Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31407 (F, N) Encoder 1: Function limit reached

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The encoder has reached one of its function limits. A service is recommended.
Alarm value (r2124, interpret decimal):
1: Incremental signals
3: Absolute track
4: Code connection
Remedy: Perform service. Replace the encoder if necessary.
Note:
The actual functional reserve of an encoder can be displayed via r4651.
See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31410 (F, N) Encoder 1: Communication error (encoder and Sensor Module)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31411 (F, N) Encoder 1: Encoder signals an internal alarm (detailed information)

Message value: Fault cause: %1 bin, additional information: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The absolute encoder fault word includes alarm bits that have been set.
Alarm value (r2124, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR_converter error.
Bit 5: Fault for the register data transfer.
Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.
Remedy: Replace encoder.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31412 (F, N) Encoder 1: Encoder signals an internal alarm

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The encoder signals an internal alarm via serial protocol.
Alarm value (r2124, interpret binary):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31414 (F, N) Encoder 1: Signal level track C or D out of tolerance

Message value: C track: %1, D track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The signal level (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

N31415 (F, A) Encoder 1: Signal level track A or B outside tolerance (alarm)

Message value: Amplitude: %1, Angle: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The signal level (root from A^2 + B^2) of the encoder is outside the permissible tolerance.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = amplitude, i.e. root of A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 230 mV (observe the frequency response of the encoder).
A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon A: NONE
Acknowl. upon A: NONE

A31418 (F, N) Encoder 1: Speed change not plausible (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31419 (F, N) Encoder 1: Track A or B outside tolerance

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude/phase/offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction

Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31421 (F, N) Encoder 1: Determined commutation position incorrect (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A commutation position actual value sensing error was detected.
Alarm value (r2124, interpret decimal):
3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy: For alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31422 (F, N) Encoder 1: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
Alarm value (r2124, interpret decimal):
accumulated differential pulses in encoder pulses.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31429 (F, N) Encoder 1: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31431 (F, N) Encoder 1: Position deviation incremental/absolute too high (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- Clean coding disk or remove strong magnetic fields.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31432 (F, N) Encoder 1: Rotor position adaptation corrects deviation

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: On track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31442 (F, N) Encoder 1: Battery voltage alarm threshold reached

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy: Replace battery.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31443 (F, N) Encoder 1: Signal level track C/D outside tolerance (alarm)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The unipolar level (CP/CN or DP/DN) for encoder 1 is outside the permissible tolerance.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31460 (N) Encoder 1: Analog sensor channel A failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For alarm value = 1:
- check the output voltage of the analog sensor.
For alarm value = 2:
- check the voltage setting for each encoder period (p4673).
For alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A31461 (N) Encoder 1: Analog sensor channel B failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the selected measuring range (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For alarm value = 1:
- check the output voltage of the analog sensor.
For alarm value = 2:
- check the voltage setting for each encoder period (p4675).
For alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A31462 (N) Encoder 1: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31463 (N) Encoder 1: Analog sensor position value exceeds limit value

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: For alarm value = 1:
- check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

A31470 (F, N) Encoder 1: Encoder signals an internal error (X521.7)

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For the Sensor Module Cabinet 30 (SMC30), a dirty encoder is signaled via a 0 signal at terminal X521.7.
Remedy: - check the plug connections.
- replace the encoder or encoder cable.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31500 (N, A) Encoder 1: Position tracking traversing range exceeded

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is preset (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31501 (N, A) Encoder 1: Position tracking encoder position outside tolerance window

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When switched off, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Fault value (r0949, interpret decimal):
Deviation (difference) to the last encoder position in increments of the absolute value.
The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r0477.
See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference)
Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31502 (N, A) Encoder 1: Encoder with measuring gear without valid signals

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gear no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31503 (N, A) Encoder 1: Position tracking cannot be reset

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gear cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31700 Encoder 1: Functional safety monitoring initiated

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Functional safety was activated. Self-test of the DRIVE-CLiQ encoder has detected a fault.
Alarm value (r2124, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N31800 (F) Encoder 1: Group signal

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluate the other messages that are presently available.
Reaction upon F: ENCODER (IASC/DCBRK, NONE)
Acknowl. upon F: IMMEDIATELY

F31801 (N, A) Encoder 1 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31802 (N, A) Encoder 1: Time slice overflow

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred in encoder 1.
Fault value (r0949, interpret hexadecimal):
yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
x = 9:
Time slice overflow of the fast (current controller clock cycle) time slice.
x = A:
Time slice overflow of the average time slice.
x = C:
Time slice overflow of the slow time slice.
yx = 3E7:
Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy: Increase the current controller sampling time
Note:
For a current controller sampling time = 31.25 µs, use an SMx20 with Article No. 6SL3055-0AA00-5xA3.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31804 (N, A) Encoder 1: Sensor Module checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: POWER ON (IMMEDIATELY)
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.

Remedy: - carry out a POWER ON (switch-off/switch-on).
- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31805 (N, A) Encoder 1: EEPROM checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: Data in the EEPROM corrupted .
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31806 (N, A) Encoder 1: Initialization error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.
Bit 5: Mid-voltage matching for track safety A unsuccessful.
Bit 6: Mid-voltage matching for track safety B unsuccessful.
Bit 7: Mid-voltage matching for track C unsuccessful.
Bit 8: Mid-voltage matching for track D unsuccessful.
Bit 9: Mid-voltage matching for track R unsuccessful.
Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
Bit 16: Internal fault - fault when reading a register (CAFE)
Bit 17: Internal fault - fault when writing a register (CAFE)
Bit 18: Internal fault: No mid-voltage matching available
Bit 19: Internal error - ADC access error.
Bit 20: Internal error - no zero crossover found.
Bit 28: Error while initializing the EnDat 2.2 measuring unit.
Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.
Note:
Bit 0, 1: Up to 6SL3055-0AA00-5*A0
Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher

Remedy: Acknowledge fault.
If the fault cannot be acknowledged:
Bits 2 ... 9: Check encoder power supply.
Bits 2 ... 14: Check the corresponding cable.
Bit 15 with no other bits: Check track R, check settings in p0404.
Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
Bit 29 ... 31: Replace the defective measuring unit.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31811 (F, N) Encoder 1: Encoder serial number changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The serial number of the motor encoder of a synchronous motor has changed. The change was only checked for encoders with serial number (e.g. EnDat encoders) and build-in motors (e.g. p0300 = 401) or third-party motors (p0300 = 2).
Cause 1:
- the encoder was replaced.
Cause 2:
- a third-party, built-in or linear motor was re-commissioned.
Cause 3:
- the motor with integrated and adjusted encoder was replaced.
Cause 4:
- the firmware was updated to a version that checks the encoder serial number.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Proceed as follows to hide serial number monitoring:
- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.
- parameterize F07414 as message type N (p2118, p2119).

Remedy: For causes 1, 2:
Carry out an automatic adjustment using the pole position identification routine. Acknowledge fault. Initiate the pole position identification routine with p1990 = 1. Then check that the pole position identification routine is correctly executed.
SERVO:
If a pole position identification technique is selected in p1980, and if p0301 does not contain a motor type with an encoder adjusted in the factory, then p1990 is automatically activated.
or
Set the adjustment via p0431. In this case, the new serial number is automatically accepted.
or
Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
For causes 3, 4:
Accept the new serial number with p0440 = 1.

Reaction upon F: NONE (ENCODER, OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31812 (N, A) Encoder 1: Requested cycle or RX-/TX timing not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
Fault value (r0949, interpret decimal):
0: Application cycle is not supported.
1: DRIVE-CLiQ cycle is not supported.
2: Distance between RX and TX instants in time too low.
3: TX instant in time too early.
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31813 Encoder 1: Hardware logic unit failed

Message value: Fault cause: %1 bin
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The logic unit of the DRIVE-CLiQ encoder has failed.
Fault value (r0949, interpret binary):
Bit 0: ALU watchdog has responded.
Bit 1: ALU has detected a sign-of-life error.
Remedy: When the error reoccurs, replace the encoder.

F31820 (N, A) Encoder 1 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31835 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON.
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31836 (N, A) Encoder 1 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31837 (N, A) Encoder 1 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31845 (N, A) Encoder 1 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31850 (N, A) Encoder 1: Encoder evaluation internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: POWER ON

Cause: An internal software error has occurred in the Sensor Module of encoder 1.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
11000 ... 11499: Descriptive data from EEPROM incorrect.
11500 ... 11899: Calibration data from EEPROM incorrect.
11900 ... 11999: Configuration data from EEPROM incorrect.
12000 ... 12008: communication with analog/digital converter faulted.
16000: DRIVE-CLiQ encoder initialization application error.
16001: DRIVE-CLiQ encoder initialization ALU error.
16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
16003: DRIVE-CLiQ encoder safety initialization error.
16004: DRIVE-CLiQ encoder internal system error.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31851 (N, A) Encoder 1 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - Upgrade the firmware of the component involved.
- carry out a POWER ON (switch-off/switch-on) for the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31860 (N, A) Encoder 1 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31875 (N, A) Encoder 1: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31885 (N, A) Encoder 1 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31886 (N, A) Encoder 1 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.
- check whether the firmware version of the encoder (r0148) matches the firmware version of Control Unit (r0018).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31887 (N, A) Encoder 1 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 1). Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31895 (N, A) Encoder 1 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 1) involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31896 (N, A) Encoder 1 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: OFF2 (ENCODER, IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 1), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31899 (N, A) Encoder 1: Unknown fault

Message value: New message: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.

Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31902 (F, N) Encoder 1: SPI-BUS error occurred

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31903 (F, N) Encoder 1: I2C-BUS error occurred

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31905 (N, A) Encoder 1: Encoder parameterization error

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: An error was identified in the encoder parameterization.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
xxxx = 421:
For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
yyyy = 0:
No additional information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For an SQW encoder, the XIST1 correction (p0437.2) is only permitted for equidistant zero marks.
yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.
yyyy = 9:
The length of the position in the EnDat protocol may be a maximum of 32 bits.
yyyy = 10:
The connected encoder is not supported.
yyyy = 11:
The hardware does not support track monitoring.

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F31912 Encoder 1: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: The selected device combination is not supported.
Fault value (r0949, interpret decimal):
1003:
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.
1005:
The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
1006:
The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
2001:
The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
2002:
The resolution of the linear measuring unit does not match the pole pair width of the linear motor
Pole pair width, minimum = p0422 * 2^20

Remedy: For fault value = 1003, 1005, 1006:
- Use a measuring unit that is permissible.
For fault value = 2001:
- set a permissible cycle combination (if required, use standard settings).
For fault value = 2002:
- Use a measuring unit with a lower resolution (p0422).

A31915 (F, N) Encoder 1: Encoder configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 1 is incorrect.
Alarm value (r2124, interpret decimal):
1:
Re-parameterization between fault/alarm is not permissible.
419:
When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy: For alarm value = 1:
No re-parameterization between fault/alarm.
For alarm value = 419:
Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F: NONE (ENCODER, IASC/DCBRK)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31916 (N, A) Encoder 1: Encoder parameterization error

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: ENCODER (IASC/DCBRK, NONE, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: An encoder parameter was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
Parameter number.

Remedy:
- check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A31920 (F, N) Encoder 1: Temperature sensor fault (motor)

Message value: Fault cause: %1, channel number: %2
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The motor detected a fault when evaluating the temperature sensor.
Fault cause:
1 (= 01 hex):
Wire breakage or sensor not connected.
KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm
2 (= 02 hex):
Measured resistance too low.
PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm
Additional values:
Only for internal Siemens troubleshooting.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = channel number, xx = error cause

Remedy:
- check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A31930 (N) Encoder 1: Data logger has saved data

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.
The diagnostics data is saved in the following folder:
/USER/SINAMICS/DATA/SMTRC00.BIN
...
/USER/SINAMICS/DATA/SMTRC07.BIN
/USER/SINAMICS/DATA/SMTRCIDX.TXT
The following information is contained in the TXT file:
- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).
Note:
Only Siemens can evaluate the BIN files.

Remedy: Not necessary.
This alarm is automatically withdrawn.
The data logger is ready to record the next fault case.

Reaction upon N: NONE
Acknowl. upon N: NONE

A31940 (F, N) Encoder 1: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 1 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.
Alarm value (r2124, interpret decimal):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy: - check the clamped tool.
- check the tolerance and if required, adapt (p5040).
- check the thresholds and if required, adapt (p5041).
- check analog sensor S1 and connections.

Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F31950 Encoder 1: Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** LOCAL
Reaction: ENCODER (OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
The fault value contains information regarding the fault source.
Only for internal Siemens troubleshooting.
Remedy: - if necessary, upgrade the firmware in the Sensor Module to a later version.
- contact Technical Support.

A31999 (F, N) Encoder 1: Unknown alarm

Message value: New message: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 1 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: A alarm has occurred on the Sensor Module for encoder 1 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: NONE (ENCODER, IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F32100 (N, A) Encoder 2: Zero mark distance error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32101 (N, A) Encoder 2: Zero mark failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT

Cause: The 1.5 x parameterized zero mark distance was exceeded.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Fault value (r0949, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).

Remedy:
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).
- when p0437.1 is active, check p4686.
- replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32103 (N, A) Encoder 2: Signal level zero track (track R) outside tolerance

Message value: R track: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: The zero mark signal level (track R) does not lie within the tolerance bandwidth for encoder 2.
The fault can be initiated when the unipolar voltage level is exceeded (RP/RN) or if the differential amplitude is undershot.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex: yyyy = 0, xxxx = Signal level, track R (16 bits with sign)
The response thresholds of the unipolar signal levels of the encoder are between < 1400 mV and > 3500 mV.
The response threshold for the differential signal level of the encoder is < -1600 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog value of the amplitude error is not measured at the same time with the hardware fault output by the Sensor Module.
The fault value can only be represented between -32768 ... 32767 dec (-770 ... 770 mV).
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).

Remedy:
- check the speed range; frequency characteristic (amplitude characteristic) of the measuring equipment might not be sufficient for the speed range
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- check the encoder type (encoder with zero marks).
- check whether the zero mark is connected and the signal cables RP and RN have been connected correctly (not connected with the incorrect polarity).
- replace the encoder cable.
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32110 (N, A) Encoder 2: Serial communications error

Message value: Fault cause: %1 bin

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 2 **Propagation:** LOCAL

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: There is an error in the transfer of the serial communication protocol between the encoder and internal or external evaluation module.

Fault value (r0949, interpret binary):

For an EnDat 2.1 encoder, the significance of the fault value is as follows:

Bit 0: Alarm bit in the position protocol.

Bit 1: Incorrect quiescent level on the data line.

Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).

Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.

Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.

Bit 5: Internal error in the serial driver: An illegal mode command was requested.

Bit 6: Timeout when cyclically reading.

Bit 7: Timeout for the register communication.

Bit 8: Protocol is too long (e.g. > 64 bits).

Bit 9: Receive buffer overflow.

Bit 10: Frame error when reading twice.

Bit 11: Parity error.

Bit 12: Data line signal level error during the monoflop time.

Bit 13: Data line incorrect.

Bit 14: Fault for the register communication.

Bit 15: Internal communication error.

Note:

For an EnDat 2.2 encoder, the significance of the fault value for F3x135 (x = 1, 2, 3) is described.

Remedy:
For fault value, bit 0 = 1:
- Enc defect F31111 may provide additional details.

For fault value, bit 1 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 2 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 3 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable.

For fault value, bit 4 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 5 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 6 = 1:
- Update Sensor Module firmware.

For fault value, bit 7 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

For fault value, bit 8 = 1:
- check parameterization (p0429.2).

For fault value, bit 9 = 1:
- EMC / connect the cable shield, replace the encoder or encoder cable, replace the Sensor Module.

For fault value, bit 10 = 1:
- check parameterization (p0429.2, p0449).

For fault value, bit 11 = 1:
- check parameterization (p0436).

For fault value, bit 12 = 1:
- check parameterization (p0429.6).

For fault value, bit 13 = 1:
- check data line.

For fault value, bit 14 = 1:
- incorrect encoder type / replace the encoder or encoder cable.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32111 (N, A) Encoder 2: Encoder signals an internal error (detailed information)

Message value: Fault cause: %1 bin, additional information: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: The encoder error word provides detailed information (error bit).
For p0404.8 = 0, the following applies:
Fault value for internal Siemens troubleshooting.
For p0404.8 = 1, the following applies:
Fault value (r0949, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Lighting system failed.
Bit 1: Signal amplitude too low.
Bit 2: Position value incorrect.
Bit 3: Encoder power supply overvoltage condition.
Bit 4: Encoder power supply undervoltage condition.
Bit 5: Encoder power supply overcurrent condition.
Bit 6: The battery must be changed.

Remedy: For yyyy = 0:
For fault value, bit 0 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 1 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 2 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 3 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When a motor encoder with a direct DRIVE-CLiQ connection is used: Replace the motor.
For fault value, bit 4 = 1:
5 V power supply voltage fault.
When using an SMC: Check the plug-in cable between the encoder and SMC or replace the SMC.
When using a motor with DRIVE-CLiQ: Replace the motor.
For fault value, bit 5 = 1:
Encoder is defective. Replace the encoder, where the motor encoder has a direct DRIVE-CLiQ socket: Replace the motor.
For fault value, bit 6 = 1:
The battery must be changed (only for encoders with battery back-up).
For yyyy = 1:
Encoder is defective. Replace encoder.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32112 (N, A) Encoder 2: Encoder signals an internal error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The encoder signals a set error bit via the serial protocol.
Fault value (r0949, interpret binary):
Bit 0: Fault bit in the position protocol.
Remedy: For fault value, bit 0 = 1:
In the case of an EnDat encoder, F31111 may provide further details.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32115 (N, A) Encoder 2: Signal level track A or B too low

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The signal level (root from A^2 + B^2) of the encoder falls below the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 170 mV (input frequency <= 256 kHz) or < 120 mV (input frequency > 256 kHz).
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1070 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
The following applies to measuring systems without their own bearing system:
- adjust the scanning head and check the bearing system of the measuring wheel.
The following applies for measuring systems with their own bearing system:
- ensure that the encoder housing is not subject to any axial force.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32116 (N, A) Encoder 2: Signal level track A or B too low

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: The signal level of the rectified encoder signals A and B of the encoder fall below the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 130 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32117 (N, A) Encoder 2: Inversion error signals A/B/R

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a square-wave encoder (bipolar, double ended) signals A*, B* and R* are not inverted with respect to signals A, B and R.
Fault value (r0949, interpret binary):
Bits 0 ... 15: Only for internal Siemens troubleshooting.
Bit 16: Error track A.
Bit 17: Error track B.
Bit 18: Error track R.
Note:
For SMC30 (only Article No. 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), CUA32, and CU310, the following applies:
A square-wave encoder without track R is used and track monitoring (p0405.2 = 1) is activated.

Remedy: - check the encoder/cable.
- Does the encoder supply signals and the associated inverted signals?
Note:
For SMC30 (only Article Number 6SL3055-0AA00-5CA0 and 6SL3055-0AA00-5CA1), the following applies:
- check the setting of p0405 (p0405.2 = 1 is only possible if the encoder is connected at X520).
For a square-wave encoder without track R, the following jumpers must be set for the connection at X520 (SMC30) or X23 (CUA32, CU310):
- pin 10 (reference signal R) <--> pin 7 (encoder power supply, ground)
- pin 11 (reference signal R inverted) <--> pin 4 (encoder power supply)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32118 (N, A) Encoder 2: Speed change not plausible

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Fault value (r0949, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the maximum speed difference per sampling cycle (p0492).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32120 (N, A) Encoder 2: Encoder power supply fault

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: An encoder power supply fault was detected.
Fault value (r0949, interpret binary):
Bit 0: Undervoltage condition on the sense line.
Bit 1: Overcurrent condition for the encoder power supply.
Bit 2: Overcurrent condition for encoder power supply on cable resolver excitation negative.
Bit 3: Overcurrent condition for encoder power supply on cable resolver excitation positive.
Bit 4: The 24 V power supply through the Power Module (PM) is overloaded.
Bit 5: Overcurrent at the EnDat connection of the converter.
Bit 6: Overvoltage at the EnDat connection of the converter.
Bit 7: Hardware fault at the EnDat connection of the converter.
Note:
If the encoder cables 6FX2002-2EQ00-.... and 6FX2002-2CH00-.... are interchanged, this can result in the encoder being destroyed because the pins of the operating voltage are reversed.

Remedy: For fault value, bit 0 = 1:
- correct encoder cable connected?
- check the plug connections of the encoder cable.
- SMC30: Check the parameterization (p0404.22).

For fault value, bit 1 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 2 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 3 = 1:
- correct encoder cable connected?
- replace the encoder or encoder cable.

For fault value, bit 5 = 1:
- Measuring unit correctly connected at the converter?
- Replace the measuring unit or the cable to the measuring unit.

For fault value, bit 6, 7 = 1:
- Replace the defective EnDat 2.2 converter.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32121 (N, A) Encoder 2: Determined commutation position incorrect

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: A commutation position actual value sensing error was detected.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32122 Encoder 2: Sensor Module hardware fault

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1
Acknowledge: IMMEDIATELY
Cause: An internal Sensor Module hardware fault was detected.
Fault value (r0949, interpret decimal):
1: Reference voltage error.
2: Internal undervoltage.
3: Internal overvoltage.
Remedy: Replace the motor with DRIVE-CLiQ or the appropriate Sensor Module.

F32123 (N, A) Encoder 2: Signal level A/B outside tolerance

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The unipolar level (AP/AN or BP/BN) for encoder 2 is outside the permissible tolerance.
Fault value (r0949, interpret binary):
Bit 0 = 1: Either AP or AN outside the tolerance.
Bit 16 = 1: Either BP or BN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).
Remedy: - make sure that the encoder cables and shielding are installed in an EMC-compliant manner.
- check the plug connections and contacts of the encoder cable.
- check the short-circuit of a signal cable with mass or the operating voltage.
- replace the encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32125 (N, A) Encoder 2: Signal level track A or B too high

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The signal level (root from A^2 + B^2) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms).
The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32126 (N, A) Encoder 2: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 2 **Propagation:** LOCAL

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: The signal level (|A| + |B|) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = amplitude, i.e. root of A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32129 (N, A) Encoder 2: Position difference hall sensor/track C/D and A/B too large

Message value: %1

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 2 **Propagation:** LOCAL

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)

Acknowledge: PULSE INHIBIT

Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
After the fine synchronization using one reference mark or 2 reference marks for distance-coded encoders, this fault is no longer initiated, but instead, Alarm A32429.
Fault value (r0949, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).

Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32130 (N, A) Encoder 2: Zero mark and position error from the coarse synchronization

Message value: Angular deviation, electrical: %1, angle, mechanical: %2

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 2 **Propagation:** LOCAL

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: After initializing the pole position using track C/D, Hall signals or pole position identification routine, the zero mark was detected outside the permissible range. For distance-coded encoders, the test is carried out after passing 2 zero marks. Fine synchronization was not carried out.

When initializing via track C/D (p0404) then it is checked whether the zero mark occurs in an angular range of +/-18 ° mechanical.

When initializing via Hall sensors (p0404) or pole position identification (p1982) it is checked whether the zero mark occurs in an angular range of +/-60 ° electrical.

Fault value (r0949, interpret hexadecimal):

yyyyxxxx hex

yyyy: Determined mechanical zero mark position (can only be used for track C/D).

xxxx: Deviation of the zero mark from the expected position as electrical angle.

Scaling: 32768 dec = 180 °

Remedy: - check that the encoder cables are routed in compliance with EMC.

- check the plug connections.
- if the Hall sensor is used as an equivalent for track C/D, check the connection.
- check the connection of track C or D.
- replace the encoder or encoder cable.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F32131 (N, A) Encoder 2: Position deviation incremental/absolute too high

Message value: %1

Message class: Actual position/speed value incorrect or not available (11)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S

Component: Encoder 2 **Propagation:** LOCAL

Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)

Acknowledge: PULSE INHIBIT

Cause: Absolute encoder:

When cyclically reading the absolute position, an excessively high difference to the incremental position was detected. The absolute position that was read is rejected.

Limit value for the deviation:

- EnDat encoder: Is supplied from the encoder and is a minimum of 2 quadrants (e.g. EQI 1325 > 2 quadrants, EQN 1325 > 50 quadrants).
- other encoders: 15 pulses = 60 quadrants.

Incremental encoder:

When the zero pulse is passed, a deviation in the incremental position was detected.

For equidistant zero marks, the following applies:

- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.

For distance-coded zero marks, the following applies:

- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.

Fault value (r0949, interpret decimal):

Deviation in quadrants (1 pulse = 4 quadrants).

Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check whether the coding disk is dirty or there are strong ambient magnetic fields.
- adapt the parameter for the clearance between zero marks (p0425).
- if message output above speed threshold, reduce filter time if necessary (p0438).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32135 Encoder 2: Fault when determining the position (single turn)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: The encoder has identified a position determination fault (singleturn) and supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/switch-on) is necessary to acknowledge the fault.

F32136 Encoder 2: Fault when determining the position (multiturn)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: The encoder has identified a position determination fault (multiturn) and supplies status information bit by bit in an internal status/fault word.
Some of these bits cause this fault to be triggered. Other bits are status displays. The status/fault word is displayed in the fault value.
Note regarding the bit designation:
The first designation is valid for DRIVE-CLiQ encoders, the second for EnDat 2.2 encoders.
Fault value (r0949, interpret binary):
Bit 0: F1 (safety status display).
Bit 1: F2 (safety status display).
Bit 2: Reserved (lighting).
Bit 3: Reserved (signal amplitude).
Bit 4: Reserved (position value).
Bit 5: Reserved (overvoltage).
Bit 6: Reserved (undervoltage)/hardware fault EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 7: Reserved (overcurrent)/EnDat encoder withdrawn when not in the parked state (--> F3x110, x = 1, 2, 3).
Bit 8: Reserved (battery)/overcurrent EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 9: Reserved/overvoltage EnDat supply (--> F3x110, x = 1, 2, 3).
Bit 11: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 12: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 13: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 14: Reserved/internal communication error (--> F3x110, x = 1, 2, 3).
Bit 15: Internal communication error (--> F3x110, x = 1, 2, 3).
Bit 16: Lighting (--> F3x135, x = 1, 2, 3).
Bit 17: Signal amplitude (--> F3x135, x = 1, 2, 3).
Bit 18: Singleturn position 1 (--> F3x135, x = 1, 2, 3).
Bit 19: Overvoltage (--> F3x135, x = 1, 2, 3).
Bit 20: Undervoltage (--> F3x135, x = 1, 2, 3).
Bit 21: Overcurrent (--> F3x135, x = 1, 2, 3).
Bit 22: Temperature exceeded (--> F3x405, x = 1, 2, 3).
Bit 23: Singleturn position 2 (safety status display).
Bit 24: Singleturn system (--> F3x135, x = 1, 2, 3).
Bit 25: Singleturn power down (--> F3x135, x = 1, 2, 3)
Bit 26: Multiturn position 1 (--> F3x136, x = 1, 2, 3).
Bit 27: Multiturn position 2 (--> F3x136, x = 1, 2, 3).
Bit 28: Multiturn system (--> F3x136, x = 1, 2, 3).
Bit 29: Multiturn power down (--> F3x136, x = 1, 2, 3).
Bit 30: Multiturn overflow/underflow (--> F3x136, x = 1, 2, 3).
Bit 31: Multiturn battery (reserved).

Remedy: - determine the detailed cause of the fault using the fault value.
- replace the encoder if necessary.
Note:
An EnDat 2.2 encoder may only be removed and inserted in the "Park" state.
If an EnDat 2.2 encoder was removed when not in the "Park" state, then after inserting the encoder, a POWER ON (switch-off/switch-on) is necessary to acknowledge the fault.

F32137 Encoder 2: Fault when determining the position (single turn)

Message value: Fault cause: %1 bin
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
---
For yy = 8 (0000 1000 bin), the following applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: LED monitoring.
Bit 17: Fault when determining the position (multiturn).
Bit 23: Temperature outside the limit values.

For yy = 11 (0000 1011 bin), the following applies:
Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
Bit 4: Power supply overvoltage (MON_OVR_VOLT).
Bit 5: Power supply overcurrent (MON_OVR_CUR).
Bit 6: Power supply undervoltage (MON_UND_VOLT).
Bit 7: Rotation error counter (MT_ERR).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
Bit 13: Position word 1 memory error (MEM_ERR).
Bit 14: Position word 1 absolute position error (MLS_ERR).
Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 21: Position word 2 memory error (MEM_ERR).
Bit 22: Position word 2 absolute position error (MLS_ERR).
Bit 23: position word 2 LED error, lighting unit error (LED_ERR).

For yy = 12 (0000 1100 bin), the following applies:
Bit 8: encoder fault.
Bit 10: error in the internal position data transport.

For yy = 14 (0000 1110 bin), the following applies:
Bit 0: Position word 1 temperature outside limit value.
Bit 1: Position word 1 position determination error (multiturn).
Bit 2: Position word 1 FPGA error.
Bit 3: Position word 1 velocity error.
Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: Position word 2 temperature outside limit value.
Bit 17: Position word 2 position determination error (multiturn).
Bit 18: Position word 2 FPGA error.
Bit 19: Position word 2 velocity error.
Bit 20: Position word 2 communication error between FPGAs.
Bit 21: Position word 2 position determination error (singleturn).
Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).

Bit 23: Position word 2 internal error (self-test/software).

Note:

For an encoder version that is not described here, please contact the encoder manufacturer for more detailed information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

F32138 Encoder 2: Fault when determining the position (multiturn)

Message value: Fault cause: %1 bin
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: A position determination fault has occurred in the DRIVE-CLiQ encoder.
Fault value (r0949, interpret binary):
yyxxxxxx hex: yy = encoder version, xxxxxx = bit coding of the fault cause
---
For yy = 8 (0000 1000 bin), the following applies:
Bit 1: Signal monitoring (sin/cos).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: LED monitoring.
Bit 17: Fault when determining the position (multiturn).
Bit 23: Temperature outside the limit values.

For yy = 11 (0000 1011 bin), the following applies:
Bit 0: Position word 1 difference between rotation counter and software counter (XC_ERR).
Bit 1: Position word 1 track error of the incremental signals (LIS_ERR).
Bit 2: Position word 1 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 3: Maximum permissible temperature exceeded (TEMP_ERR).
Bit 4: Power supply overvoltage (MON_OVR_VOLT).
Bit 5: Power supply overcurrent (MON_OVR_CUR).
Bit 6: Power supply undervoltage (MON_UND_VOLT).
Bit 7: Rotation error counter (MT_ERR).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 11: Position word 1 status bit: singleturn position OK (ADC_ready).
Bit 12: Position word 1 status bit: rotation counter OK (MT_ready).
Bit 13: Position word 1 memory error (MEM_ERR).
Bit 14: Position word 1 absolute position error (MLS_ERR).
Bit 15: position word 1 LED error, lighting unit error (LED_ERR).
Bit 18: Position word 2 error when aligning between incremental track signals and absolute value (ST_ERR).
Bit 21: Position word 2 memory error (MEM_ERR).
Bit 22: Position word 2 absolute position error (MLS_ERR).
Bit 23: position word 2 LED error, lighting unit error (LED_ERR).

For yy = 14 (0000 1110 bin), the following applies:
Bit 0: Position word 1 temperature outside limit value.
Bit 1: Position word 1 position determination error (multiturn).
Bit 2: Position word 1 FPGA error.
Bit 3: Position word 1 velocity error.
Bit 4: Position word 1 communication error between FPGAs/error in the incremental signal.
Bit 5: Position word 1 timeout absolute value/error when determining the position (singleturn).
Bit 6: Position word 1 internal hardware fault (clock/power monitor IC/power).
Bit 7: Position word 1 internal error (FPGA communication/FPGA parameterization/self-test/software).
Bit 8: F1 (safety status display) error position word 1.
Bit 9: F2 (safety status display) error position word 2.
Bit 16: Position word 2 temperature outside limit value.
Bit 17: Position word 2 position determination error (multiturn).
Bit 18: Position word 2 FPGA error.
Bit 19: Position word 2 velocity error.
Bit 20: Position word 2 communication error between FPGAs.
Bit 21: Position word 2 position determination error (singleturn).
Bit 22: Position word 2 internal hardware fault (clock/power monitor IC/power).
Bit 23: Position word 2 internal error (self-test/software).

Note:
For an encoder version that is not described here, please contact the encoder manufacturer for more detailed

information on the bit coding.

Remedy: - determine the detailed cause of the fault using the fault value.
- if required, replace the DRIVE-CLiQ encoder.

F32142 (N, A) Encoder 2: Battery voltage fault

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy: Replace battery.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32150 (N, A) Encoder 2: Initialization error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: Encoder functionality selected in p0404 cannot be executed.
Fault value (r0949, interpret hexadecimal):
Encoder malfunction.
The bit assignment corresponds to that of p0404 (e.g. bit 5 set: Error track C/D).
Remedy: - check that p0404 is correctly set.
- check the encoder type used (incremental/absolute) and for SMCxx, the encoder cable.
- if relevant, note additional fault messages that describe the fault in detail.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32151 (N, A) Encoder 2: Encoder speed for initialization AB too high

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The encoder speed is too high while initializing the Sensor Module.
Remedy: Reduce the speed of the encoder accordingly during initialization.
If necessary, deactivate monitoring (p0437.29).
See also: p0437 (Sensor Module configuration extended)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32152 (N, A) Encoder 2: Max. signal frequency (track A/B) exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum signal frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy: - reduce the speed.
- Use an encoder with a lower pulse number (p0408).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32153 (N, A) Encoder 2: Identification error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: An error has occurred when identifying the encoder (waiting) p0400 = 10100.
The connected encoder was not able to be identified.
Fault value (r0949, interpret hexadecimal):
Bit 0: Data length incorrect.
See also: p0400 (Encoder type selection)
Remedy: Manually configure the encoder according to the data sheet.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32160 (N, A) Encoder 2: Analog sensor channel A failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the measuring range set in (p4673).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4673).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32161 (N, A) Encoder 2: Analog sensor channel B failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The input voltage of the analog sensor is outside the permissible limits.
Fault value (r0949, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the selected measuring range (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For fault value = 1:
- check the output voltage of the analog sensor.
For fault value = 2:
- check the voltage setting for each encoder period (p4675).
For fault value = 3:
- check the range limit setting and increase it if necessary (p4676).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32163 (N, A) Encoder 2: Analog sensor position value exceeds limit value

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Fault value (r0949, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: For fault value = 1:
- check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For fault value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32400 (F, N) Encoder 2: Zero mark distance error (alarm threshold exceeded)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
For distance-coded encoders, the zero mark distance is determined from zero marks detected pairs. This means that if a zero mark is missing, depending on the pair generation, this cannot result in a fault and also has no effect in the system.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Last measured zero mark distance in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32401 (F, N) Encoder 2: Zero mark failed (alarm threshold exceeded)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The 1.5x parameterized zero mark distance was exceeded without a zero mark being detected.
The zero mark distance for the zero mark monitoring is set in p0425 (rotary encoder) or p0424 (linear encoder).
Alarm value (r2124, interpret decimal):
Number of increments after POWER ON or since the last zero mark that was detected (4 increments = 1 encoder pulse).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the clearance between zero marks (p0425).
- replace the encoder or encoder cable.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32405 (N, A) Encoder 2: Temperature in the encoder evaluation exceeded

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: An inadmissibly high temperature was detected in the encoder electronics or the encoder evaluation.
Fault value (r0949, interpret hexadecimal):
yyxxxx hex: yy = temperature sensor number, xxxx = measured module temperature in 0.1 °C.
Remedy: Reduce the ambient temperature for the DRIVE-CLiQ connection of the motor.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32407 (F, N) Encoder 2: Function limit reached

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The encoder has reached one of its function limits. A service is recommended.
Alarm value (r2124, interpret decimal):
1: Incremental signals
3: Absolute track
4: Code connection
Remedy: Perform service. Replace the encoder if necessary.
Note:
The actual functional reserve of an encoder can be displayed via r4651.
See also: p4650 (Encoder functional reserve component number), r4651 (Encoder functional reserve)
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32410 (F, N) Encoder 2: Communication error (encoder and Sensor Module)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Serial communication protocol transfer error between the encoder and evaluation module.
Alarm value (r2124, interpret binary):
Bit 0: Alarm bit in the position protocol.
Bit 1: Incorrect quiescent level on the data line.
Bit 2: Encoder does not respond (does not supply a start bit within 50 ms).
Bit 3: CRC error: The checksum in the protocol from the encoder does not match the data.
Bit 4: Encoder acknowledgment error: The encoder incorrectly understood the task (request) or cannot execute it.
Bit 5: Internal error in the serial driver: An illegal mode command was requested.
Bit 6: Timeout when cyclically reading.
Bit 8: Protocol is too long (e.g. > 64 bits).
Bit 9: Receive buffer overflow.
Bit 10: Frame error when reading twice.
Bit 11: Parity error.
Bit 12: Data line signal level error during the monoflop time.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32411 (F, N) Encoder 2: Encoder signals an internal alarm (detailed information)

Message value: Fault cause: %1 bin, additional information: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The absolute encoder fault word includes alarm bits that have been set.
Alarm value (r2124, interpret binary):
yyyyxxxx hex: yyyy = supplementary information, xxxx = fault cause
yyyy = 0:
Bit 0: Frequency exceeded (speed too high).
Bit 1: Temperature exceeded.
Bit 2: Control reserve, lighting system exceeded.
Bit 3: Battery discharged.
Bit 4: Reference point passed.
yyyy = 1:
Bit 0: Signal amplitude outside the control range.
Bit 1: Error multiturn interface
Bit 2: Internal data error (singleturn/multiturn not with single steps).
Bit 3: Error EEPROM interface.
Bit 4: SAR converter error.
Bit 5: Fault for the register data transfer.
Bit 6: Internal error identified at the error pin (nErr).
Bit 7: Temperature threshold exceeded or fallen below.
Remedy: Replace encoder.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32412 (F, N) Encoder 2: Encoder signals an internal alarm

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The encoder signals an internal alarm via serial protocol.
Alarm value (r2124, interpret binary):
Bit 0: Fault bit in the position protocol.
Bit 1: Alarm bit in the position protocol.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace encoder.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32414 (F, N) Encoder 2: Signal level track C or D out of tolerance

Message value: C track: %1, D track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The signal level (C^2 + D^2) of track C or D of the encoder or from the Hall signals, is not within the tolerance bandwidth.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track D (16 bits with sign).
xxxx = Signal level, track C (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response thresholds are < 230 mV (observe the frequency response of the encoder) and > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note:
If the amplitude is not within the tolerance bandwidth, then it cannot be used to initialize the start position.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- check the Hall sensor box.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

N32415 (F, A) Encoder 2: Signal level track A or B outside tolerance (alarm)

Message value: Amplitude: %1, Angle: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The signal level (root from A^2 + B^2) of the encoder is outside the permissible tolerance.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = amplitude, i.e. root of A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is < 230 mV (observe the frequency response of the encoder).
A signal level of 500 mV peak value corresponds to the numerical value 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms). The response threshold is < 1414 mV (1.0 Vrms).
A signal level of 2900 mV peak value corresponds to the numerical value 3333 hex = 13107 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.

Remedy: - check the speed range, frequency characteristic (amplitude characteristic) of the measuring equipment is not sufficient for the speed range.
- check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check the Sensor Module (e.g. contacts).
- if the coding disk is soiled or the lighting aged, replace the encoder.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon A: NONE
Acknowl. upon A: NONE

A32418 (F, N) Encoder 2: Speed change not plausible (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For an HTL/TTL encoder, the speed change has exceeded the value in p0492 over several sampling cycles.
The change to the averaged speed actual value - if applicable - is monitored in the current controller sampling time.
Alarm value (r2124, interpret decimal):
Only for internal Siemens troubleshooting.
See also: p0492 (Square-wave encoder maximum speed difference per sampling cycle)
Remedy: - check the tachometer feeder cable for interruptions.
- check the grounding of the tachometer shielding.
- if required, increase the setting of p0492.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32419 (F, N) Encoder 2: Track A or B outside tolerance

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The amplitude/phase/offset correction for track A or B is at the limit.
Amplitude error correction: Amplitude B / Amplitude A = 0.78 ... 1.27
Phase: <84 degrees or >96 degrees
SMC20: Offset correction: +/-140 mV
SMC10: Offset correction: +/-650 mV
Alarm value (r2124, interpret hexadecimal):
xxxx1: Minimum of the offset correction, track B
xxxx2: Maximum of the offset correction, track B
xxx1x: Minimum of the offset correction, track A
xxx2x: Maximum of the offset correction, track A
xx1xx: Minimum of the amplitude correction, track B/A
xx2xx: Maximum of the amplitude correction, track B/A
x1xxx: Minimum of the phase error correction
x2xxx: Maximum of the phase error correction
1xxxx: Minimum of the cubic correction
2xxxx: Maximum of the cubic correction

Remedy: - check mechanical mounting tolerances for encoders without their own bearings (e.g. toothed-wheel encoders).
- check the plug connections (also the transition resistance).
- check the encoder signals.
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32421 (F, N) Encoder 2: Determined commutation position incorrect (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A commutation position actual value sensing error was detected.
Alarm value (r2124, interpret decimal):
3: The absolute position of the serial protocol and track A/B differ by half an encoder pulse. The absolute position must have its zero position in the quadrants in which both tracks are negative. In the case of a fault, the position can be incorrect by one encoder pulse.
Remedy: For alarm value = 3:
- For a standard encoder with cable, contact the manufacturer where relevant.
- correct the assignment of the tracks to the position value that is serially transferred. To do this, the two tracks must be connected, inverted, at the Sensor Module (interchange A with A* and B with B*) or, for a programmable encoder, check the zero offset of the position.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32422 (F, N) Encoder 2: Pulses per revolution square-wave encoder outside tolerance bandwidth

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The measured zero mark distance does not correspond to the parameterized zero mark distance.
This alarm is triggered with active square-wave encoder PPR correction and re-parameterized fault 31131 if the accumulator contains larger values than p4683 or p4684.
The zero mark distance for zero mark monitoring is set in p0425 (rotary encoder).
Alarm value (r2124, interpret decimal):
accumulated differential pulses in encoder pulses.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- check the encoder type (encoder with equidistant zero marks).
- adapt the parameter for the distance between zero marks (p0424, p0425).
- replace the encoder or encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32429 (F, N) Encoder 2: Position difference hall sensor/track C/D and A/B too large

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The error for track C/D is greater than +/-15 ° mechanical or +/-60 ° electrical or the error for the Hall signals is greater than +/-60 ° electrical.
One period of track C/D corresponds to 360 ° mechanical.
One period of the Hall signal corresponds to 360 ° electrical.
The monitoring responds if, for example, Hall sensors are connected as equivalent for the C/D tracks with the incorrect rotational sense or supply values that are not accurate enough.
Alarm value (r2124, interpret decimal):
For track C/D, the following applies:
Measured deviation as mechanical angle (16 bits with sign, 182 dec corresponds to 1 °).
For Hall signals, the following applies:
Measured deviation as electrical angle (16 bits with sign, 182 dec corresponds to 1 °).
Remedy: - track C or D not connected.
- correct the direction of rotation of the Hall sensor possibly connected as equivalent for track C/D.
- check that the encoder cables are routed in compliance with EMC.
- check the adjustment of the Hall sensor.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32431 (F, N) Encoder 2: Position deviation incremental/absolute too high (alarm)

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When the zero pulse is passed, a deviation in the incremental position was detected.
For equidistant zero marks, the following applies:
- the first zero mark passed supplies the reference point for all subsequent checks. The other zero marks must have n times the distance referred to the first zero mark.
For distance-coded zero marks, the following applies:
- the first zero mark pair supplies the reference point for all subsequent checks. The other zero mark pairs must have the expected distance to the first zero mark pair.
Alarm value (r2124, interpret decimal):
Deviation in quadrants (1 pulse = 4 quadrants).
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- Clean coding disk or remove strong magnetic fields.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32432 (F, N) Encoder 2: Rotor position adaptation corrects deviation

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: On track A/B, pulses have been lost or too many have been counted. These pulses are presently being corrected.
Alarm value (r2124, interpret decimal):
Last measured deviation of zero mark in increments (4 increments = 1 encoder pulse).
The sign designates the direction of motion when detecting the zero mark distance.
Remedy: - check that the encoder cables are routed in compliance with EMC.
- check the plug connections.
- replace the encoder or encoder cable.
- check encoder limit frequency.
- adapt the parameter for the distance between zero marks (p0424, p0425).
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32442 (F, N) Encoder 2: Battery voltage alarm threshold reached

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy: Replace battery.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32443 (F, N) Encoder 2: Signal level track C/D outside tolerance (alarm)

Message value: Fault cause: %1 bin
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The unipolar level (CP/CN or DP/DN) for encoder 2 is outside the permissible tolerance.
Alarm value (r2124, interpret binary):
Bit 0 = 1: Either CP or CN outside the tolerance.
Bit 16 = 1: Either DP or DN outside the tolerance.
The unipolar nominal signal level of the encoder must lie in the range 2500 mV +/- 500 mV.
The response thresholds are < 1700 mV and > 3300 mV.
Note:
The signal level is not evaluated unless the following conditions are satisfied:
- Sensor Module properties available (r0459.31 = 1).
- monitoring active (p0437.31 = 1).

Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- check the plug connections and contacts of the encoder cable.
- are the C/D tracks connected correctly (have the signal cables CP and CN or DP and DN been interchanged)?
- replace the encoder cable.

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32460 (N) Encoder 2: Analog sensor channel A failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside measuring range set in p4673.
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For alarm value = 1:
- check the output voltage of the analog sensor.
For alarm value = 2:
- check the voltage setting for each encoder period (p4673).
For alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32461 (N) Encoder 2: Analog sensor channel B failed

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The input voltage of the analog sensor is outside the permissible limits.
Alarm value (r2124, interpret decimal):
1: Input voltage outside detectable measuring range.
2: Input voltage outside the selected measuring range (p4675).
3: The absolute value of the input voltage has exceeded the range limit (p4676).
Remedy: For alarm value = 1:
- check the output voltage of the analog sensor.
For alarm value = 2:
- check the voltage setting for each encoder period (p4675).
For alarm value = 3:
- check the range limit setting and increase it if necessary (p4676).

Reaction upon N: NONE
Acknowl. upon N: NONE

A32462 (N) Encoder 2: Analog sensor no channel active

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Channel A and B are not activated for the analog sensor.
Remedy: - activate channel A and/or channel B (p4670).
- check the encoder configuration (p0404.17).
Reaction upon N: NONE
Acknowl. upon N: NONE

A32463 (N) Encoder 2: Analog sensor position value exceeds limit value

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The position value has exceeded the permissible range of -0.5 ... +0.5.
Alarm value (r2124, interpret decimal):
1: Position value from the LVDT sensor.
2: Position value from the encoder characteristic.
Remedy: For alarm value = 1:
- check the LVDT ratio (p4678).
- check the reference signal connection at track B.
For alarm value = 2:
- check the coefficients of the characteristic (p4663 ... p4666).
Reaction upon N: NONE
Acknowl. upon N: NONE

A32470 (F, N) Encoder 2: Encoder signals an internal error (X521.7)

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: For the Sensor Module Cabinet 30 (SMC30), a dirty encoder is signaled via a 0 signal at terminal X521.7.
Remedy: - check the plug connections.
- replace the encoder or encoder cable.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32500 (N, A) Encoder 2: Position tracking traversing range exceeded

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: For a configured linear axis without modulo correction, the drive/encoder has exceeded the maximum possible traversing range. The value should be read in p0412 and interpreted as the number of motor revolutions.
For p0411.0 = 1, the maximum traversing range for the configured linear axis is defined to be 64x (+/- 32x) of p0421.
For p0411.3 = 1, the maximum traversing range for the configured linear axis is preset (default value) to the highest possible value and is +/-p0412/2 (rounded off to complete revolutions). The highest possible value depends on the pulse number (p0408) and the fine resolution (p0419).
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32501 (N, A) Encoder 2: Position tracking encoder position outside tolerance window

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: When switched off, the drive/encoder was moved through a distance greater than was parameterized in the tolerance window. It is possible that there is no longer any reference between the mechanical system and encoder.
Fault value (r0949, interpret decimal):
Deviation (difference) to the last encoder position in increments of the absolute value.
The sign designates the traversing direction.
Note:
The deviation (difference) found is also displayed in r0477.
See also: p0413 (Measuring gear position tracking tolerance window), r0477 (Measuring gear position difference)
Remedy: Reset the position tracking as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and, if necessary, the absolute encoder adjusted (p2507).
See also: p0010
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32502 (N, A) Encoder 2: Encoder with measuring gear without valid signals

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The encoder with measuring gear no longer provides any valid signals.
Remedy: It must be ensured that all of the encoders, with mounted measuring gear, provide valid actual values in operation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32503 (N, A) Encoder 2: Position tracking cannot be reset

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** GLOBAL
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The position tracking for the measuring gear cannot be reset.
Remedy: The fault should be resolved as follows:
- select encoder commissioning (p0010 = 4).
- reset the position tracking as follows (p0411.2 = 1).
- deselect encoder commissioning (p0010 = 0).
The fault should then be acknowledged and the absolute encoder adjusted.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32700 Encoder 2: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Alarm value (r2124, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

N32800 (F) Encoder 2: Group signal

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: None **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: NONE
Cause: The motor encoder has detected at least one fault.
Remedy: Evaluates other actual messages.
Reaction upon F: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

F32801 (N, A) Encoder 2 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the electrical cabinet design and cable routing for EMC compliance
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32802 (N, A) Encoder 2: Time slice overflow

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A time slice overflow has occurred in encoder 2.
Fault value (r0949, interpret hexadecimal):
yx hex: y = function involved (Siemens-internal fault diagnostics), x = time slice involved
x = 9:
Time slice overflow of the fast (current controller clock cycle) time slice.
x = A:
Time slice overflow of the average time slice.
x = C:
Time slice overflow of the slow time slice.
yx = 3E7:
Timeout when waiting for SYNO (e.g. unexpected return to non-cyclic operation).
Remedy: Increase the current controller sampling time
Note:
For a current controller sampling time = 31.25 µs, use an SMx20 with Article No. 6SL3055-0AA00-5xA3.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32804 (N, A) Encoder 2: Sensor Module checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: POWER ON (IMMEDIATELY)
Cause: A checksum error has occurred when reading-out the program memory on the Sensor Module.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex
yyyy: Memory area involved.
xxxx: Difference between the checksum at POWER ON and the actual checksum.

Remedy: - carry out a POWER ON (switch-off/switch-on).
- upgrade firmware to later version (>= V2.6 HF3, >= V4.3 SP2, >= V4.4).
- check whether the permissible ambient temperature for the component is maintained.
- replace the Sensor Module.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32805 (N, A) Encoder 2: EEPROM checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Data in the EEPROM corrupted .
Fault value (r0949, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: Replace the module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32806 (N, A) Encoder 2: Initialization error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT

Cause: The encoder was not successfully initialized.
Fault value (r0949, interpret hexadecimal):
Bit 0, 1: Encoder initialization with the motor rotating has failed (deviation involving coarse and fine position in encoder pulses/4).
Bit 2: Mid-voltage matching for track A unsuccessful.
Bit 3: Mid-voltage matching for track B unsuccessful.
Bit 4: Mid-voltage matching for acceleration input unsuccessful.
Bit 5: Mid-voltage matching for track safety A unsuccessful.
Bit 6: Mid-voltage matching for track safety B unsuccessful.
Bit 7: Mid-voltage matching for track C unsuccessful.
Bit 8: Mid-voltage matching for track D unsuccessful.
Bit 9: Mid-voltage matching for track R unsuccessful.
Bit 10: The difference in mid-voltages between A and B is too great (> 0.5 V)
Bit 11: The difference in mid-voltages between C and D is too great (> 0.5 V)
Bit 12: The difference in mid-voltages between safety A and safety B is too great (> 0.5 V)
Bit 13: The difference in mid-voltages between A and safety B is too great (> 0.5 V)
Bit 14: The difference in mid-voltages between B and safety A is too great (> 0.5 V)
Bit 15: The standard deviation of the calculated mid-voltages is too great (> 0.3 V)
Bit 16: Internal fault - fault when reading a register (CAFE)
Bit 17: Internal fault - fault when writing a register (CAFE)
Bit 18: Internal fault: No mid-voltage matching available
Bit 19: Internal error - ADC access error.
Bit 20: Internal error - no zero crossover found.
Bit 28: Error while initializing the EnDat 2.2 measuring unit.
Bit 29: Error when reading out the data from the EnDat 2.2 measuring unit.
Bit 30: EEPROM checksum of the EnDat 2.2 measuring unit incorrect.
Bit 31: Data of the EnDat 2.2 measuring unit inconsistent.
Note:
Bit 0, 1: Up to 6SL3055-0AA00-5*A0
Bits 2 ... 20: 6SL3055-0AA00-5*A1 and higher

Remedy: Acknowledge fault.
If the fault cannot be acknowledged:
Bits 2 ... 9: Check encoder power supply.
Bits 2 ... 14: Check the corresponding cable.
Bit 15 with no other bits: Check track R, check settings in p0404.
Bit 28: Check the cable between the EnDat 2.2 converter and the measuring unit.
Bit 29 ... 31: Replace the defective measuring unit.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32811 (F, N) Encoder 2: Encoder serial number changed

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The encoder serial number has changed. The change is only checked for encoders with serial number (e.g. EnDat encoders).
- the encoder was replaced.
Note:
With closed-loop position control, the serial number is accepted when starting the adjustment (p2507 = 2).
When the encoder is adjusted (p2507 = 3), the serial number is checked for changes and if required, the adjustment is reset (p2507 = 1).
Proceed as follows to hide serial number monitoring:
- set the following serial numbers for the corresponding Encoder Data Set: p0441= FF, p0442 = 0, p0443 = 0, p0444 = 0, p0445 = 0.

Remedy: Mechanically adjust the encoder. Accept the new serial number with p0440 = 1.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32812 (N, A) Encoder 2: Requested cycle or RX-/TX timing not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A cycle requested from the Control Unit or RX/TX timing is not supported.
Fault value (r0949, interpret decimal):
0: Application cycle is not supported.
1: DRIVE-CLiQ cycle is not supported.
2: Distance between RX and TX instants in time too low.
3: TX instant in time too early.
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32813 Encoder 2: Hardware logic unit failed

Message value: Fault cause: %1 bin
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: PULSE INHIBIT
Cause: The logic unit of the DRIVE-CLiQ encoder has failed.
Fault value (r0949, interpret binary):
Bit 0: ALU watchdog has responded.
Bit 1: ALU has detected a sign-of-life error.
Remedy: When the error reoccurs, replace the encoder.

F32820 (N, A) Encoder 2 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32835 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder concerned. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.
- replace the component involved.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32836 (N, A) Encoder 2 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32837 (N, A) Encoder 2 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32845 (N, A) Encoder 2 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the encoder involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32850 (N, A) Encoder 2: Encoder evaluation internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: An internal software error has occurred in the Sensor Module of encoder 2.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
10000: OEM memory of the EnDat encoder contains data that cannot be interpreted.
11000 ... 11499: Descriptive data from EEPROM incorrect.
11500 ... 11899: Calibration data from EEPROM incorrect.
11900 ... 11999: Configuration data from EEPROM incorrect.
12000 ... 12008: communication with analog/digital converter faulted.
16000: DRIVE-CLiQ encoder initialization application error.
16001: DRIVE-CLiQ encoder initialization ALU error.
16002: DRIVE-CLiQ encoder HISI / SISI initialization error.
16003: DRIVE-CLiQ encoder safety initialization error.
16004: DRIVE-CLiQ encoder internal system error.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32851 (N, A) Encoder 2 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - Upgrade the firmware of the component involved.
- carry out a POWER ON (switch-off/switch-on) for the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32860 (N, A) Encoder 2 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32875 (N, A) Encoder 2: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32885 (N, A) Encoder 2 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32886 (N, A) Encoder 2 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32887 (N, A) Encoder 2 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component involved (Sensor Module for encoder 2). Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32895 (N, A) Encoder 2 DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Sensor Module (encoder 2) involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32896 (N, A) Encoder 2 DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (Sensor Module for encoder 2), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32899 (N, A) Encoder 2: Unknown fault

Message value: New message: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32902 (F, N) Encoder 2: SPI-BUS error occurred

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal SPI bus.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32903 (F, N) Encoder 2: I2C-BUS error occurred

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: Error when operating the internal I2C bus.
Alarm value (r2124, interpret hexadecimal):
Only for internal Siemens troubleshooting.
Remedy: - replace the Sensor Module.
- if required, upgrade the firmware in the Sensor Module.
- contact Technical Support.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32905 (N, A) Encoder 2: Encoder parameterization error

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: An error was identified in the encoder parameterization.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
yyyyxxxx dec: yyyy = supplementary information, xxxx = parameter
xxxx = 421:
For an EnDat/SSI encoder, the absolute position in the protocol must be less than or equal to 30 bits.
yyyy = 0:
No additional information available.
yyyy = 1:
The component does not support HTL level (p0405.1 = 0) combined with track monitoring A/B <> -A/B (p0405.2 = 1).
yyyy = 2:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please start a new encoder identification.
yyyy = 3:
A code number for an identified encoder has been entered into p0400, however, no identification was carried out. Please select a listed encoder in p0400 with a code number < 10000.
yyyy = 4:
This component does not support SSI encoders (p0404.9 = 1) without track A/B.
yyyy = 5:
For SQW encoder, value in p4686 greater than in p0425.
yyyy = 6:
DRIVE-CLiQ encoder cannot be used with this firmware version.
yyyy = 7:
For an SQW encoder, the XIST1 correction (p0437.2) is only permitted for equidistant zero marks.
yyyy = 8:
The motor pole pair width is not supported by the linear scale being used.
yyyy = 9:
The length of the position in the EnDat protocol may be a maximum of 32 bits.
yyyy = 10:
The connected encoder is not supported.
yyyy = 11:
The hardware does not support track monitoring.

Remedy: - check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.
- re parameter number = 314:
- check the pole pair number and measuring gear ratio. The quotient of the "pole pair number" divided by the "measuring gear ratio" must be less than or equal to 1000 ((r0313 * p0433) / p0432 <= 1000).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F32912 Encoder 2: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT

Cause: The selected device combination is not supported.
Fault value (r0949, interpret decimal):
1003:
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.
1005:
The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
1006:
The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
2001:
The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
2002:
The resolution of the linear measuring unit does not match the pole pair width of the linear motor
Pole pair width, minimum = p0422 * 2^20

Remedy: For fault value = 1003, 1005, 1006:
- Use a measuring unit that is permissible.
For fault value = 2001:
- set a permissible cycle combination (if required, use standard settings).
For fault value = 2002:
- Use a measuring unit with a lower resolution (p0422).

A32915 (F, N) Encoder 2: Encoder configuration error

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The configuration for encoder 2 is incorrect.
Alarm value (r2124, interpret decimal):
1:
Re-parameterization between fault/alarm is not permissible.
419:
When the fine resolution Gx_XIST2 is configured, the encoder identifies a maximum possible absolute position actual value (r0483) that can no longer be represented within 32 bits.
Remedy: For alarm value = 1:
No re-parameterization between fault/alarm.
For alarm value = 419:
Reduce the fine resolution (p0419) or deactivate the monitoring (p0437.25), if the complete multiturn range is not required.
Reaction upon F: NONE (IASC/DCBRK)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32916 (N, A) Encoder 2: Encoder parameterization error

Message value: Parameter: %1, supplementary information: %2
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: An encoder parameter was detected as being incorrect.
It is possible that the parameterized encoder type does not match the connected encoder.
The parameter involved can be determined as follows:
- determine the parameter number using the fault value (r0949).
- determine the parameter index (p0187).
Fault value (r0949, interpret decimal):
Parameter number.

Remedy:
- check whether the connected encoder type matches the encoder that has been parameterized.
- correct the parameter specified by the fault value (r0949) and p0187.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A32920 (F, N) Encoder 2: Temperature sensor fault (motor)

Message value: Fault cause: %1, channel number: %2
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: The motor detected a fault when evaluating the temperature sensor.
Fault cause:
1 (= 01 hex):
Wire breakage or sensor not connected.
KTY: R > 1630 Ohm, PT1000: R > 1720 Ohm
2 (= 02 hex):
Measured resistance too low.
PTC: R < 20 Ohm, KTY: R < 50 Ohm, PT1000: R < 603 Ohm
Additional values:
Only for internal Siemens troubleshooting.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = channel number, xx = error cause

Remedy:
- check that the encoder cable is the correct type and is correctly connected.
- check the temperature sensor selection in p0600 to p0603.
- replace the Sensor Module (hardware defect or incorrect calibration data).

Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A32930 (N) Encoder 2: Data logger has saved data

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: For the activated function "Data logger" (p0437.0 = 1) a fault has occurred with the Sensor Module. This alarm indicates that the diagnostics data corresponding to the fault was saved on the memory card.
The diagnostics data is saved in the following folder:
/USER/SINAMICS/DATA/SMTRC00.BIN
...
/USER/SINAMICS/DATA/SMTRC07.BIN
/USER/SINAMICS/DATA/SMTRCIDX.TXT
The following information is contained in the TXT file:
- Display of the last written BIN file.
- Number of write operations that are still possible (from 10000 downwards).
Note:
Only Siemens can evaluate the BIN files.
Remedy: Not necessary.
This alarm is automatically withdrawn.
The data logger is ready to record the next fault case.
Reaction upon N: NONE
Acknowl. upon N: NONE

A32940 (F, N) Encoder 2: Spindle sensor S1 voltage incorrect

Message value: %1
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: The voltage of analog sensor S1 is outside the permissible range.
Alarm value (r2124, interpret decimal):
Signal level from sensor S1.
Note:
A signal level of 500 mV corresponds to the numerical value 500 dec.
Remedy: - check the clamped tool.
- check the tolerance and if required, adapt (p5040).
- check the thresholds and if required, adapt (p5041).
- check analog sensor S1 and connections.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F32950 Encoder 2: Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: POWER ON
Cause: An internal software error has occurred.
Fault value (r0949, interpret decimal):
Information about the fault source.
Only for internal Siemens troubleshooting.
Remedy: - if necessary, upgrade the firmware in the Sensor Module to a later version.
- contact Technical Support.

A32999 (F, N) Encoder 2: Unknown alarm

Message value: New message: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 2 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: A alarm has occurred on the Sensor Module for encoder 2 that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Sensor Module by an older firmware version (r0148).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F33125 (N, A) Encoder 3: Signal level track A or B too high

Message value: A track: %1, B-track: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 3 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The signal level (root from A^2 + B^2) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Signal level, track B (16 bits with sign).
xxxx = Signal level, track A (16 bits with sign).
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold is > 750 mV.
A signal level of 500 mV peak value corresponds to the numerical value 5333 hex = 21299 dec.
Note for Sensor Modules for resolvers (e.g. SMC10):
The nominal signal level is at 2900 mV (2.0 Vrms).
The response threshold is > 3582 mV.
A signal level of 2900 mV peak value corresponds to the numerical value 6666 hex = 26214 dec.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33126 (N, A) Encoder 3: Signal level track A or B too high

Message value: Amplitude: %1, Angle: %2
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 3 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The signal level (|A| + |B|) of the encoder exceeds the permissible limit value.
Fault value (r0949, interpret hexadecimal):
yyyyxxxx hex:
yyyy = Angle
xxxx = amplitude, i.e. root of A^2 + B^2 (16 bits without sign)
The nominal signal level of the encoder must lie in the range 375 mV to 600 mV (500 mV -25/+20 %).
The response threshold for (|A| + |B|) is > 1120 mV or the root of (A^2 + B^2) > 955 mV.
A signal level of 500 mV peak value corresponds to the numerical value of 299A hex = 10650 dec.
The angle 0 ... FFFF hex corresponds to 0 ... 360 degrees of the fine position. Zero degrees is present at the negative zero crossover of track B.
Note:
The analog values of the amplitude error are not measured at the same time with the hardware fault output by the Sensor Module.
Remedy: - check that the encoder cables and shielding are routed in compliance with EMC.
- replace the encoder or encoder cable.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33142 (N, A) Encoder 3: Battery voltage fault

Message value: -
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 3 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The battery voltage is no longer sufficient to check the multiturn information.
Remedy: Replace battery.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33152 (N, A) Encoder 3: Max. signal frequency (track A/B) exceeded

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 3 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3, STOP2)
Acknowledge: PULSE INHIBIT
Cause: The maximum signal frequency of the encoder evaluation has been exceeded.
Fault value (r0949, interpret decimal):
Actual input frequency in Hz.
See also: p0408 (Rotary encoder pulse number)
Remedy: - reduce the speed.
- Use an encoder with a lower pulse number (p0408).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A33442 (F, N) Encoder 3: Battery voltage alarm threshold reached

Message value: -
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 3 **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: When switched-off, the encoder uses a battery to back up the multiturn information. The multiturn information can no longer be buffered if the battery voltage drops even further.
Remedy: Replace battery.
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A33700 Encoder 3: Effectivity test does not supply the expected value

Message value: Fault cause: %1 bin
Message class: Safety monitoring channel has identified an error (10)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 3 **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The DRIVE-CLiQ encoder fault word supplies fault bits that have been set.
Alarm value (r2124, interpret binary):
Bit x = 1: Effectivity test x unsuccessful.
Remedy: Replace encoder.

F33875 (N, A) Encoder 3: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Sensor Module Encoder 3 **Propagation:** LOCAL
Reaction: OFF1 (IASC/DCBRK, NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F33912 Encoder 3: Device combination is not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S
Component: Encoder 3 **Propagation:** GLOBAL
Reaction: OFF1 (IASC/DCBRK, NONE)
Acknowledge: PULSE INHIBIT
Cause: The selected device combination is not supported.
Fault value (r0949, interpret decimal):
1003:
The connected measuring unit cannot be operated with the EnDat 2.2 converter. For instance, the measuring unit has a pulse number/resolution of 2^n.
1005:
The type of measuring unit (incremental) is not supported by the EnDat 2.2 converter.
1006:
The maximum duration of the EnDat transfer (31.25 µs) was exceeded.
2001:
The set combination of current controller cycle, DP cycle and Safety cycle is not supported by the EnDat 2.2 converter.
2002:
The resolution of the linear measuring unit does not match the pole pair width of the linear motor
Pole pair width, minimum = p0422 * 2^20
Remedy: For fault value = 1003, 1005, 1006:
- Use a measuring unit that is permissible.
For fault value = 2001:
- set a permissible cycle combination (if required, use standard settings).
For fault value = 2002:
- Use a measuring unit with a lower resolution (p0422).

F34851 VSM DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Upgrade the firmware of the component involved.

F34860 VSM DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F34875 VSM: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F34885 VSM DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F34886 VSM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F34887 VSM DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (Voltage Sensing Module) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F34895 VSM DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: NONE (OFF1, OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Voltage Sensing Module involved (VSM) to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F34896 VSM DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Voltage Sensing Module (VSM) **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (Voltage Sensing Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.

Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

A35200 (F, N) TM: Calibration data

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: An error was detected in the calibration data of the Terminal Module.
Alarm value (r2124, interpret decimal):
ddcbaa dec: dd = component number, c = AI/AO, b = fault type, aa = number
c = 0: analog input (AI)
c = 1: analog output (AO)
b = 0: No calibration data available.
b = 1: Offset too high (> 100 mV).
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- replace the component if necessary.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35207 (N, A) TM: Temperature fault/alarm threshold channel 0 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[0], p4103[0]).
or
- fault threshold exceeded (p4102[1]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies:
- if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C
- if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C
The temperature actual value is displayed via connector output r4105[0] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[1] - hysteresis (5 K, for TM150, can be set using p4118[0]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35208 (N, A) TM: Temperature fault/alarm threshold channel 1 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[2], p4103[1]).
or
- fault threshold exceeded (p4102[3]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies:
- if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C
- if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C
The temperature actual value is displayed via connector output r4105[1] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: - allow the temperature sensor to cool down to below p4102[3] - hysteresis (5 K, for TM150, can be set using p4118[1]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35209 (N, A) TM: Temperature fault/alarm threshold channel 2 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[4], p4103[2]).

or

- fault threshold exceeded (p4102[5]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies:
- if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C
- if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C

The temperature actual value is displayed via connector output r4105[2] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[5] - hysteresis (5 K, for TM150, can be set using p4118[2]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35210 (N, A) TM: Temperature fault/alarm threshold channel 3 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module (TM), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[6], p4103[3]).

or

- fault threshold exceeded (p4102[7]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies:
- if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C
- if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C

The temperature actual value is displayed via connector output r4105[3] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[7] - hysteresis (5 K, for TM150, can be set using p4118[3]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35211 (F, N) TM: Temperature alarm threshold channel 0 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[0]) has exceeded the threshold value to initiate this alarm (p4102[0]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[0] = 1, 4), the following applies:
- if r4101[0] > 1650 ohms, the temperature r4105[0] = 250 °C
- if r4101[0] <= 1650 ohms, the temperature r4105[0] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[0] - hysteresis (5 K, for TM150, can be set using p4118[0]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35212 (F, N) TM: Temperature alarm threshold channel 1 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[1]) has exceeded the threshold value to initiate this alarm (p4102[2]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[1] = 1, 4), the following applies:
- if r4101[1] > 1650 ohms, the temperature r4105[1] = 250 °C
- if r4101[1] <= 1650 ohms, the temperature r4105[1] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K, for TM150, can be set using p4118[1]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35213 (F, N) TM: Temperature alarm threshold channel 2 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE

Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[2]) has exceeded the threshold value to initiate this alarm (p4102[4]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[2] = 1, 4), the following applies:
- if r4101[2] > 1650 ohms, the temperature r4105[2] = 250 °C
- if r4101[2] <= 1650 ohms, the temperature r4105[2] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[4] - hysteresis (5 K, for TM150, can be set using p4118[2]).
See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35214 (F, N) TM: Temperature alarm threshold channel 3 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature measured using the temperature sensing of the Terminal Module (TM) (r4105[3]) has exceeded the threshold value to initiate this alarm (p4102[6]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[3] = 1, 4), the following applies:
- if r4101[3] > 1650 ohms, the temperature r4105[3] = 250 °C
- if r4101[3] <= 1650 ohms, the temperature r4105[3] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy: Allow the temperature sensor to cool down to below p4102[6] - hysteresis (5 K, for TM150, can be set using p4118[3]).
See also: p4102

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35220 (N, A) TM: Frequency limit reached for signal output

Message value: -
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The signals output from the Terminal Module 41 (TM41) for tracks A/B have reached the limit frequency. The output signals are no longer in synchronism with the specified setpoint.
SIMOTION (p4400 = 0) operating mode:
- if the TM41 has been configured as the technology project, this fault is also output in response to short-circuited A/B signals in X520.
SINAMICS (p4400 = 1) operating mode:
- the fine resolution of TM41 in p0418 does not match that of the connector input that was interconnected at p4420
- the encoder position actual value r0479 interconnected at connector input p4420 has an excessively high actual speed
- the output signals correspond to a speed, which is greater than the maximum speed (r1082 of TM41).

Remedy: SIMOTION (p4400 = 0) operating mode:
- enter a lower speed setpoint (p1155).
- reduce the encoder pulse number (p0408).
- check track A/B for short-circuits.

SINAMICS (p4400 = 1) operating mode:
- enter a lower speed setpoint (p1155).
- reduce the encoder pulse number (p0408).

Notice:
The output signal is no longer monitored after changing the message type to "Alarm" (A).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35221 (N, A) TM: Setpoint - actual value deviation outside the tolerance range

Message value: -
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: The deviation between the setpoint and the output signals (track A/B) exceeds the tolerance of +/-3 %. The deviation between the internal and external measured value is too high (> 1000 pulses).
Remedy: - reduce the basic clock cycle (p0110, p0111).
- if required, replace the component (e.g. internal short-circuit).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35222 (F, N) TM: Encoder pulse number not permissible

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The encoder pulse number entered does not match the permissible pulse number from a hardware perspective.
Alarm value (r2124, interpret decimal):
1: Encoder pulse number is too high.
2: Encoder pulse number is too low.
4: Encoder pulse number is less than the zero mark offset (p4426).
Remedy: - enter the encoder pulse number in the permissible range (p0408).
- if necessary, replace TM41 SAC with TM41 DAC.

Note:
TM41 SAC: Article No. = 6SL3055-0AA00-3PA0
TM41 DAC: Article No. = 6SL3055-0AA00-3PA1
The following applies for TM41 SAC:
- minimum/maximum value for p0408: 1000/8192

The following applies for TM41 DAC:
- minimum/maximum value for p0408: 1000/16384

See also: p0408 (Rotary encoder pulse number)

Reaction upon F: OFF1 (NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

A35223 (F, N) TM: Zero mark offset not permissible

Message value: %1
Message class: Application/technological function faulted (17)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The entered zero mark offset is not permissible.
Alarm value (r2124, interpret decimal):
1: Zero mark offset is too high.
Remedy: Enter the zero mark offset in the permissible range (p4426).
Reaction upon F: OFF1 (NONE, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35230 TM: Hardware fault

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: POWER ON
Cause: The Terminal Module (TM) used has signaled internal errors.
Signals from this module may not be evaluated because they are very likely to be incorrect.
Remedy: If required, replace the Terminal Module.

F35233 DRIVE-CLiQ component function not supported

Message value: %1
Message class: Error in the parameterization / configuration / commissioning procedure (18)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A function requested by the Control Unit is not supported by a DRIVE-CLiQ component.
Fault value (r0949, interpret decimal):
1: Terminal Module 31 does not support the function "Timer for temperature evaluation" (X522.7/8, p4103 > 0.000).
4: The improved actual value resolution is not supported (p4401.4).
5: The improved setpoint resolution is not supported (p4401.5).
6: The residual value handling in the setpoint channel cannot be deactivated (p4401.6).
7: Output frequencies greater than 750 kHz cannot be activated (p4401.7).
Remedy: For fault value = 1:
- Deactivate timer for temperature evaluation (X522.7/8) (p4103 = 0.000).
- use Terminal Module 31 and the relevant firmware version to enable the "Timer for temperature evaluation" function (Article No. 6SL3055-0AA00-3AA1, firmware version 2.6 and higher).
See also: p4103

F35400 (N, A) TM: Temperature fault/alarm threshold channel 4 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[8], p4103[4]).

or

- fault threshold exceeded (p4102[9]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies:
- if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C
- if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C

The temperature actual value is displayed via connector output r4105[4] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[9] - hysteresis (p4118[4]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35401 (N, A) TM: Temperature fault/alarm threshold channel 5 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[10], p4103[5]).

or

- fault threshold exceeded (p4102[11]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies:
- if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C
- if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C

The temperature actual value is displayed via connector output r4105[5] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[11] - hysteresis (p4118[5]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35402 (N, A) TM: Temperature fault/alarm threshold channel 6 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[12], p4103[6]).

or

- fault threshold exceeded (p4102[13]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies:
- if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C
- if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C

The temperature actual value is displayed via connector output r4105[6] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[13] - hysteresis (p4118[6]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35403 (N, A) TM: Temperature fault/alarm threshold channel 7 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)

Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[14], p4103[7]).

or

- fault threshold exceeded (p4102[15]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:
- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C

The temperature actual value is displayed via connector output r4105[7] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[15] - hysteresis (p4118[7]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35404 (N, A) TM: Temperature fault/alarm threshold channel 8 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[16], p4103[8]).

or

- fault threshold exceeded (p4102[17]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:
- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C

The temperature actual value is displayed via connector output r4105[8] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[17] - hysteresis (p4118[8]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35405 (N, A) TM: Temperature fault/alarm threshold channel 9 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[18], p4103[9]).

or

- fault threshold exceeded (p4102[19]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:
- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C

The temperature actual value is displayed via connector output r4105[9] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[19] - hysteresis (p4118[9]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35406 (N, A) TM: Temperature fault/alarm threshold channel 10 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[20], p4103[10]).

or

- fault threshold exceeded (p4102[21]).

Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies:
- if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C
- if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C

The temperature actual value is displayed via connector output r4105[10] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].

Remedy:
- allow the temperature sensor to cool down to below p4102[21] - hysteresis (p4118[10]).
- if required, set the fault response to NONE (p2100, p2101).

See also: p4102

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35407 (N, A) TM: Temperature fault/alarm threshold channel 11 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: For the temperature evaluation via the Terminal Module 150 (TM150), at least one of the following conditions to initiate this fault is fulfilled:
- alarm threshold has been exceeded longer than that set in the timer (p4102[22], p4103[11]).
or
- fault threshold exceeded (p4102[23]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies:
- if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C
- if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C
The temperature actual value is displayed via connector output r4105[11] and can be interconnected.
Notice:
This fault only causes the drive to shut down if there is at least one BICO interconnection between the drive and the Terminal Module.
Fault value (r0949, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: - allow the temperature sensor to cool down to below p4102[23] - hysteresis (p4118[11]).
- if required, set the fault response to NONE (p2100, p2101).
See also: p4102
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35410 (F, N) TM: Temperature alarm threshold channel 4 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[4]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[8]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[4] = 1, 4), the following applies:
- if r4101[4] > 1650 ohms, the temperature r4105[4] = 250 °C
- if r4101[4] <= 1650 ohms, the temperature r4105[4] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[8] - hysteresis (p4118[4]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35411 (F, N) TM: Temperature alarm threshold channel 5 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[5]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[10]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[5] = 1, 4), the following applies:
- if r4101[5] > 1650 ohms, the temperature r4105[5] = 250 °C
- if r4101[5] <= 1650 ohms, the temperature r4105[5] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[10] - hysteresis (p4118[5]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35412 (F, N) TM: Temperature alarm threshold channel 6 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[6]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[12]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[6] = 1, 4), the following applies:
- if r4101[6] > 1650 ohms, the temperature r4105[6] = 250 °C
- if r4101[6] <= 1650 ohms, the temperature r4105[6] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[12] - hysteresis (p4118[6]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35413 (F, N) TM: Temperature alarm threshold channel 7 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE

Cause: The temperature (r4105[7]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[14]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[7] = 1, 4), the following applies:
- if r4101[7] > 1650 ohms, the temperature r4105[7] = 250 °C
- if r4101[7] <= 1650 ohms, the temperature r4105[7] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[14] - hysteresis (p4118[7]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35414 (F, N) TM: Temperature alarm threshold channel 8 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[8]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[16]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[8] = 1, 4), the following applies:
- if r4101[8] > 1650 ohms, the temperature r4105[8] = 250 °C
- if r4101[8] <= 1650 ohms, the temperature r4105[8] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[16] - hysteresis (p4118[8]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35415 (F, N) TM: Temperature alarm threshold channel 9 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[9]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[18]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[9] = 1, 4), the following applies:
- if r4101[9] > 1650 ohms, the temperature r4105[9] = 250 °C
- if r4101[9] <= 1650 ohms, the temperature r4105[9] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[18] - hysteresis (p4118[9]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

A35416 (F, N) TM: Temperature alarm threshold channel 10 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[10]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[20]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[10] = 1, 4), the following applies:
- if r4101[10] > 1650 ohms, the temperature r4105[10] = 250 °C
- if r4101[10] <= 1650 ohms, the temperature r4105[10] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[20] - hysteresis (p4118[10]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35417 (F, N) TM: Temperature alarm threshold channel 11 exceeded

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature (r4105[11]) measured using the temperature sensing of the Terminal Module 150 (TM150) has exceeded the threshold value to initiate this alarm (p4102[22]).
Note:
For sensor type "PTC thermistor" and "Bimetallic NC contact" (p4100[11] = 1, 4), the following applies:
- if r4101[11] > 1650 ohms, the temperature r4105[11] = 250 °C
- if r4101[11] <= 1650 ohms, the temperature r4105[11] = -50 °C
Alarm value (r2124, interpret decimal):
Temperature actual value at the time of initiation [0.1 °C].
Remedy: Allow the temperature sensor to cool down to below p4102[22] - hysteresis (p4118[11]).
See also: p4102
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

N35800 (F) TM: Group signal

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: NONE
Cause: The Terminal Module has detected at least one fault.
Remedy: Evaluates other actual messages.

Reaction upon F: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY

F35801 (N, A) TM DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Control Unit (CU) **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ connection.
- replace the component involved.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35802 (F, N) TM: Time slice overflow

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: A time slice overflow has occurred on the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35803 (F, N) TM: Memory test

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred during the memory test on the Terminal Module.
Remedy: - check whether the permissible ambient temperature for the Terminal Module is being maintained.
- replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35804 (N, A) TM: CRC

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A checksum error has occurred when reading-out the program memory on the Terminal Module.
Fault value (r0949, interpret hexadecimal):
Difference between the checksum at POWER ON and the actual checksum.
Remedy: - check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F35805 (N, A) TM: EEPROM checksum error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: IMMEDIATELY (POWER ON)
Cause: Internal parameter data is corrupted.
Alarm value (r2124, interpret hexadecimal):
01: EEPROM access error.
02: Too many blocks in the EEPROM.
Remedy: - check whether the permissible ambient temperature for the component is maintained.
- replace the Terminal Module 31 (TM31).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35807 (F, N) TM: Sequence control time monitoring

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM15DI_DO
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: Error, timeout, sequence control on the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F35820 TM DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F35835 TM DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Control Unit to the Terminal Module involved. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON.
- replace the component involved.

F35836 TM DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F35837 PTM DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F35845 TM DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred between the Control Unit and the Terminal Module (TM) involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F35850 TM: Internal software error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: OFF1 (NONE, OFF2, OFF3)
Acknowledge: POWER ON
Cause: An internal software error in the Terminal Module (TM) has occurred.
Fault value (r0949, interpret decimal):
1: Background time slice is blocked.
2: Checksum over the code memory is not OK.
Remedy: - replace the Terminal Module (TM).
- if required, upgrade the firmware in the Terminal Module.
- contact Technical Support.

F35851 TM DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Upgrade the firmware of the component involved.

F35860 TM DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F35875 TM: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:
- carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F35885 TM DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy:
- check the power supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F35886 TM DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Carry out a POWER ON.

F35887 TM DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (Terminal Module) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F35895 TM DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communication error has occurred from the Terminal Module involved (TM) to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F35896 TM DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: OFF2 (IASC/DCBRK, NONE, OFF1, OFF3, STOP2)
Acknowledge: IMMEDIATELY

Cause: The properties of the DRIVE-CLiQ component (Terminal Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.

Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F35899 (N, A) TM: Unknown fault

Message value: New message: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowledge: IMMEDIATELY (POWER ON)
Cause: A fault has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Fault value (r0949, interpret decimal):
Fault number.
Note:
If required, the significance of this new fault can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Terminal Module by an older firmware version (r0158).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A35903 (F, N) TM: I2C bus error occurred

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred while accessing the internal I2C bus of the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35904 (F, N) TM: EEPROM

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: An error has occurred accessing the non-volatile memory on the Terminal Module.
Remedy: Replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)

Reaction upon N: NONE
Acknowl. upon N: NONE

A35905 (F, N) TM: Parameter access

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The Control Unit attempted to write an illegal parameter value to the Terminal Module.
Remedy: - check whether the firmware version of the Terminal Module (r0158) matches the firmware version of Control Unit (r0018).
- if required, replace the Terminal Module.
Note:
The firmware versions that match each other are in the readme.txt file on the memory card.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35906 (F, N) TM: 24 V power supply missing

Message value: %1
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The 24 V power supply for the digital outputs is missing.
Alarm value (r2124, interpret hexadecimal):
01: TM17 24 V power supply for DI/DO 0 ... 7 missing.
02: TM17 24 V power supply for DI/DO 8 ... 15 missing.
04: TM15 24 V power supply for DI/DO 0 ... 7 (X520) missing.
08: TM15 24 V power supply for DI/DO 8 ... 15 (X521) missing.
10: TM15 24 V power supply for DI/DO 16 ... 23 (X522) missing.
20: TM41 24 V power supply for DI/DO 0 ... 3 missing.
Remedy: Check the terminals for the power supply voltage (L1+, L2+, L3+, M or +24 V_1 for TM41).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35907 (F, N) TM: Hardware initialization error

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The Terminal Module was not successfully initialized.
Alarm value (r2124, interpret hexadecimal):
01: TM17 or TM41 - incorrect configuration request.
02: TM17 or TM41 - programming not successful.
04: TM17 or TM41 - invalid time stamp
Remedy: Carry out a POWER ON.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35910 (F, N) TM: Module overtemperature

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The temperature in the module has exceeded the highest permissible limit.
Remedy: - reduce the ambient temperature.
- replace the Terminal Module.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35911 (F, N) TM: Clock synchronous operation sign-of-life missing

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: The maximum permissible number of errors in the master sign-of-life (clock synchronous operation) has been exceeded in cyclic operation.
When the alarm is output, the module outputs are reset up to the next synchronization.
Remedy: - check the physical bus configuration (terminating resistor, shielding, etc.).
- check the interconnection of the master sign-of-life (r4201 via p0915).
- check whether the master correctly sends the sign-of-life (e.g. set up a trace with r4201.12 ... r4201.15 and trigger signal r4301.9).
- check the bus and master for utilization level (e.g. bus cycle time Tdp was set too short).
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35920 (F, N) TM: Error temperature sensor channel 0

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1720 Ohm (TM150: R > 1944 Ohm)
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35921 (F, N) TM: Error temperature sensor channel 1

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1720 Ohm (TM150: R > 1944 Ohm)
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35922 (F, N) TM: Error temperature sensor channel 2

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1720 Ohm (TM150: R > 1944 Ohm)
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.

Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35923 (F, N) TM: Error temperature sensor channel 3

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 1630 Ohm (TM150: R > 2170 Ohm), PT100: R > 194 Ohm, PT1000: R > 1720 Ohm (TM150: R > 1944 Ohm)
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 50 Ohm (TM150: R < 180 Ohm), PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35924 (F, N) TM: Error temperature sensor channel 4

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35925 (F, N) TM: Error temperature sensor channel 5

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm

Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35926 (F, N) TM: Error temperature sensor channel 6

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35927 (F, N) TM: Error temperature sensor channel 7

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35928 (F, N) TM: Error temperature sensor channel 8

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE

Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35929 (F, N) TM: Error temperature sensor channel 9

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35930 (F, N) TM: Error temperature sensor channel 10

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35931 (F, N) TM: Error temperature sensor channel 11

Message value: %1
Message class: External measured value / signal state outside the permissible range (16)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150
Component: Terminal Module (TM) **Propagation:** BICO
Reaction: NONE
Acknowledge: NONE
Cause: When evaluating the temperature sensor, an error occurred.
Alarm value (r2124, interpret decimal):
1: Wire breakage or sensor not connected.
KTY84: R > 2170 Ohm, PT100: R > 194 Ohm, PT1000: R > 1944 Ohm
2: Measured resistance too low.
PTC thermistor: R < 20 Ohm, KTY84: R < 180 Ohm, PT100: R < 60 Ohm, PT1000: R < 603 Ohm
Remedy: - make sure that the sensor is connected correctly.
- replace the sensor.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

A35999 (F, N) TM: Unknown alarm

Message value: New message: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Module (TM) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred on the Terminal Module that cannot be interpreted by the Control Unit firmware.
This can occur if the firmware on this component is more recent than the firmware on the Control Unit.
Alarm value (r2124, interpret decimal):
Alarm number.
Note:
If required, the significance of this new alarm can be read about in a more recent description of the Control Unit.
Remedy: - replace the firmware on the Terminal Module by an older firmware version (r0158).
- upgrade the firmware on the Control Unit (r0018).
Reaction upon F: NONE (IASC/DCBRK, OFF1, OFF2, OFF3, STOP2)
Acknowl. upon F: IMMEDIATELY (POWER ON)
Reaction upon N: NONE
Acknowl. upon N: NONE

F36851 Hub DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: Upgrade the firmware of the component involved.

F36860 Hub DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2

Message class: Internal (DRIVE-CLiQ) communication error (12)

Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31

Component: Terminal Board (TB) **Propagation:** LOCAL

Reaction: NONE

Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.

Fault cause:

1 (= 01 hex):

Checksum error (CRC error).

2 (= 02 hex):

Telegram is shorter than specified in the length byte or in the receive list.

3 (= 03 hex):

Telegram is longer than specified in the length byte or in the receive list.

4 (= 04 hex):

The length of the receive telegram does not match the receive list.

5 (= 05 hex):

The type of the receive telegram does not match the receive list.

6 (= 06 hex):

The address of the power unit in the telegram and in the receive list do not match.

9 (= 09 hex):

The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.

16 (= 10 hex):

The receive telegram is too early.

17 (= 11 hex):

CRC error and the receive telegram is too early.

18 (= 12 hex):

The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.

19 (= 13 hex):

The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.

20 (= 14 hex):

The length of the receive telegram does not match the receive list and the receive telegram is too early.

21 (= 15 hex):

The type of the receive telegram does not match the receive list and the receive telegram is too early.

22 (= 16 hex):

The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.

25 (= 19 hex):

The error bit in the receive telegram is set and the receive telegram is too early.

Note regarding the message value:

The individual information is coded as follows in the message value (r0949/r2124):

0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).

- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F36875 HUB: power supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the power supply voltage wiring for the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the power supply for the DRIVE-CLiQ component.

F36885 Hub DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the supply voltage of the component involved.
- carry out a POWER ON.
- replace the component involved.

F36886 Hub DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY

Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F36887 Hub DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module) involved. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F36895 Hub DRIVE-CLiQ (CU): Alternating cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: DRIVE-CLiQ communication error from DRIVE-CLiQ Hub Module in question to Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON.

F36896 Hub DRIVE-CLiQ (CU): Inconsistent component properties

Message value: Component number: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Terminal Board (TB) **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The properties of the DRIVE-CLiQ component (DRIVE-CLiQ Hub Module), specified by the fault value, have changed in an incompatible fashion with respect to the properties when booted. One cause can be, e.g. that a DRIVE-CLiQ cable or DRIVE-CLiQ component has been replaced.
Fault value (r0949, interpret decimal):
Component number.
Remedy: - carry out a POWER ON.
- when a component is replaced, the same component type and if possible the same firmware version should be used.
- when a cable is replaced, only cables whose length is the same as or as close as possible to the length of the original cables should be used (ensure compliance with the maximum cable length).

F40000 Fault at DRIVE-CLiQ socket X100

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X100.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40001 Fault at DRIVE-CLiQ socket X101

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X101.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40002 Fault at DRIVE-CLiQ socket X102

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X102.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40003 Fault at DRIVE-CLiQ socket X103

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X103.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40004 Fault at DRIVE-CLiQ socket X104

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X104.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

F40005 Fault at DRIVE-CLiQ socket X105

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: A fault has occurred at the drive object at the DRIVE-CLiQ socket X105.
Fault value (r0949, interpret decimal):
First fault that has occurred for this drive object.
Remedy: Evaluate the fault buffer of the specified object.

A40100 Alarm at DRIVE-CLiQ socket X100

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X100.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40101 Alarm at DRIVE-CLiQ socket X101

Message value: %1
Message class: General drive fault (19)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X101.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40102 Alarm at DRIVE-CLiQ socket X102

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X102.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40103 Alarm at DRIVE-CLiQ socket X103

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X103.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40104 Alarm at DRIVE-CLiQ socket X104

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X104.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

A40105 Alarm at DRIVE-CLiQ socket X105

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: An alarm has occurred at the drive object at the DRIVE-CLiQ socket X105.
Alarm value (r2124, interpret decimal):
First alarm that has occurred for this drive object.
Remedy: Evaluate the alarm buffer of the specified object.

F40799 CX32: Configured transfer end time exceeded

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: IMMEDIATELY
Cause: The configured transfer end time when transferring the cyclic actual values was exceeded.
Remedy: - carry out a POWER ON (switch-off/switch-on) for all components.
- contact Technical Support.

F40801 CX32 DRIVE-CLiQ: Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: Control Unit (CU) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - carry out a POWER ON (switch-off/switch-on).
- replace the component involved.

F40820 CX32 DRIVE-CLiQ: Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the component in the telegram and in the receive list do not match.
7 (= 07 hex):
A SYNC telegram is expected - but the received telegram is not a SYNC telegram.
8 (= 08 hex):
No SYNC telegram is expected - but the received telegram is one.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F40825 CX32 DRIVE-CLiQ: Supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: All objects
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY

Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the DRIVE-CLiQ component power supply.

F40835 CX32 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. The nodes do not send and receive in synchronism.
Fault cause:
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- replace the component involved.

F40836 CX32 DRIVE-CLiQ: Send error for DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved. Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).

F40837 CX32 DRIVE-CLiQ: Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40845 CX32 DRIVE-CLiQ: Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the Control Unit to the controller extension involved.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).

F40851 CX32 DRIVE-CLiQ (CU): Sign-of-life missing

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
The DRIVE-CLiQ component did not set the sign-of-life to the Control Unit.
Fault cause:
10 (= 0A hex):
The sign-of-life bit in the receive telegram is not set.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Upgrade the firmware of the component involved.

F40860 CX32 DRIVE-CLiQ (CU): Telegram error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Fault cause:
1 (= 01 hex):
Checksum error (CRC error).
2 (= 02 hex):
Telegram is shorter than specified in the length byte or in the receive list.
3 (= 03 hex):
Telegram is longer than specified in the length byte or in the receive list.
4 (= 04 hex):
The length of the receive telegram does not match the receive list.
5 (= 05 hex):
The type of the receive telegram does not match the receive list.
6 (= 06 hex):
The address of the power unit in the telegram and in the receive list do not match.
9 (= 09 hex):
The error bit in the receive telegram is set.
16 (= 10 hex):
The receive telegram is too early.
17 (= 11 hex):
CRC error and the receive telegram is too early.
18 (= 12 hex):
The telegram is shorter than that specified in the length byte or in the receive list and the receive telegram is too early.
19 (= 13 hex):
The telegram is longer than that specified in the length byte or in the receive list and the receive telegram is too early.
20 (= 14 hex):
The length of the receive telegram does not match the receive list and the receive telegram is too early.
21 (= 15 hex):
The type of the receive telegram does not match the receive list and the receive telegram is too early.
22 (= 16 hex):
The address of the power unit in the telegram and in the receive list does not match and the receive telegram is too early.
25 (= 19 hex):
The error bit in the receive telegram is set and the receive telegram is too early.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the electrical cabinet design and cable routing for EMC compliance
- check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).

F40875 CX32 DRIVE-CLiQ (CU): Supply voltage failed

Message value: Component number: %1, fault cause: %2
Message class: Supply voltage fault (undervoltage) (3)
Drive object: All objects
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF1 (OFF2)
Acknowledge: IMMEDIATELY
Cause: The DRIVE-CLiQ communication from the DRIVE-CLiQ component involved to the Control Unit signals that the supply voltage has failed.
Fault cause:
9 (= 09 hex):
The power supply voltage for the components has failed.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause

Remedy: - carry out a POWER ON (switch-off/switch-on).
- check the supply voltage wiring of the DRIVE-CLiQ component (interrupted cable, contacts, ...).
- check the dimensioning of the DRIVE-CLiQ component power supply.

F40885 CX32 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
The nodes do not send and receive in synchronism.
Fault cause:
26 (= 1A hex):
Sign-of-life bit in the receive telegram not set and the receive telegram is too early.
33 (= 21 hex):
The cyclic telegram has not been received.
34 (= 22 hex):
Timeout in the telegram receive list.
64 (= 40 hex):
Timeout in the telegram send list.
98 (= 62 hex):
Error at the transition to cyclic operation.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the power supply voltage of the component involved.
- carry out a POWER ON (switch-off/switch-on).
- replace the component involved.

F40886 CX32 DRIVE-CLiQ (CU): Error when sending DRIVE-CLiQ data

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Data were not able to be sent.
Fault cause:
65 (= 41 hex):
Telegram type does not match send list.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).

F40887 CX32 DRIVE-CLiQ (CU): Component fault

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: Fault detected on the DRIVE-CLiQ component concerned. Faulty hardware cannot be excluded.
Fault cause:
32 (= 20 hex):
Error in the telegram header.
35 (= 23 hex):
Receive error: The telegram buffer memory contains an error.
66 (= 42 hex):
Send error: The telegram buffer memory contains an error.
67 (= 43 hex):
Send error: The telegram buffer memory contains an error.
96 (= 60 hex):
Response received too late during runtime measurement.
97 (= 61 hex):
Time taken to exchange characteristic data too long.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: - check the DRIVE-CLiQ wiring (interrupted cable, contacts, ...).
- check the electrical cabinet design and cable routing for EMC compliance
- if required, use another DRIVE-CLiQ socket (p9904).
- replace the component involved.

F40895 CX32 DRIVE-CLiQ (CU): Cyclic data transfer error

Message value: Component number: %1, fault cause: %2
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL, DC_CTRL_R, DC_CTRL_R_S, DC_CTRL_S, TM150, TM15DI_DO, TM31
Component: DRIVE-CLiQ Hub Module (Hub) **Propagation:** LOCAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: A DRIVE-CLiQ communications error has occurred from the controller extension involved to the Control Unit.
Fault cause:
11 (= 0B hex):
Synchronization error during alternating cyclic data transfer.
Note regarding the message value:
The individual information is coded as follows in the message value (r0949/r2124):
0000yyxx hex: yy = component number, xx = error cause
Remedy: Carry out a POWER ON (switch-off/switch-on).

A50002 (F) COMM BOARD: Alarm 2

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
A specific telegram word (send) is being used twice.
Alarm value (r2124, interpret decimal):
Telegram word used twice
See also: p8871 (SINAMICS Link PZD send word)
Remedy: CBE20 SINAMICS Link:
Correct the parameter assignment.
See also: p8871 (SINAMICS Link PZD send word)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50003 (F) COMM BOARD: Alarm 3

Message value: Info 1: %1, Info 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
A specific telegram word (receive) is being used twice.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Address of sender
Info. 2 (decimal) = Receive telegram word
See also: p8870 (SINAMICS Link PZD receive word), p8872 (SINAMICS Link PZD receive address)
Remedy: CBE20 SINAMICS Link:
Correct the parameter assignment.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50004 (F) COMM BOARD: Alarm 4

Message value: Info 1: %1, Info 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
- telegram word (receive) and address of sender inconsistent. Both values have to be either equal to zero or not equal to zero.
- address of the sender > maximum project address.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8870, p8872
Info. 2 (decimal) = Index from p8870, p8872
See also: p8811, p8870, p8872
Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50005 (F) COMM BOARD: Alarm 5

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
Sender not found on SINAMICS Link.
Alarm value (r2124, interpret decimal):
0: synchronization to the bus clock cycle unsuccessful.
1 ... 64: address of the sender that was not found.
See also: p8872 (SINAMICS Link PZD receive address)

Remedy: CBE20 SINAMICS Link:
Check the connection to the sender.
Set parameters p8811, p8812[1] to identical values for all participants/nodes.
Check parameter p8836 for all participants.
See also: p8811 (SINAMICS Link project selection), p8812 (SINAMICS Link clock cycle settings), p8836 (SINAMICS link node address)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50006 (F) COMM BOARD: Alarm 6

Message value: Info 1: %1, Info 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
The parameter assignment indicates that the sender and the receiver are one and the same. This is not permitted.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = Drive object number from p8872
Info. 2 (decimal) = Index from p8872
See also: p8836 (SINAMICS link node address), p8872 (SINAMICS Link PZD receive address)
Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment. All p8872[index] must be set to a value not equal to p8836.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50007 (F) COMM BOARD: Alarm 7

Message value: Info 1: %1, Info 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 SINAMICS Link:
A send telegram word is greater than possible in the project.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = drive object number from p8871
Info. 2 (decimal) = index from p8871
See also: p8811 (SINAMICS Link project selection), p8871 (SINAMICS Link PZD send word)
Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50008 (F) COMM BOARD: Alarm 8

Message value: Info 1: %1, Info 2: %2
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE

Cause: CBE20 SINAMICS Link:
A receive telegram word is greater than possible in the project.
Alarm value (r2124, interpret hexadecimal):
yyyyxxxx hex: yyyy = info. 1, xxxx = info. 2
Info. 1 (decimal) = drive object number from p8870
Info. 2 (decimal) = index from p8870
See also: p8811 (SINAMICS Link project selection), p8870 (SINAMICS Link PZD receive word)
Remedy: In the case of CBE20 SINAMICS Link:
Correct the parameter assignment.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

A50011 (F) EtherNetIP/COMM BOARD: configuration error

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: All objects
Component: None **Propagation:** LOCAL
Reaction: NONE
Acknowledge: NONE
Cause: CBE20 EtherNet/IP:
An EtherNet/IP controller attempts to establish a connection using an incorrect configuring telegram.
The telegram length set in the controller does not match the parameterization in the drive device.
Remedy: Check the set telegram length.
Note:
PZD interface 1:
For p0922 not equal to 999, then the length of the selected telegram applies.
For p0922 = 999, the maximum interconnected PZD (r2067) applies.
PZD interface 2:
The maximum interconnected PZD (r8867) applies.
See also: p0922 (IF1 PROFIdrive PZD telegram selection), r2067 (IF1 PZD maximum interconnected), r8867 (IF2 PZD maximum interconnected)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY

Product: SINAMICS DC MASTER OA, Version: 1503000, Language: eng
Objects: DC_CTRL

A60003 (F, N) Line monitoring automatic restart active

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: An automatic restart does not take place.
An automatic restart is initiated by a line undervoltage condition.
Remedy: Check the line voltages.
See also: p50078 (Supply voltage rated value), p50086 (Sequence control line voltage failure duration permissible), p50351 (Line undervoltage threshold), p50361 (Line monitoring undervoltage delay time)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60004 (N, A) Armature circuit phase failure detected

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Phase failure in armature infeed.

The line voltage rms value calculated from the area of each line half-wave (rectifier average value * harmonic factor) is less than the response value for phase failure monitoring or the distance between two line zero crossings in the same phase is more than 270 degrees or the distance between two line zero crossings in different phases is not between 30 and 90 degrees.

- Phase failure threshold set incorrectly (p50353)
- Armature phase failed
- Line contactor opened in operation
- Fuse blown on three-phase side of armature circuit
- Fuse blown in power unit

Fault value (r0949, interpret decimal):

1:

Power failure has occurred in armature infeed (UV, VW, WU)

r50047[1] = 0: First power failure in armature phase UV

r50047[1] = 1: First power failure in armature phase VW

r50047[1] = 2: First power failure in armature phase WU

r50047[2]: Incorrect voltage value as a % of p50078[0]

2:

Wait time for new zero crossing has expired in one armature phase (UV, VW, WU)

r50047[1] = 0: No zero crossing in armature phase UV in excess of 270 °

r50047[1] = 1: No zero crossing in armature phase VW in excess of 270 °

r50047[1] = 2: No zero crossing in armature phase WU in excess of 270 °

r50047[2]: Time without zero crossing (= duration 270 °) of armature phase r50047[1] in ms

3:

Line asymmetry in armature infeed (UV, VW, WU)

r50047[1]: Phase number of phase of last zero crossing (0 = UV, 1 = VW, 2 = WU)

r50047[2]: Phase number of phase of last-but-one zero crossing (0 = UV, 1 = VW, 2 = WU)

r50047[3]: Time of last raw zero crossing in ms

r50047[4]: Time of last-but-one raw zero crossing in ms

r50047[5]: Time of last positive refined zero crossing in phase UV in ms

r50047[6]: Time of last negative refined zero crossing in phase UV in ms

r50047[7]: Time of last positive refined zero crossing in phase VW in ms

r50047[8]: Time of last negative refined zero crossing in phase VW in ms

r50047[9]: Time of last positive refined zero crossing in phase WU in ms

r50047[10]: Time of last negative refined zero crossing in phase WU in ms

r50047[11]: Last good 60 ° period in ms

See also: p50089 (Sequence control voltage at power unit wait time), p50095 (Sequence control DC circuit contactor wait time), p50691 (Sequence control line contactor feedback)

Remedy:

- Check threshold for phase failure (p50353).
- Check the field supply voltage.
- Check the fuses and line contactor.

See also: p50089 (Sequence control voltage at power unit wait time), p50353 (Line monitoring phase failure threshold)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60005 (N, A) Field circuit phase failure detected

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: A phase failure has been detected in the field circuit.
The line voltage rms value calculated from the area of each line half-wave (rectifier average value * harmonic factor) is less than the response value for phase failure monitoring or the distance between two line zero crossings of the voltage for the field converter is more than 270 degrees.
- Phase failure threshold set incorrectly (p50353)
- Field phase failed
- Line contactor opened in operation
- Fuse blown in field circuit

Fault value (r0949, interpret decimal):
1: Power failure in field infeed
Note:
r50047[1]: Incorrect voltage value in % referred to p50078[1]
2: Wait time for new zero crossing has expired in the field phase.
Note:
r50047[1]: Time without zero crossing (= duration 270 °) of armature phase r50047[1] in ms
See also: p50089 (Sequence control voltage at power unit wait time)
Remedy:
- Check threshold for phase failure (p50353).
- Check the field supply voltage.
- Check the fuses and line contactor.

See also: p50089 (Sequence control voltage at power unit wait time)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60006 (N, A) Line monitoring undervoltage

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The line voltage has undershot the permissible undervoltage limit for longer than the setting in p50361.
Fault value (r0949, interpret decimal):
1: Armature undervoltage occurred
2: Field undervoltage occurred
Note:
r50047[1] = 0: Undervoltage in armature phase UV
r50047[1] = 1: Undervoltage in armature phase VW
r50047[1] = 2: Undervoltage in armature phase WU
r50047[1] = 3: Undervoltage in field phase
r50047[2] = Incorrect voltage value as a % of p50078[0] or p50078[1]
Remedy:
- Check monitoring limit for armature (p50078[0] * (1 + p50351/100%)).
- Check monitoring limit for field (p50078[1] * (1 + p50351/100%)).
- Check monitoring time (p50361).

See also: p50078 (Supply voltage rated value), p50351 (Line undervoltage threshold), p50361 (Line monitoring undervoltage delay time)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60007 (N, A) Line monitoring overvoltage

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The line voltage has overshot the permissible overvoltage limit for longer than the setting in p50362.
Fault value (r0949, interpret decimal):
1: Armature overvoltage occurred
2: Field overvoltage occurred
Note:
r50047[1] = 0: Overvoltage in armature phase UV
r50047[1] = 1: Overvoltage in armature phase VW
r50047[1] = 2: Overvoltage in armature phase WU
r50047[1] = 3: Overvoltage in field phase
r50047[2] = Incorrect voltage value as a % of p50078[0] or p50078[1]
Remedy: - Check monitoring limit for armature (p50078[0] * (1 + p50352/100%)).
- Check monitoring limit for field (p50078[1] * (1 + p50352/100%)).
- Check monitoring time (p50362).
See also: p50078 (Supply voltage rated value), p50352 (Line overvoltage threshold), p50362 (Line monitoring overvoltage delay time)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60008 (N, A) Line frequency less than minimum line frequency

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The line frequency has undershot the set threshold for monitoring of the minimum line frequency for more than 40 ms.
Fault value (r0949, interpret decimal):
1: Armature supply frequency less than minimum line frequency
2: Field supply frequency less than minimum line frequency
Note:
r50047[1]: Incorrect frequency value in Hz
Remedy: Check the threshold for monitoring the minimum line frequency (p50363).
See also: p50363 (Line frequency minimum threshold)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60009 (N, A) Line frequency greater than maximum line frequency

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The line frequency has overshot the set threshold for monitoring of the maximum line frequency for more than 40 ms.
Fault value (r0949, interpret decimal):
1: Armature supply frequency greater than maximum line frequency
2: Field supply frequency greater than maximum line frequency
Note:
r50047[1]: Incorrect frequency value in Hz
Remedy: Check the threshold for monitoring the maximum line frequency (p50364).
See also: p50364 (Line frequency maximum threshold)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60010 (N, A) Armature circuit uneven current distribution

Message value: %1
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: An uneven current distribution through the thyristors has been identified in the armature circuit.
Significantly less current flows in one thyristor than in the others.
Remarks:
- This monitoring is only effective if the average current value across all thyristors is greater than 20 % of r50072[1].
- The current in a thyristor is significantly lower, if, for a period of one second, the average value is less than 35 % of the average value across all thyristors.
Possible causes:
- A fuse has blown.
- A thyristor is not fired (defective thyristor, defective pulse transformer, defective firing electronics).
Fault value (r0949, interpret decimal):
Number of the thyristor that is conducting the significantly lower current.
Note:
r50047[1]: Average current value through all armature thyristors.
r50047[2]: Average current value through the thyristor with the excessively low current, in torque direction I.
r50047[3]: Average current value through the thyristor with the excessively low current, in torque direction II.
The current values as a % are referred to r50072[1].
Note:
Even though the response to this fault message is set to "NO" when using p2100/p2101, or the message type set to "Alarm" or "No message" when using p2118/p2119, in the case of a fault, the drive still exits the OPERATION (RUN) state and goes into state o4.1 (wait for the fuse monitoring OK message.)
Remedy: - Check the fuses in the power unit.
- If required, perform a thyristor diagnostics routine (p50830).
See also: p50830 (Thyristor diagnostics mode)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60012 (N, A) P2P IF: Telegram monitoring time expired

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The telegram monitoring time for communication via the peer-to-peer interface (P2P IF) has expired.
No further valid telegrams were received during the monitoring time (p50797).
Possible causes:
- Break in connecting cable
- Electromagnetic interference on the connecting cable
- Telegram monitoring time set too short (p50797)

Remedy:
- Check connecting cable and cable connection.
- Check that the connecting cable has been routed in compliance with EMC.
- Increase the telegram monitoring time if necessary (p50797).

See also: p50089 (Sequence control voltage at power unit wait time), p50790 (P2P IF operating mode), p50797 (P2P IF telegram monitoring time)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60014 (N, A) Parallel interface telegram monitoring time expired

Message value: -
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The telegram monitoring time for communication via the parallel interface (Par-IF) has expired.
No valid telegram was received during the active monitoring time (p51807).
Possible causes:
- Break in connecting cable
- Electromagnetic interference on the connecting cable
- Telegram monitoring time set too short (p51807)

Remedy:
- Check connecting cable and cable connection.
- Check that the connecting cable has been routed in compliance with EMC.
- Increase the telegram monitoring time if necessary (p51807).

See also: p51807 (Parallel interface telegram monitoring failure time), p51808 (Parallel interface signal source for F60014)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60018 (F, N) Digital output overloaded

Message value: Fault cause: %1 bin
Message class: Ground fault / inter-phase short-circuit detected (7)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: At least one digital output is overloaded or has short-circuited.
Alarm value (r2124, interpret binary):
Bit 0 = 1: CUD digital output 0 (X177.19) is overloaded
Bit 1 = 1: CUD digital output 1 (X177.20) is overloaded
Bit 2 = 1: CUD digital output 2 (X177.21) is overloaded
Bit 3 = 1: CUD digital output 3 (X177.22) is overloaded
Bit 4 = 1: CUD digital output 4 (X177.15) is overloaded
Bit 5 = 1: CUD digital output 5 (X177.16) is overloaded
Bit 6 = 1: CUD digital output 6 (X177.17) is overloaded
Bit 7 = 1: CUD digital output 7 (X177.18) is overloaded
Note:
The fault value is equal to the inverted value of parameter r53021. Information about short-circuit monitoring for the individual digital outputs for further interconnection is available here.
Remedy: Check the overloaded digital outputs and rectify the overload or short circuit.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60025 (N, A) Brush length too short

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A motor brush length which is too short has been reported via a binector input (p50486) for a period exceeding a permanently set delay time.
Note:
This message is also reported via binector output r53120.0.
Remedy: - Check binector input p50486 and trace the generation of the signal back to the sensor.
- Check and if necessary update the motor's brush length.
See also: p50486 (Motor interface signal source for brush length)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60026 (N, A) Poor bearing condition

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A defective motor bearing has been reported via a binector input (p50487) for a period exceeding a permanently set delay time.
Note:
This message is also reported via binector output r53120.1.
Remedy: - Check binector input p50487 and trace the generation of the signal back to the sensor.
- Check and if necessary restore the motor's bearing condition.
See also: p50487 (Motor interface signal source for bearing condition)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60027 (N, A) Motor fan fault

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A defective motor fan has been reported via a binector input (p50488) for a period exceeding a permanently set delay time.
Note:
This message is also reported via binector output r53120.2.
Remedy: - Check binector input p50488 and trace the generation of the signal back to the sensor.
- Check and if necessary replace the motor's fan.
See also: p50488 (Motor interface signal source for motor fan)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60028 (N, A) Motor temperature too high

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A motor temperature which is too high has been reported via a binector input (p50489) for a period exceeding a permanently set delay time.
The motor temperature is too high.
Possible causes:
- motor is overloaded.
- Ambient temperature of the motor is too high
- wire breakage or sensor not connected.
Note:
This message is also reported via binector output r53120.3.
Remedy: - Check binector input p50489 and trace the generation of the signal back to the sensor.
- Reduce the motor load if necessary.
- check the ambient temperature and reduce if necessary.
- Check the wiring and the sensor connection.
See also: p50489 (Motor interface signal source for motor temperature)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60029 (N, A) Motor temperature fault

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: The motor temperature is higher than the threshold set in p50491 to trigger this fault.
Possible causes:
- motor is overloaded.
- Ambient temperature is too high
Note:
r50047[1]: Motor temperature (in °C) for temperature sensor with continuous characteristic.
KTY84 (p50490 = 1) or
PT100 (p50490 = 6) or
NTC thermistor K227 (p50490 = 7) or
PT1000 (p50490 = 8)
Otherwise the value = 0.
See also: p50492 (Motor interface fault threshold for temperature monitoring)

Remedy:
- Check the threshold for triggering the fault (p50492).
- Reduce the motor load if necessary.
- check the ambient temperature and reduce if necessary.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60031 (N, A) Excessive setpoint/actual value deviation

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: The absolute value of the set/act deviation of the speed controller has exceeded the set threshold.
Note:
r50047[1]: n_set (connector input p50590)
r50047[2]: n_act (connector input p50591)
See also: p50388 (Messages for setpoint-actual value deviation 1 threshold), p50590 (Messages for set/act val dev 1 signal source for speed setpoint), p50591 (Messages for set/act val dev 1 signal source for speed act val)

Remedy:
- Optimize the speed controller (p50051).
- Check torque limiting (p50169).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60032 (F, N) Motor temperature alarm

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The motor temperature is higher than the threshold set in p50491 to trigger this alarm.
Possible causes:
- motor is overloaded.
- Ambient temperature is too high
Note:
r50047[1]: Motor temperature (in °C) for temperature sensor with continuous characteristic.
KTY84 (p50490 = 1) or
PT100 (p50490 = 6) or
NTC thermistor K227 (p50490 = 7) or
PT1000 (p50490 = 8)
Otherwise the value = 0.
See also: p50491 (Motor interface alarm threshold for temperature monitoring)

Remedy:
- Check the threshold for triggering the alarm (p50491).
- Reduce the motor load if necessary.
- check the ambient temperature and reduce if necessary.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60035 (N, A) Motor blocked

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: The fault is triggered if the following conditions prevail for longer than the time set in p50355:
- The positive or negative armature current or torque limit has been reached
- Armature current r52109 > 1.0%
- The speed actual value r52166 < p50356 filtered using parameter p50358.
Note:
r50047[1]: Stall protection monitoring time p50355
r50047[2]: Speed threshold p50356
r50047[3]: Armature current r52109
r50047[4]: Speed actual value r52166
r50047[5]: Torque limit r53150
r50047[6]: Armature current limits r53151
See also: p50355 (Stall protection monitoring time)

Remedy:
- Reduce the motor load.
- Increase the current or torque limit.
- Check and if necessary increase the monitoring threshold.
See also: r52109 (Armature current actual value averaged over 6 cycles), r52166 (Speed controller actual value selection absolute value), r53150 (Speed limiting controller/torque limiting state), r53151 (Current limitation state)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60036 (N, A) Armature circuit/field circuit interrupted

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The firing angle is at the rectifier stability limit for more than 500 ms and the current is less than 1% of the rated DC current.
Fault value (r0949, interpret decimal):
1: Armature circuit
2: Field circuit
Remedy: - Armature circuit or field circuit interrupted.
- Rectifier stability limit Alpha-G incorrectly set (p50150, p50250).
- Drive operates at the Alpha-G limit (e.g. due to a line undervoltage condition).
- EMF too high, because the maximum speed has been set too high.
- EMF too high, because field weakening was not activated.
- EMF too high, because the field current was set too high.
- EMF too high, because the CEMF crossover voltage was set too high (transition between normal and field weakening operation).
- replace the ribbon cable from the Allocation Board to the power interface (connector X108).
See also: r52116 (Armature current actual value internal absolute value), r52266 (Field current actual value internal absolute value), r53190 (Armature auto-reversing stage state), r53191 (Field auto-reversing stage state)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60037 (F, N) I2t monitoring alarm excessive motor temperature rise

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The I2t calculation shows that the motor's temperature rise is excessive.
The alarm is triggered if the calculated motor temperature rise in r52309 > 100%.
Note:
r50047[1]: Temperature rise r52309
r50047[2]: Motor rated armature current p50100
r50047[3]: Continuous current factor r50113
r50047[4]: Device rated current r50072[1]
r50047[5]: Current armature current r52109
r50047[6]: Motor thermal time constant p50114
See also: p50114 (Motor thermal time constant), r52309 (Calculated motor temperature rise)
Remedy: - check the ambient temperature and reduce if necessary.
- reduce the motor load.
See also: r52109 (Armature current actual value averaged over 6 cycles)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60038 (N, A) Overspeed threshold overshot

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The speed actual value has overshot the threshold for the positive or negative maximum speed.
Note:
Possible cause of the fault, if p50083 = 3 (EMF as speed actual value):
- Interrupted armature circuit (fuse blown, contactor in the DC link has not closed)
In this particular case, the converter output voltage is not equal to the motor armature voltage, which is the reason why an incorrect speed actual value is determined.
Note:
r50047[1]: Maximum speed for positive direction of rotation (p50380)
r50047[2]: Maximum speed for negative direction of rotation (p50381)
r50047[3]: n_act (connector input p50595)
Remedy: - reduce the speed.
- Check the threshold for positive or negative direction of rotation and adjust if necessary (p50380, p50381).
See also: p50380 (Messages for overspeed threshold positive direction of rotation), p50381 (Messages for overspeed threshold negative direction of rotation)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60039 (F, N) I2t monitoring alarm excessive power unit temperature rise

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The temperature rise of the thyristors is more than 102% of the maximum permissible value.
Remedy: - Check the ambient temperature and reduce if necessary.
- Check the motor load and reduce if necessary.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60041 (N, A) Ramp-function generator parameter set cannot be selected

Message value: -
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: Ramp-function generator parameter sets 2 and 3 were selected simultaneously for more than 0.5 s via binector input p50637/p50638.
The ramp-function generator parameter set is not changed over. The most recently selected ramp-function generator parameter set is retained.
Remedy: - Check the selection of ramp-function generator parameter sets 2 and 3 and bar simultaneous selection.
- Select the required ramp-function generator parameter set (p50637, p50638).
See also: p50637 (RFG parameter set 2 selection signal source), p50638 (Ramp-function generator parameter set 3 select signal source)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60042 (N, A) Defective tachometer monitoring error

Message value: %1
Message class: Actual position/speed value incorrect or not available (11)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The ratio "Speed actual value/EMF actual value" (r52179/r52287) was less than +0.1 for more than approx. 40 ms.
This ratio is then only checked if the EMF actual value is > p50357.
- Cable break affecting tachometer or incremental encoder TTL/HTL
- Tachometer or incremental encoder TTL/HTL cable connected incorrectly
- Incremental encoder TTL/HTL power supply has failed
- Tachometer or incremental encoder TTL/HTL faulty
- Parameters for incremental encoder TTL/HTL set incorrectly (p0400).
- During operation with field reversal, the field polarity is not being reversed by the external hardware
- Polarity for speed actual value set incorrectly (p50743)
- Data for armature circuit set incorrectly (p50110 and p50111)
- If p50083 = 3 (EMF as speed actual value): Interrupted armature circuit (e.g. fuse blown).
- Device operates as slave connected in parallel.

Fault value (r0949, interpret decimal):
1: Cable break affecting tachometer or incremental encoder TTL/HTL
2: Tachometer or incremental encoder TTL/HTL polarity incorrect
Note:
r50047[1]: Speed actual value (r52179)
r50047[2]: EMF actual value (r52287)
See also: p50357 (Tachometer interruption monitoring threshold)

Remedy:
- Check the incremental encoder TTL/HTL's wiring, connections, and function.
- Check the power supply for the incremental encoder TTL/HTL.
- Check the parameters for the incremental encoder TTL/HTL.
- Check the polarity for the speed actual value (p50743).
- Perform an optimization run for the current controller in the armature circuit (p50051 = 25).
- Check the fuses in the armature circuit.
- If the device operates as slave connected in parallel: set p50357 = 100% (tachometer breakage not active).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60043 (N, A) EMF for braking operation too high

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: The EMF actual value is too high for braking operation.
This fault is triggered if a firing angle greater than 165 ° would be required in the new torque direction immediately after a torque direction change (precisely because the EMF is so high).
What this actually means is that the fault is triggered if the following 5 conditions are met for a requested torque direction change (MI or MII is to be selected):
- p50272 = 0 (fault parameterized and not alarm + field weakening)
- An additional torque-free interval which might have been parameterized (p50160 > 0) has expired.
- The parallel drive is ready for the new torque direction to be selected.
- The absolute value of the armature current requested in the new torque direction (r52118, filtered with p50190) is > 1% of r50072[1].
- The calculated firing angle (r52101) for the armature current requested in the new torque direction is > 165 ° or > p50151 if p50192 = 1.
Possible fault causes:
- "Speed-dependent field weakening" (p50081 = 0) has not been parameterized, although field weakening operation would be necessary for the required maximum speed.
Note:
With a firing angle Alpha G = 30 ° (rectifier stability limit p50150) and low armature currents, EMF values up to the peak value of the phase-to-phase line voltage can be reached when motoring.
- Setpoint EMF for field weakening operation too high (parameter p50101 set too high)
- Line voltage dip
- EMF controller or field current controller not optimized; this can lead to excessive EMF when the drive accelerates.
Note:
r50047[1]: Calculated firing angle (armature) prior to limiting (r52101)
r50047[2]: EMF actual value currently measured (r52287)
r50047[3]: Armature current controller setpoint (r52118)

Remedy: - Reduce the speed.
- Activate the "Speed-dependent field weakening" function (p50081 = 1).
- p50272=1 and p50081=1, and then execute an optimization run p50051=27 (not for hoisting/crane applications).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60044 (N, A) Parallel interface node failure

Message value: %1
Message class: Communication error to the higher-level control system (9)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A fault involving the parallel connection of power units has occurred.
Fault value (r0949, interpret decimal):
1: There is a fault on one of the slaves.
2: One of the slaves is not in the Operation state (e.g. because its enable signal is at "0")
3: There are fewer power units connected in parallel that are active than set using p51802.
4: There are fewer devices that are active than set using p51815.
50: The switchover to power unit topology 2 is not possible, as this SINAMICS DCM is not equipped with option S50.
51: The switchover to power unit topology 2 is not permissible for "n+m" operation.
52: The parallel switching master in power unit topology 2 is not the same as in power unit topology 1.
53: The feedback indicating the active power unit topology does not match the selected power unit topology.

Remedy: - Check the slave with fault.
- Check the enable signal of the slaves
- Check the setting for the minimum number of devices (p51802, p51815).
- Check the parameterization of the switchover of the power unit topology.
See also: p51802 (Parallel interface number of power units)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60045 (N, A) Standstill field not permitted in operation

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The standstill field was activated while the drive was operational.
The binector input p50692 to activate the standstill field must not have a 1 signal in operation.
See also: p50692 (CI-loop field curr ctrl sig source for inject of standst field)
Remedy: If required, set binary input p50692 - used to activate the standstill field - to a 0 signal.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60046 (N, A) Wire break at "Main setpoint" analog input

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A wire break has been detected at the CUD's "Main setpoint" analog input (X177.25/26).
This fault is triggered if p50700 = 2 (unipolar monitoring of current input (+4 mA to +20 mA)) is set and an input current of less than 2 mA is flowing.
Possible fault causes:
- Wire break or contact problem on supply line
- Parameter p50700 set incorrectly
Note:
This fault is also indicated via binector input r53030.0.
See also: p50700 (CUD analog input 0 type)
Remedy: - Check the wiring of the input terminals (X177.25/26) (cable break, contacts, etc).
- Check the parameter assignment for the "Main setpoint" analog input (p50700).
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60047 (N, A) Wire break at analog input 1

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY

Cause: A wire break has been detected at the CUD's analog input 1 (X177.27/28).
This fault is triggered if p50700 = 2 (unipolar monitoring of current input (+4 mA to +20 mA)) is set and an input current of less than 2 mA is flowing.
Possible fault causes:
- Wire break or contact problem on supply line
- Parameter p50710 set incorrectly
Note:
This fault is also indicated via binector output r53030.1.
See also: p50710 (CUD analog input 1 type)

Remedy:
- Check the wiring of the input terminals (X177.27/28) (cable break, contacts, etc).
- Check the parameter assignment for analog input 1 (p50710).

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60050 Optimization run aborted due to internal cause

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None
Propagation: GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: An optimization run which had been started has been interrupted due to an internal cause.
Fault value (r0949, interpret decimal):
General, not assigned to a specific optimization run:
100: Internal software error.
Field current controller optimization run:
101: Alpha G limit reached when determining the Rf
102: Field current fluctuation > 20% when determining the Rf.
103: Calculated field circuit resistance too high (> 4000 ohms)
104: Unable to ascertain field circuit inductance
105: Calculated field circuit inductance too high (> 1000 H)
106: Field current > 100% at start of optimization
107: Rf determination failed (Rf <= 0)
108: Internal software error.
Armature current controller optimization run:
201: Alpha G limit reached when determining the Ra
202: Armature current fluctuation > 20% when determining the Ra.
203: Calculated armature circuit resistance too high (> 4000 ohms)
205: Unable to determine armature circuit inductance.
206: Calculated armature circuit inductance too high (> 1000 H)
207: Armature current increased to > 120 % of r50072[1], although the firing angle was not able to be shifted any further.
Speed controller optimization run:
301: Unable to ascertain moment of inertia due to it being very small
302: Measurement of speed increase was not possible.
303: No change in speed when armature current is increased.
304: Speed remains at zero, although armature current is flowing.
EMF controller/Field characteristics optimization run:
401: Maximum permissible EMF setpoint is too small
402: Motor nominal field current is not being reached within 30 seconds
403: EMF (80 %) is not reached within set acceleration time (r50315[0]).
404: Incorrect direction of rotation
405: Negative field current setpoint limiting active
406: Field characteristic not falling uniformly
407: Torque limiting active
408: Armature current limiting active
409: Speed during measurement dropped by more than 12.5%
Field current controller friction compensation:
501: Speed not within the required tolerance bandwidth.
Optimization run for mechanical systems that can oscillate (torsional optimization):
601: speed according to p50565 is not reached within a specific time.
602: speed actual value is negative, although a positive setpoint is being input.
Converter Commutation Protector (CCP) optimization run:
701: p50790 (P2P/CCP operating mode) not set to communication with SIMOREG CCP.
702: Communication not established between SINAMICS DCM and SIMOREG CCP.
703: p51570 article number (MLFB) of the SIMOREG CCP is unknown.
704: Supply voltage of SINAMICS DCM and SIMOREG CCP do not match (p50078[0] and r51571).
705: This SINAMICS DCM is not intended for operation with SIMOREG CCP.
706: Armature circuit inductance is zero (p50111 = 0).
707: Calculated precharging voltage greater than the maximum achievable value for p51578.
708: Calculated chopper energy too high.
Note for fault value = 102:
- r50047[1]: Field current actual value (1 = 100 %)
- r50047[2]: Field current lower limit (1 = 100 %)
- r50047[3]: Field current upper limit (1 = 100 %)
Note for fault value = 103:

- r50047[1]: Calculated field circuit resistance in Ohm
Note for fault value = 104:
- r50047[1]: Number of valid measuring cycles
- r50047[2]: Number of required measuring cycles
Note for fault value = 105:
- r50047[1]: Calculated field circuit inductance in H
Note for fault value = 106:
- r50047[1]: Field current actual value (1 = 100 %)
Note for fault value = 107:
- r50047[1]: Calculated field circuit resistance in Ohm
Note for fault value = 202:
- r50047[1]: Armature current actual value (1 = 100 %)
- r50047[2]: Armature current lower limit (1 = 100 %)
- r50047[3]: Armature current upper limit (1 = 100 %)
Note for fault value = 203:
- r50047[1]: Calculated armature circuit resistance in Ohm
Note for fault value = 205:
- r50047[1]: Number of required measuring cycles
- r50047[2]: Number of valid measuring cycles
- r50047[3]: Measurement run
Note for fault value = 206:
- r50047[1]: Calculate armature circuit inductance in H
Note for fault value = 301:
- r50047[1]: Number of measuring points (0 to 4 are possible, at least 2 are required)
Note for fault value = 401:
- r50047[1]: Nominal EMF (max. permissible EMF setpoint) (1 = 100 %)
- r50047[1]: Ideal nominal rectifier no-load output voltage (1 = 100 %)
Note for fault value = 402:
- r50047[1]: 1 = Timeout determining nominal speed, 2 = Timeout recording field characteristic
Note for fault value = 403:
- r50047[1]: EMF setpoint (1 = 100 %)
- r50047[2]: EMF actual value (1 = 100 %)
- r50047[3]: Ramp-up monitoring time in s
Note for fault value = 404:
- r50047[1]: Speed actual value (1 = 100 %)
Note for fault value = 405:
- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)
Note for fault value = 406:
- r50047[1]: Field current setpoint (1 = 100 %)
- r50047[2]: Flux previous measuring point (1 = 100 %)
- r50047[3]: Flux actual measuring point (1 = 100 %)
Note for fault value = 407:
- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)
Note for fault value = 408:
- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)
Note for fault value = 409:
- r50047[1]: Index in meas. table
- r50047[2]: Field current setpoint (1 = 100 %)
Note for fault value = 501:
- r50047[1]: Speed setpoint (1 = 100 %)
- r50047[2]: Speed actual value (1 = 100 %)
- r50047[3]: Speed, lower limit (1 = 100 %)

- r50047[4]: Speed, upper limit (1 = 100 %)
- r50047[5]: 0 = No limit active, 1 = Current limit active, 2 = Torque limit active

Note for fault value = 601:
- r50047[1]: speed setpoint (1 = 100 %) according to p50565
- r50047[2]: Speed actual value (1 = 100 %)
- r50047[3]: permissible time in s, until the speed setpoint is reached

Note for fault value = 602:
- r50047[1]: Speed actual value (1 = 100 %)

Note for fault value = 701:
- r50047[1]: P2P/CCP operating mode

Note for fault value = 703:
- r50047[1]: index determined for article number (MLFB)

Note for fault value = 704:
- r50047[1]: Rated supply voltage [V]
- r50047[2]: CCP rated supply voltage [V]
- r50047[3]: Line voltage tolerance DCM (1 = 100 %)
- r50047[4]: Line voltage tolerance CCP (1 = 100 %)

Note for fault value = 707:
- r50047[1]: Calculated precharging voltage [V]
- r50047[2]: Possible maximum value of the precharging voltage [V]

Note for fault value = 708:
- r50047[1]: Calculated chopper energy in the armature circuit [J]
- r50047[2]: CCP chopper energy [J]

Remedy:

For fault value = 101:
Check field circuit for interruption (e.g. due to blown fuse).
For fault value = 201:
Check armature circuit for interruption (e.g. due to blown fuse).
For fault value = 207:
Temporarily reduce the rated motor current (p50100) so that the rated motor current is significantly less than the device rated current (e.g. p50100 = 50 % of r50072[1]).
For fault value = 401:
Check the setting of p50078[0], p50100, p50101 and p50110.
For fault value = 402:
Check the optimization of the field circuit.
For fault value = 403:
Check the optimization of the speed controller.
Check the setting of the acceleration times.
Check the setting of the current and torque limits.
For fault value = 404:
Check the polarity of speed actual value sensing (incremental encoder TTL/HTL, analog tachometer).
For fault value = 405:
Check the minimum motor excitation current (p50103).
For fault value = 407:
Check the torque limiting settings.
For fault value = 408:
Check the armature current limiting settings.
For fault value = 409:
Reduce the mechanical load.
For fault value = 701:
Check the setting of p50790 (value = 6).
For fault value = 704:
Check the setting of p50078[0].
For fault value = 706:
Check the optimization of the armature circuit.

F60051 (N, A) Optimization run limit value violated

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: During the optimization run, an attempt was made to set a parameter to a value outside its valid range of values.
The parameter value was set to the appropriate limit value.
The optimization run was completed in full.
Recommendation:
Check the parameter values set!
Fault value (r0949, interpret decimal):
Parameter number of the parameter causing the error.
Note:
r50047[1]: Incorrect value
r50047[2]: Limited value
r50047[3]: Lower limit value
r50047[4]: Upper limit value
Remedy: You might have to set the parameter value manually.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60052 (N, A) Optimization run aborted due to external cause

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: An optimization run which had been started has been interrupted due to an external cause.
Fault value (r0949, interpret decimal):
101: ON command not set within 30 seconds
102: Following the ON command, operating state o0.x or o1.5 was not achieved within 1 minute.
103: Impermissible parameter setting for this optimization run
104: Internal software error.
105: Internal software error.
106: Internal software error.
108: Operating state o0.x or o1.5 exited during the optimization run
109: The operating system does not allow the optimization run to access a parameter.
110: Internal software error.
111: Internal software error.
112: Data set changeover (DDS) during an optimization run
113: Data set changeover (CDS) during an optimization run
114: Enable for the positive direction of rotation missing.
Note for fault value = 103:
- r50047[1]: 1 = Sequence control optimization run, 2 = Field optimization run, 3 = EMF optimization run
- If r50047[1] = 1, r50047[2 to 3] are not relevant
- r50047[2]: Parameter number
- r50047[3]: Parameter value
Note for fault value = 104:
- r50047[1]: Parameter number (parameter number = 0 indicates a general fault is pending)
Note for fault value = 105:
- r50047[1]: 1 = General fault, 2 = Read parameter, 3 = Write parameter
- If r50047[1] = 1, r50047[2 to 3] are not relevant
- If r50047[1] = 2, r50047[2]: Parameter number
- If r50047[1] = 3, r50047[2]: Parameter number, r50047[3]: Parameter value
Note for fault value = 106:
- r50047[1]: 1 = Sequence control optimization run, 2 = Optimization run
- r50047[2]: OA return status word
Note for fault value = 107:
- r50047[1]: Parameter number
- r50047[2]: OA return status word
Note for fault value = 108:
- r50047[1]: New operating state
Note regarding fault value = 109: - r50047[1]: 1 = General fault, 2 = Read parameter, 3 = Write parameter, 4 = Set optimization parameter
- If r50047[1] = 1, r50047[2 to 3] are not relevant
- If r50047[1] = 2, r50047[2] is: Parameter number, r50047[2]: OA return status word, r50047[3]: List index
- If r50047[1] = 3, r50047[2]: Parameter number, r50047[3]: Parameter value, r50047[4]: OA return status word
- If r50047[1] = 4, r50047[2]: Parameter number, r50047[3]: OA return status word
Note for fault value = 110:
- r50047[1]: Parameter number
- r50047[2]: OA return status word
Note for fault value = 111:
- r50047[1]: Parameter number
- r50047[2]: OA return status word
Note for fault value = 112:
- r50047[1]: Parameter number
- r50047[2]: Old DDS (0 to 3)
- r50047[3]: New DDS (0 to 3)
Note for fault value = 113:
- r50047[1]: Parameter number
- r50047[2]: Old CDS (0 to 1)
- r50047[3]: New CDS (0 to 1)

Note for fault value = 114:
- r50047[1]: Operating state
- r50047[2]: Value of the signal selected with p50672

Remedy: Interpret the fault value and rectify the fault correspondingly.
For fault value = 103:
Check the parameter entered in r50047[2].
For fault value = 109:
Possible causes for this:
- Write protection and/or know-how protection are active, see r7760
- A PROFIDRIVE telegram p922 = 3, 4 or 220 is set

Remedy:
- Temporarily withdraw write protection and/or know-how protection
- Temporarily set p922 to 999

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60055 Field characteristic not valid

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY
Cause: Field weakening in conjunction with the optimization run for field weakening has not yet been performed.
Fault value (r0949, interpret decimal):
1: Closed-loop torque control selected (p50170 = 1) but valid field characteristic not yet recorded
2: Speed-dependent field weakening selected (p50081 = 1) but valid field characteristic not yet recorded (p50117 = 0)
Remedy: Record field characteristic.
See also: p50081 (Field weakening activation), p50117 (Field characteristic status), p50170 (Selection of control type for closed-loop current/torque control)

F60056 Important parameter not set

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: Settings required for operation have not yet been made or connected components have not yet been commissioned.
Fault value (r0949, interpret decimal):
1: Actual value channel for speed controller not selected (p50083)
2: Rated armature current of the motor not set (p50100).
3: Rated field current of the motor not set (p50102).
Note:
Only necessary if p50082 > 0.
4: Rated DC current for the external field device not set (p51838).
Note:
Only necessary if p50082 >= 21.
5: Device commissioning not performed/completed (p0009 not equal to 0).
6: Drive commissioning not performed/completed (p0010 not equal to 0).
7: An internal field (p50082 = 1 to 4) has been selected for a device without a field power unit (option L10)
8: Field characteristic (p50120 ... p50139) not rising uniformly.
9: Reference speed (p2000) not set (factory setting value must be modified)!
10: Control Module: Connection of measurement cables for line voltage not set (p51821)
11: Control Module: Rated armature DC current not set (p51822).

Remedy: Make the setting as appropriate for the fault value displayed.

F60057 (N, A) Armature current sensing fault

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: The message is triggered if there are opposing current and torque directions.
The monitoring is active as soon as the current values exceed the device rated current by 20%.
Note:
r50047[1]: Torque direction
r50047[2]: Current scan value
r50047[3]: Selected current sensing
r50047[3] = 1: Current transformer phase UV
r50047[3] = 2: Current transformer phase UW
r50047[3] = 3: Current transformer phase VW
r50047[3] = 4: External V-circuit
r50047[3] = 5: External current sensing (shunt)
r50047[3] = 6: Current sensing via analog input
See also: p51824 (Current transformer configuration), p51852 (Current actual value sensing analog input configuration)

Remedy: Check current transformer/shunt.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60058 Parameter settings not consistent

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: Inconsistent values have been set in parameters depending on each other.
Fault value (r0949, interpret decimal):
0: Field weakening active (p50081 = 1) is not permissible when the EMF is used as speed actual value (p50083 = 3).
1: Thyristor blocking voltage calculation active (p50166 = 1) for line frequencies > 65 Hz (p50364) is not permissible.
2: Setting of p51799 does not match the setting of p51800, p51802 and p51803.
3: For a line frequency > 65 Hz, p51800 must be < 10.
4: Setting of p50075 does not match the setting of p51799 (dynamic overload capability not permissible for single-phase operation).
5: Single-phase operation (p51799 = 1) not permissible for this device type.
6: Thyristor blocking voltage calculation (p50166 = 1) not possible for this device.
7: If p50083[D] = 2, p0400[0] = 0 is not permissible and if p50083[D] = 5, p0400[1] = 0 is not permissible.
8: For p50830 > 0, p51800 > 1 is not permissible, except 11 and 21 (thyristor diagnostics is only permissible for a single drive and for a parallel master).
9: For p50075 = 0, p50067 > 1 is not permissible.
10: Line frequency > 120 Hz is not permissible for this power unit (p50364).
11: For a 12-pulse parallel connection (p51800 = 21 .. 24) p50153 = 2 is only permissible, if p51799 = 22.
12: Parameter p51801 (number of send data) has not been set high enough.
p51801 must be set high enough at all devices so that all BICOs selected with p51804 or p51814 (i.e. with parameter value <> 0) are transferred.
The configuration of all connected devices is checked. The device that outputs the fault signal is not necessarily the device with the incorrect parameterization.
14: p51401 = 2 is only permissible for DCM Control Modules or for devices with option L30.
21: If, at a device, p51800 is set > 10, then for all other devices it is not permissible that p51800 is set = 0 or 1.
22: If, at a device, p51800 is set > 10, then one device must be parameterized as master (p51800 = 11,13,21,23,31,33,35,41,43 or 45).
23: It is only permissible to set p51800 = 11 at one device. At all other devices, it is only permissible that p51800 is set = 0, 1, 12 or 13. p51800 must be set = 12 or 13 at least one device.
24: p51800 must be set = 21 and 23 at each device. At all other devices, it is only permissible that p51800 is set = 0, 1, 22 or 24.
25: p51800 must be set = 31 and 33 at each device. At all other devices, it is only permissible that p51800 is set = 0, 1, 32 or 34.
26: It is only permissible to set p51800 = 35 at one device. At all other devices, it is only permissible that p51800 is set = 0 or 1.
27: p51800 must be set = 41 and 43 at each device. At all other devices, it is only permissible that p51800 is set = 0, 1, 42 or 44.
28: It is only permissible to set p51800 = 45 at one device. At all other devices, it is only permissible that p51800 is set = 0 or 1.

Remedy: Make the setting as appropriate for the fault value displayed.

F60061 Thyristor test unsuccessful

Message value: %1
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Component: None
Propagation: GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause: With the thyristor test activated (p50830), a fault was detected for at least one thyristor.
Fault value (r0949, interpret decimal):
1: Thyristor defective (V11 and/or V24)
2: Thyristor defective (V12 and/or V25)
3: Thyristor defective (V13 and/or V26)
4: Thyristor defective (V14 and/or V21)
5: Thyristor defective (V15 and/or V22)
6: Thyristor defective (V16 and/or V23)
8: Ground fault in the armature circuit
11: Thyristor cannot be fired (V11)
12: Thyristor cannot be fired (V12)
13: Thyristor cannot be fired (V13)
14: Thyristor cannot be fired (V14)
15: Thyristor cannot be fired (V15)
16: Thyristor cannot be fired (V16)
17: Two or more thyristors from V11 ... V16 cannot be fired
21: Thyristor cannot be fired (V21)
22: Thyristor cannot be fired (V22)
23: Thyristor cannot be fired (V23)
24: Thyristor cannot be fired (V24)
25: Thyristor cannot be fired (V25)
26: Thyristor cannot be fired (V26)
27: Two or more thyristors from V21 ... V26 cannot be fired
28: Two or more thyristors from V11 ... V26 cannot be fired (different firing pulse path)
29: Two or more thyristors from V11 ... V26 cannot be fired (same firing pulse path)
31: Thyristor cannot block (V11 or V21)
32: Thyristor cannot block (V12 or V22)
33: Thyristor cannot block (V13 or V23)
34: Thyristor cannot block (V14 or V24)
35: Thyristor cannot block (V15 or V25)
36: Thyristor cannot block (V16 or V26)
41: Thyristor cannot be fired (V11 or V16)
42: Thyristor cannot be fired (V13 or V14)
45: Thyristor cannot be fired (V21 or V26)
46: Thyristor cannot be fired (V23 or V24)
99: Defective thyristor cannot be identified
Note 1:
If "Thyristor defective" or "Thyristor cannot block" is signaled, then the corresponding thyristor module should be replaced.
Possible reasons why thyristors could be destroyed:
- Interrupted snubber circuit.
- Current controller and precontrol not optimized (excessively high current peaks).
- Cooling not guaranteed (e.g. a fan is not running, ambient temperature too high, incorrect fan direction of rotation (incorrect rotating field), air flow too low, very dirty heat sink).
- Excessively high voltage peaks in the line supply.
- External short-circuit or ground fault present (check the armature circuit).
Note 2:
If "Fault in the firing pulse cable" is signaled, then this is generally caused by a fault in the firing circuit.
Possible causes:
- Firing pulse cable to the thyristor involved interrupted.
- Connector X11 or X21 incorrectly inserted.
- Flat cable X108 either not correctly inserted or interrupted.
- Defective electronics module or gating module.
Note 3:
If "Thyristor cannot be fired" is signaled, then the gate conductor in the thyristor module is probably

broken/interrupted.
Note 4:
For a Control Module, this fault can also be initiated by other fault causes.
- Incorrect assignment of the firing pulses to the thyristors.
- Incorrect current actual value sensing connection.
- Incorrect parameterization of the current actual value sensing (p51822, p51823, p51824).
- Incorrect parameterization of the power unit type (p51825).
Note for fault value = 28:
At least one thyristor of bridge 1 and at least one thyristor of bridge 2 cannot be fired.
The thyristors that cannot be fired are controlled via different firing pulse paths.
Note for fault value = 29:
At least one thyristor of bridge 1 and at least one thyristor of bridge 2 cannot be fired.
The thyristors that cannot be fired are controlled via the same firing pulse path.
Therefore, it is possible that either the firing pulse cable or the gating module is defective.
Note 5:
The supplementary information on the fault messages supplies the following information:
r50047[1] to r50047[4] provide data on the last event that was detected to be faulty by the short-circuit test:
r50047[1]; thyristor code
Bit 0 .. 5 = 1 means: thyristor 1 .. 6 was fired
Bit 6 = 1 means: thyristor in bridge I was fired
Bit 7 = 1 means: thyristor in bridge II was fired
r50047[2]; firing angle
+1.00 .. 0°
0.00 .. 90°
-1.00 .. 180°
r50047[3]: current that flowed
+1.00 .. 100% of r50072[1] (rated current)
r50047[4]; phases in which the current flowed
128 (= 80 hex): Phase UV
129 (= 81 hex) .. Phase UW
130 (= 82 hex) .. Phase VU
131 (= 83 hex) .. Phase WU
r50047[5] to r50047[8] provide data on the last event that was detected to be faulty by the short-circuit test:
The significance of r50047[5] to r50047[8] is the same as for r50047[1] to r50047[4]
r50047[9] to r50047[20] provide data on the last event that was detected to be faulty by the conductivity test:
r50047[9]: current that flowed in thyristor pair 1-6 in bridge I
r50047[10]: current that flowed in thyristor pair 2-1 in bridge I
r50047[11]: current that flowed in thyristor pair 3-2 in bridge I
r50047[12]: current that flowed in thyristor pair 4-3 in bridge I
r50047[13]: current that flowed in thyristor pair 5-4 in bridge I
r50047[14]: current that flowed in thyristor pair 6-5 in bridge I
r50047[15]: current that flowed in thyristor pair 1-6 in bridge II
r50047[16]: current that flowed in thyristor pair 2-1 in bridge II
r50047[17]: current that flowed in thyristor pair 3-2 in bridge II
r50047[18]: current that flowed in thyristor pair 4-3 in bridge II
r50047[19]: current that flowed in thyristor pair 5-4 in bridge II
r50047[20]: current that flowed in thyristor pair 6-5 in bridge II
+1.00 .. 100% of r50072[1] (rated current)
r50047[21] and r50047[22] indicate how quickly the firing angle was changed during the test:
r50047[21]: firing angle change per firing pulse for the short circuit test (+1.00 .. +90°)
r50047[22]: firing angle change per firing pulse for the conductivity test (+1.00 .. +90°)

Remedy: Interpret the fault value and information and replace the appropriate thyristor.

F60062 (N, A) Communication error to the voltage sensing

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: Communication to one of the two voltage sensing devices is faulted or interrupted.
Fault value (r0949, interpret decimal):
1: Armature voltage sensing
2: Field voltage sensing
Note:
r50047[1]: Counter CRC error, armature
r50047[2]: Counter, communication error, armature
r50047[3]: Counter, CRC error, field
r50047[4]: Counter, communication error, field
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60063 (N, A) Incorrect calibration values for analog inputs/outputs

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: The factory-set calibration values on the electronics module for the analog inputs/outputs are implausible.
Fault value (r0949, interpret decimal):
1: Analog input 0 (X177.25/26), voltage input, offset incorrect value
2: Analog input 0 (X177.25/26), voltage input, +10 V incorrect value
3: Analog input 0 (X177.25/26), voltage input, -10 V incorrect value
4: Analog input 0 (X177.25/26), voltage input, reference value incorrect
5: Analog input 0 (X177.25/26), current input, offset incorrect value
6: Analog input 0 (X177.25/26), current input, +20 mA incorrect value
7: Analog input 0 (X177.25/26), current input, -20 mA incorrect value
8: Analog input 0 (X177.25/26), current input, reference value incorrect
9: Analog input 1 (X177.27/28), voltage input, offset incorrect value
10: Analog input 1 (X177.27/28), voltage input, +10 V incorrect value
11: Analog input 1 (X177.27/28), voltage input, -10 V incorrect value
12: Analog input 1 (X177.27/28), voltage input, reference value incorrect
13: Analog input 1 (X177.27/28), current input, offset incorrect value
14: Analog input 1 (X177.27/28), current input, +20 mA incorrect value
15: Analog input 1 (X177.27/28), current input, -20 mA incorrect value
16: Analog input 1 (X177.27/28), current input, reference value incorrect
17: Analog input 2 (X177.29/30), voltage input, offset incorrect value
18: Analog input 2 (X177.29/30), voltage input, +10 V incorrect value
19: Analog input 2 (X177.29/30), voltage input, -10 V incorrect value
20: Analog input 2 (X177.29/30), voltage input, reference value incorrect
21: Analog input 3 (X177.1/2), voltage input, offset incorrect value
22: Analog input 3 (X177.1/2), voltage input, +10 V incorrect value
23: Analog input 3 (X177.1/2), voltage input, -10 V incorrect value
24: Analog input 3 (X177.1/2), voltage input, reference value incorrect
25: Analog input 4 (X177.3/4), voltage input, offset incorrect value
26: Analog input 4 (X177.3/4), voltage input, +10 V incorrect value
27: Analog input 4 (X177.3/4), voltage input, -10 V incorrect value
28: Analog input 4 (X177.3/4), voltage input, reference value incorrect
29: Analog input 5 (X177.5/6), voltage input, offset incorrect value
30: Analog input 5 (X177.5/6), voltage input, +10 V incorrect value
31: Analog input 5 (X177.5/6), voltage input, -10 V incorrect value
32: Analog input 5 (X177.5/6), voltage input, reference value incorrect
33: Analog input 6 (X177.7/8), voltage input, offset incorrect value
34: Analog input 6 (X177.7/8), voltage input, +10 V incorrect value
35: Analog input 6 (X177.7/8), voltage input, -10 V incorrect value
36: Analog input 6 (X177.7/8), voltage input, reference value incorrect
37: Analog input XT1.103/104, voltage input, offset incorrect value
38: Analog input XT1.103/104, voltage input, +25 V incorrect value
39: Analog input XT1.103/104, voltage input, -+25 V incorrect value
40: Analog input XT1.103/104, voltage input, reference value incorrect
41: Analog input XT1.103/104, voltage input, offset incorrect value
42: Analog input XT1.103/104, voltage input, +80 V incorrect value
43: Analog input XT1.103/104, voltage input, -+80 V incorrect value
44: Analog input XT1.103/104, voltage input, reference value incorrect
45: Analog input XT1.103/104, voltage input, offset incorrect value
46: Analog input XT1.103/104, voltage input, +270 V incorrect value
47: Analog input XT1.103/104, voltage input, -270 V incorrect value
48: Analog input XT1.103/104, voltage input, reference value incorrect
49: Analog output 0 (X177.49/50), offset incorrect value
50: Analog output 0 (X177.49/50), -10 V incorrect value
51: Analog output 0 (X177.49/50), +10 V incorrect value
52: Analog output 0 (X177.49/50), reference value incorrect
53: Analog output 1 (X177.51/52), offset incorrect value

54: Analog output 1 (X177.51/52), -10 V incorrect value
55: Analog output 1 (X177.51/52), +10 V incorrect value
56: Analog output 1 (X177.51/52), reference value incorrect
Note:
r50047[1]: Incorrect calibration value

Remedy: Replace the electronics module with the incorrect calibration values.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60064 (N, A) Error communicating with second processor TMS320

Message value: -
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Communication with the second processor (TMS320) has failed.
Note:
r50047[1]: Communication counter in send direction
r50047[2]: Communication counter in receive direction

Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60065 (N, A) Software update on second processor (TMS320) failed

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY

Cause: The updating of the software for the second processor (TMS320) has failed.
Fault value (r0949, interpret decimal):
This value indicates the state in which the fault occurred.
2: Wait for the TMS320 bootloader to be ready.
3: Check the version of the TMS320 bootloader.
4: Check the version of the TMS320 application software.
5: Wait for the TMS320 to exit the bootloader.
6: Wait for the TMS320 to load its Flash API.
7: Wait for the TMS320 to delete its Flash EPROM.
8: Send a section of code 8 KB in size to the TMS320.
9: Wait for the TMS320 to request a new 8 KB section of code.
10: Wait until the TMS320 application software has been started.
11: Wait until the TMS320 is ready for a new command.
100: Bootloader version not compatible.
101: TMS version not compatible.
Note:
r50047[1]: Error bits. Indicate in which of the following states errors occurred.
Bit 0 = 1: Initialization
Bit 1 = 1: TMS320 status
Bit 2 = 1: Bootloader version
Bit 3 = 1: TMS320 version
Bit 4 = 1: TMS320 start
Bit 5 = 1: Load Flash interface
Bit 6 = 1: Delete Flash
Bit 7 = 1: Write Flash
Bit 8 = 1: Request code
Bit 9 = 1: TMS320 start
Bit 10 = 1: Read message
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60066 (N, A) Error communicating with sensors

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: An error occurred when polling the fan speeds and temperature sensors.
Fault value (r0949, interpret decimal):
1: Data not received
2: Fan monitoring or temperature sensors not switched over
Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60067 (N, A) Fault temperature too high

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The temperature at one of the temperature sensors has exceeded the highest permissible temperature to initiate this fault.
Fault value (r0949, interpret decimal):
1: Overtemperature at sensor 1 (sensor an XT5).
- For SINAMICS DCM (with cooling method AN / AF): temperature above the threshold corresponding to device MLFB
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[0]
- For SINAMICS DCM Cabinet / Thyristor stack solution (" single" topology): temperature above 52° C
- For SINAMICS DCM Cabinet / Thyristor stack solution ("parallel" topology): temperature above 52° C
2: Overtemperature at sensor 2 (sensor an XT6).
- For SINAMICS DCM with option L15 / L99 und cooling method AN: temperature above 57 ° C
- For SINAMICS DCM with option L15 / L99 und cooling method AF: temperature above 52 ° C
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[1]
- For SINAMICS DCM Cabinet / Thyristor stack solution ("parallel" topology): temperature above 52° C
3: Overtemperature at sensor 3 (sensor an XT7).
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[2]
4: Overtemperature at the sensor control module (A7105, A7106, A7107, A7108, A7109).
Note:
r50047[1]: Temperature sensor 1
r50047[2]: Temperature sensor 2
r50047[3]: Temperature sensor 3
r50047[4]: Gating module temperature
r50047[5]: CUD module temperature
Remedy: - Check the ambient temperature and reduce if necessary.
- Reduce the load.
- For SINAMICS DCM Control Module: increase threshold value according to p51829[0..2]
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60068 (N, A) Incorrect calibration values for power unit

Message value: %1
Message class: Hardware/software error (1)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The calibration values for the power unit are missing or incorrect.
Fault value (r0949, interpret decimal):
1x: Power unit for armature
2x: Power unit for field
x = 1: Unable to read compensation data
x = 2: Unknown compensation data format
x = 3: Incorrect compensation data CRC
x = 4: The measuring points contained in the compensation data do not rise uniformly.
x = 5: No compensation values can be calculated from the compensation data.
x = 6: The signal offset calculated from the compensation data is impermissibly high.

Remedy: Carry out a POWER ON (switch-off/switch-on) for all components.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60069 (N, A) Invalid article number (MLFB)

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The data read from the power unit (serial number, MLFB, accessory options) is invalid.
Fault value (r0949, interpret decimal):
1: The serial number is invalid or missing.
2: The article number (MLFB) is invalid or missing.
3: The accessory options are invalid.
4: Incorrect serial number CRC
5: Incorrect MLFB CRC
6: Incorrect accessory options CRC
7: The MLFB read out is not known to the software.
8: Unable to read data.
9: MLFB cannot be changed in current operating state.
Note for fault value = 1, 4:
r50047[1]: 1st digit of serial number
r50047[2]: 2nd digit of serial number
...
r50047[30]: 30th digit of serial number
Note for fault value = 2, 5, 7:
r50047[1]: 1st digit of MLFB
r50047[2]: 2nd digit of MLFB
...
r50047[30]: 30th digit of MLFB
Note for fault value = 3, 6:
r50047[1]: 1st digit of accessory options
r50047[2]: 2nd digit of accessory options
...
r50047[30]: 30th digit of accessory options
Note for fault value = 9:
r50047[1]: Operating state
Remedy: Send your SINAMICS DC MASTER to the manufacturer's plant or an authorized repair center.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60080 (F, N) Alarm temperature too high

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The temperature at one of the temperature sensors has exceeded the highest permissible temperature to initiate this alarm.
Alarm value (r2124, interpret decimal):
1: Overtemperature at sensor 1 (sensor an XT5).
- For SINAMICS DCM (with cooling method AN / AF): temperature above the threshold minus 5 °C corresponding to device MLFB
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[0] minus 5°C
- For SINAMICS DCM Cabinet / Thyristor stack solution (" single" topology): temperature above 47° C
- For SINAMICS DCM Cabinet / Thyristor stack solution ("parallel" topology): temperature above 47° C
2: Overtemperature at sensor 2 (sensor an XT6).
- For SINAMICS DCM with option L15 / L99 und cooling method AN: temperature above 52 ° C
- For SINAMICS DCM with option L15 / L99 und cooling method AF: temperature above 47 ° C
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[1] minus 5°C
- For SINAMICS DCM Cabinet / Thyristor stack solution ("parallel" topology): temperature above 47° C
3: Overtemperature at sensor 3 (sensor an XT7).
- For SINAMICS DCM Control Module: temperature above threshold according to p51829[2] minus 5°C
4: Overtemperature at the sensor control module (A7105, A7106, A7107, A7108, A7109).
Note:
r50047[1]: Temperature sensor 1
r50047[2]: Temperature sensor 2
r50047[3]: Temperature sensor 3
r50047[4]: Gating module temperature
r50047[5]: CUD module temperature

Remedy:
- Check the ambient temperature and reduce if necessary.
- Reduce the load.
- For SINAMICS DCM Control Module: increase threshold value according to p51829[0..2]

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A60081 (F, N) Alarm module temperature exceeded

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The temperature on the Control Unit DC MASTER (CUD) has exceeded the alarm value (temperature above 90 °C).
Note:
r50047[1]: Module temperature (in °C)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Reference voltage +10 V (in volts)
r50047[4]: Temperature sensor 1 (in °C)

Remedy: Check the ambient temperature and reduce if necessary.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A60082 (F, N) Alarm derating factor K1 limit value fallen below

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: For a drive device equipped with option L99, derating (reduced power) is calculated depending on the air intake temperature.
The calculated derating factor K1 has fallen below the set limit value (p50066).
Note:
r50047[1]: air intake temperature in °C (sensor at XT6)
r50047[2]: derating factor K1
See also: p50066 (Power unit I2t monitoring derating factor K1 limit value)
Remedy: Check the air intake temperature and reduce if necessary.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60090 (N, A) Fault module temperature exceeded

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The temperature on the Control Unit DC MASTER (CUD) has exceeded the fault value (temperature above 95 °C).
Note:
r50047[1]: Module temperature (in °C)
r50047[2]: Supply voltage -10 V (in volts)
r50047[3]: Supply voltage +10 V (in volts)
r50047[4]: Temperature sensor 1 (in °C)
Remedy: Check the ambient temperature and reduce if necessary.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60091 (N, A) Reference voltage P10 outside tolerance

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The reference voltage P10 (+10 V) at terminal X177.31 lies outside the tolerance (deviation greater than +/-5%).
Note:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in ° C)
Remedy: Check the power supply.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F60092 (N, A) Reference voltage N10 outside tolerance

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The reference voltage N10 (-10 V) at terminal X177.32 lies outside the tolerance (deviation greater than +/-5%).
Note:
r50047[1]: Reference voltage -10 V (in Volt)
r50047[2]: Reference voltage +10 V (in volts)
r50047[3]: Module temperature (in ° C)
Remedy: Check the power supply.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60093 (N, A) Power supply P5 overloaded

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Power supply P5 (+5 V) at connector X179.1 is overloaded.
Note:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in ° C)
Remedy: Identify the reason for the overload and rectify the situation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60094 (N, A) Power supply P15 overloaded

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Power supply P15 (+15 V) at terminal X177.41 is overloaded.
Note:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in ° C)
Remedy: Identify the reason for the overload and rectify the situation.
Reaction upon N: NONE
Acknowl. upon N: NONE

Reaction upon A: NONE
Acknowl. upon A: NONE

F60095 (N, A) Power supply P24 overloaded

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Power supply P24 (+24 V) at terminal X177.9 or X177.10 is overloaded.
Note:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in ° C)
Remedy: Identify the reason for the overload (e.g. digital outputs) and rectify the situation.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60096 (N, A) Temperature sensor faulty

Message value: %1
Message class: Internal (DRIVE-CLiQ) communication error (12)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: A cable break or a short circuit has been detected on at least one temperature sensor.
Fault value (r0949, interpret decimal):
1: A cable break has occurred.
2: A short circuit has occurred.
Note:
r50047[1] = 1: Temperature sensor 1
r50047[1] = 2: Temperature sensor 2
r50047[1] = 3: Temperature sensor 3
r50047[1] = 4: Temperature sensor gating module
r50047[1] = 5: Temperature sensor CUD module
r50047[1] = 6: Motor temperature sensor
r50047[2]: Value of the analog-to-digital converter

Note:
When using PTCs (PTC thermistors - p50490 = 2,3,4,5) the cable is not monitored for interruption or short-circuit. In this case, a fault message is not output.
Remedy: Evaluate the fault and, if the temperature sensor is faulty, run a wiring and performance check.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60097 (N, A) Power supply faulty

Message value: -
Message class: Power electronics faulted (5)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: The power supply is not working correctly.
Note 1:
r50047[1]: Reference voltage +10 V (in volts)
r50047[2]: Reference voltage -10 V (in volts)
r50047[3]: Module temperature (in ° C)
Note 2:
For SINAMICS DCM with 2 CUD, the following applies:
After carrying out a reset (p0972 > 0 or p0976 = 200) at a CUD, then this fault is output at the other. In this case, the fault has no significance and can be acknowledged.
Remedy: Check the power supply.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60098 (F, N) System utilization high

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The average computing time utilization (r9976[1]) for the system is greater than 95 %.
Remedy: Reduce computing time utilization by.
The following options are available to do this:
- check the number of cyclically calculated blocks (DCC), and if required reduce.
- assign DCC blocks to runtime groups with a longer sampling time.
- check the number of cyclically calculated function blocks (FBLOCKS), and if required reduce.
- assign function blocks to runtime groups with a longer sampling time.
- remove DRIVE-CLiQ components that are not required.
- deactivate control blocks that are not required (p50899). This must be especially taken into account for a CUD right.

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60099 (N, A) System utilization too high

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The average computing time utilization (r9976[1]) for the system is greater than 100 %.
Note:
r50047[1]: Averaged computing time utilization (in %)
r50047[2]: Maximum computing time utilization (in %)

Remedy: Reduce computing time utilization by.
The following options are available to do this:
- check the number of cyclically calculated blocks (DCC), and if required reduce.
- assign DCC blocks to runtime groups with a longer sampling time.
- check the number of cyclically calculated function blocks (FBLOCKS), and if required reduce.
- assign function blocks to runtime groups with a longer sampling time.
- remove DRIVE-CLiQ components that are not required.
- deactivate control blocks that are not required (p50899). This must be especially taken into account for a CUD right.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60104 (N, A) Armature circuit line voltage not OK

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: On power up, the time set in p50089 represents the maximum wait time for voltage at the power connections and for field current in operating states o5 and o4 combined.
On power up, the time set in p50095 represents the maximum wait time for "Line contactor feedback" in operating state o3.3 (if activated, see p50691).
This fault is triggered if the above times elapse in one of these operating states.
- Thresholds for the line monitoring incorrectly set (p50078, p50351, p50352, p50353, p50363, p50364).
- Armature voltage not OK (phase failure, undervoltage/overvoltage, underfrequency/overfrequency).
- Line contactor not picking up
- Fuse blown on three-phase side of armature circuit
- Fuse blown in power unit
- Interruption affecting thyristor firing pulse cable (auxiliary cathodes at connections X12, X14, X16 are used for voltage transmission).

Fault value (r0949, interpret decimal):
2: Wait time set in p50089 has expired in operating state o4.0.
3: Fuse blown on three-phase side of armature circuit
6: Wait time set in p50095 has expired in operating state o3.3.
Note for fault value = 2:
- r50047[1]: line state (r53145)

Bit 0 = 1: Armature supply line, overvoltage
Bit 1 = 1: Armature supply line, undervoltage
Bit 2 = 1: Armature supply line, overfrequency
Bit 3 = 1: Armature supply line, underfrequency
Bit 4 = 1: Armature supply line, phase failure
Bit 5 = 1: Field supply line, overvoltage
Bit 6 = 1: Field supply line, undervoltage
Bit 7 = 1: Field supply line, overfrequency
Bit 8 = 1: Field supply line, underfrequency
Bit 9 = 1: Field supply line, phase failure
Bit 10 = 1: Armature supply line OK
Bit 11 = 1: Field supply line OK
Bit 12 = 1: clockwise phase sequence
Bit 13 = 1: Line symmetrical

See also: p50089 (Sequence control voltage at power unit wait time), p50095 (Sequence control DC circuit contactor wait time), p50691 (Sequence control line contactor feedback)

Remedy: - Check the thresholds for the line monitoring (p50078, p50351, p50352, p50353, p50363, p50364).
- Check line voltage and line contactor.
- Check fuses for armature circuit.
- Check thyristor firing pulse cable (X12, X14, X16).
See also: p50089 (Sequence control voltage at power unit wait time), p50353 (Line monitoring phase failure threshold)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60105 (N, A) Field current monitoring fault in field circuit

Message value: %1
Message class: Network fault (2)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE)
Acknowledge: IMMEDIATELY
Cause: Field current monitoring has detected erroneous behavior.
- Field phase failed
- Line contactor not picking up
- Fuse blown in field circuit
- Field current controller and/or field current controller pre-control not optimized or optimization is very poor.

Fault value (r0949, interpret decimal):
1: The field current actual value was smaller than the percentage of the field current setpoint set in p50396.
2: The field line voltage was not available within the time set in p50089.
3: The field current was not available within the time set in p50089.
4: The external field current monitoring has responded (BI: p50265 = 1/0 signal).
Note for fault value = 1:
r50047[1]: Setpoint at field current controller input (r52268)
r50047[2]: Actual value at field current controller input (r52265)
r50047[3]: External monitoring (p50265)
r50047[4]: Operating mode (p50082)
r50047[5]: Threshold for monitoring (p50396)
Note for fault value = 2:
- r50047[1]: line state (r53145).

See also: r50073 (Device rated direct current field), p50082 (Field power unit operating mode), p50396 (Field current monitoring setpoint factor), p50397 (Field current monitoring fault delay time), r52265 (CI-loop field curr ctrl current controller actual value), r52268 (Closed-loop field current control current controller setpoint)

Remedy: - Check field phases.
- Check line contactor.
- Check fuses in field current circuit.
- Perform an optimization run for the field current controller (p50051 = 24).
- Check the threshold and time for field current monitoring (p50396, p50397).

See also: p50051 (Optimization run selection)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60106 (N, A) Short-circuit voltage Uk too high

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The per unit short-circuit voltage of the line supply is greater than 10 %.
Permissible values are between 2 and 10 %.
See also: r50073 (Device rated direct current field), p50082 (Field power unit operating mode), p50396 (Field current monitoring setpoint factor), p50397 (Field current monitoring fault delay time), r52265 (CI-loop field curr ctrl current controller actual value), r52268 (Closed-loop field current control current controller setpoint)
Remedy: Check the dimensioning of the commutating reactors or the line transformer.
See also: p50051 (Optimization run selection)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60137 (N, A) I2t monitoring fault excessive motor temperature rise

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The I2t calculation shows that the motor's temperature rise is excessive.
The fault is triggered if the calculated motor temperature rise in r52309 > 110%.
Note:
r50047[1]: Temperature rise r52309
r50047[2]: Motor rated armature current p50100
r50047[3]: Continuous current factor r50113
r50047[4]: Device rated current r50072[1]
r50047[5]: Current armature current r52109
r50047[6]: Motor thermal time constant p50114
See also: p50114 (Motor thermal time constant), r52309 (Calculated motor temperature rise)
Remedy: - check the ambient temperature and reduce if necessary.
- reduce the motor load.
See also: r52109 (Armature current actual value averaged over 6 cycles)
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60139 (N, A) I2t monitoring fault excessive power unit temperature rise

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The temperature rise of the thyristors is more than 102% of the maximum permissible value.
Remedy: - Check the ambient temperature and reduce if necessary.
- Check the motor load and reduce if necessary.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60143 (F, N) Reduction of the field current setpoint for an excessively high EMF during braking active

Message value: -
Message class: Motor overload (8)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: Reduction of the field current setpoint for an excessively high EMF during braking is active.
See also: p50272 (Field current reduction activation)
Remedy: Not necessary.
The alarm automatically disappears after braking has expired.
Reaction upon F: NONE (OFF2)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A60144 Minimum field current setpoint limit reached

Message value: -
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The minimum field current setpoint limit was reached.
See also: r53193 (Field current setpoint limiting state)
Remedy: - Check p50103
- Check the motor data

A60165 (F, N) Fan end of service life has been reached or exceeded

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: At least one device fan has reached the end of its service life - or has exceeded it.
Remedy: Replace the device fan and reset the operating hours.
See also: r50960 (Device fan operating hours display), p50961 (Device fan service life), p50962 (Device fan reset operating hours)
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

A60166 (F, N) Alarm fan speed too slow

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: The fan speed is too slow. The fan is probably blocked or faulty.
Note:
r50047[1]: Speed fan 1 (in revolutions/s)
r50047[2]: Speed fan 2 (in revolutions/s)
r50047[3]: Speed fan 3 (in revolutions/s)
r50047[4]: Speed fan 4 (in revolutions/s)
Remedy: Check the fan and replace if necessary.
Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60167 (N, A) Fault fan speed too slow

Message value: -
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: a) The fan speed is too slow. The fan is probably blocked or faulty.
b) The AC fan was switched off in operation or before the fan run on time p50096 expired by an external fan control.
Note 1:
r50047[1]: Speed fan 1 (in revolutions/s)
r50047[2]: Speed fan 2 (in revolutions/s)
r50047[3]: Speed fan 3 (in revolutions/s)
r50047[4]: Speed fan 4 (in revolutions/s)
Note 2:
Fault message F60167 can only be acknowledged after the fan run on time p50096 has expired!
Remedy: a) Check the fan and replace if necessary.
b) Use the fan control inside the device! See function block diagram 8047 or 8049.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60168 (F, N) Memory card not plugged in

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The data recorded with the recorder function could not be saved on the memory card.
Possible causes:
- Memory card not plugged in
- Memory card defective
Note:
If the save function is performed without errors, the data is saved on the memory card under "\USER\SINAMICS\DATA\LOG\Tack.csv".
Fault value (r0949, interpret decimal):
1: Unable to create or open the file
2: Unable to write to the file
3: Unable to write all data to the file
See also: p51700 (Signal source for connector recorder function), p51701 (Signal source for binector recorder function), p51702 (Recorder function channel selection), p51703 (Recorder function recording interval), p51704 (Recorder function save interval), p51705 (Start/stop recorder function)

Remedy: Plug in a functional memory card (SecureDigital card, SD card).

Reaction upon F: NONE (OFF1, OFF2, OFF3)

Acknowl. upon F: IMMEDIATELY

Reaction upon N: NONE

Acknowl. upon N: NONE

F60203 (N, A) External fault triggered

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Component: None **Propagation:** GLOBAL

Reaction: OFF2 (NONE, OFF1, OFF3)

Acknowledge: IMMEDIATELY

Cause: An external fault has been triggered via terminal 124/125 on the Control Module.
Fault value (r0949, interpret decimal):
Input signal which triggered the fault.
Note:
r50047[1]: External fault mode (p51833)
See also: p51833 (External fault mode)

Remedy: Eliminate the causes of this fault.

Reaction upon N: NONE

Acknowl. upon N: NONE

Reaction upon A: NONE

Acknowl. upon A: NONE

F60204 (N, A) Fuse monitoring has responded

Message value: %1

Message class: General drive fault (19)

Drive object: DC_CTRL

Component: None **Propagation:** GLOBAL

Reaction: OFF2 (NONE)

Acknowledge: IMMEDIATELY

Cause: Fuse monitoring on the Control Module has detected at least one blown fuse.
Fault value (r0949, interpret decimal):
1: Monitoring of slot X23B (p51831[0]) has responded.
2: Monitoring of slot X23C (p51831[1]) has responded.
3: Monitoring of slot X23D (p51831[2]) has responded.
4: Monitoring of slot X23E (p51831[3]) has responded.
5: Monitoring of slot X23F (p51831[4]) has responded.
Note:
r50047[1]: Fuse number (XS1, XS2 to XS6)
See also: p51831 (Fuse monitoring activation)

Remedy: - Analyze the blown fuse.
- Replace or close fuses as necessary.

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60266 (F, N) Alarm fan not OK

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE
Cause: For a Control Module without option Z01... Z15 the following applies:
The signal at terminal 122/123 signals "Fan not OK".
The fan might be blocked or faulty.
Alarm value (r2124, interpret decimal):
Alarm value 1: Signal at terminal 122/123 signals "Fan not OK".
r50047[1]: Fan monitoring mode (p51832)

For a Control Module with option Z01... Z15 the following applies:
The alarm threshold for the differential pressure was fallen below.
Alarm value 2: differential pressure at LT1 fallen below
Alarm value 3: differential pressure at LT2 fallen below
r50047[1]: Fan monitoring mode (p51832)

Remedy: - Check wiring of "Fan OK" message via input terminal 122/123.
- Check the setting of the mode for fan monitoring (p51832).
- Check the fan and replace if necessary.
See also: p51832 (Fan monitoring configuration), p51835 (Delay times for device fan monitoring)

Reaction upon F: NONE (OFF1, OFF2, OFF3)
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

F60267 (N, A) CM: Fan not OK

Message value: %1
Message class: Overtemperature of the electronic components (6)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: For a Control Module without option Z01... Z15 the following applies:
The signal at terminal 122/123 signals "Fan not OK".
The fan might be blocked or faulty.
Alarm value (r2124, interpret decimal):
Alarm value 1: Signal at terminal 122/123 signals "Fan not OK".
r50047[1]: Fan monitoring mode (p51832)

For a Control Module with option Z01... Z15 the following applies:
The fault threshold for the differential pressure was fallen below.
Alarm value 2: differential pressure at LT1 fallen below
Alarm value 3: differential pressure at LT2 fallen below
r50047[1]: Fan monitoring mode (p51832)

Remedy: - Check wiring of "Fan OK" message via input terminal 122/123.
- Check the setting of the mode for fan monitoring (p51832).
- Check the fan and replace if necessary.
See also: p51832 (Fan monitoring configuration), p51835 (Delay times for device fan monitoring)

Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

F60300 Commutation failure

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None
Propagation: GLOBAL
Reaction: OFF2
Acknowledge: IMMEDIATELY

Cause:

Commutation failure or overcurrent has occurred or a test command was entered via p51583.
Possible causes of the commutation failure:
- Line voltage dip during regenerative operation.
- Armature current control loop not optimized.
Fault value (r0949, interpret decimal):
1:
Commutation was not successful because the thyristor being turned off did not accept the blocking voltage (only for p50166 = 1).
r50047[0]: Decision criterion (= 1)
r50047[1]: Thyristor state (= r53146)
r50047[2]: Fired thyristor pairs
Bit 0 = 1: Thyristor 1 in MI was fired
...
Bit 5 = 1: Thyristor 6 in MI was fired
Bit 8 = 1: Thyristor 1 in MII was fired
...
Bit 13 = 1: Thyristor 6 in MII was fired
r50047[3]: Actual armature firing angle [in degrees]
r50047[4]: Actual EMF in [in %]
2:
The current did not flow through the correct thyristor or the current cusp made a kink upwards.
r50047[0]: Decision criterion (= 2)
r50047[1]: Subcriterion
For subcriterion = 1, the following applies:
The current did not flow through the correct thyristors.
r50047[2]: Actual Ia sample value [in A]
r50047[3]: Actual Ia sample value CT 1 [in A]
r50047[4]: Actual Ia sample value CT 2 [in A]
r50047[5]: Actual Ia sample value + 20% of In [in A]
r50047[6]: Number of Ia sample values since the last firing pulse
For subcriterion = 2, the following applies:
The current cusp has an upwards kink
r50047[2]: Actual Delta Ia [in A]
r50047[3]: Lowest Delta-Ia up until now since the last firing pulse [in A]
r50047[4]: Actual Ia sample value [in A]
r50047[5]: First Delta-Ia after the last firing pulse [in A]
r50047[6]: Actual armature firing angle [in degrees]
r50047[7]: Number of Ia sample values since the last firing pulse
3:
The magnitude of the current cusp was greater than 290% of the actual rated device armature DC current (r50072[1]).
r50047[0]: Decision criterion (= 3)
r50047[1]: Number of Delta-Ua, that Ua may still be away from the EMF
r50047[2]: Previous voltage CD [in V]
r50047[3]: Actual voltage CD [in V]
r50047[4]: Actual Delta Ua [in V]
r50047[5]: Actual armature firing angle [in degrees]
r50047[6]: Actual EMF in [in V]
r50047[7]: Actual Ia sample value [in A]
4:
A SINAMICS DCM connected in parallel has detected a commutation failure or overcurrent.
r50047[0]: Decision criterion (= 4)
5:
Test command was entered via p51583.
r50047[0]: Decision criterion (= 5)

r50047[1]: Actual voltage CD [in V]
r50047[2]: Actual armature firing angle [in degrees]
r50047[3]: Actual EMF [in V]
r50047[4]: Actual Ia sample value [in A]
r50047[5]: Actual torque direction (0, 1 or 2)
See also: p51580 (Commutation monitoring control word)

Remedy: Acknowledge the fault and switch off /switch on the drive

F60320 (N, A) CCP not functional

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: OFF2 (NONE, OFF1, OFF3)
Acknowledge: IMMEDIATELY
Cause: The SIMOREG CCP is not functional.
Possible fault causes:
- Hardware defect in the charge circuit of the turn-off capacitors.
- Fuse failure in the armature circuit, line side or motor side.
- Fuse failure in the precharging circuit for the chopper capacitors.
- Chopper resistors still cooling down (this is necessary)

Fault value (r0949, interpret decimal):
1: No voltage at the U, V, W connections of the SIMOREG CCP.
2: The voltage at C-D at the SIMOREG CCP does not match the voltage C-D at the SINAMICS DCM.
3: The turn-off capacitors of the SIMOREG CCP have not reached the setpoint voltage.
4: No connection between SINAMICS DCM (X165_2, fast pulse inhibit interface) and SIMOREG CCP (X165).
5: No connection between SINAMICS DCM (X177) and SIMOREG CCP (X172) via the serial interface.
6: No connection between several SIMOREG CCPs (X29_PAR or X30_PAR, turn-off pulse interface).
7: SIMOREG CCP data invalid or not available (r51570, r51571, r51572).
11: The I2t value (r51575) of the voltage limiting chopper 1 is too high (> 100 %).
12: The I2t value (r51576) of the voltage limiting chopper 2 is too high (> 100 %).
20: The chopper capacitors were not able to be precharged within the time set in p50089.
Note:
r50047[0]: Fault value
r50047[1]: CCP state (extended status word + r51574)
r50047[2]: Armature voltage

Remedy: Interpret the fault value and rectify the fault correspondingly.
Reaction upon N: NONE
Acknowl. upon N: NONE
Reaction upon A: NONE
Acknowl. upon A: NONE

A60321 (F, N) CCP not functional

Message value: %1
Message class: General drive fault (19)
Drive object: DC_CTRL
Component: None **Propagation:** GLOBAL
Reaction: NONE
Acknowledge: NONE

Cause: The SIMOREG CCP is not functional.
Possible fault causes:
- Hardware defect in the charge circuit of the turn-off capacitors.
- Fuse failure in the armature circuit, line side or motor side.
- Fuse failure in the precharging circuit for the chopper capacitors.
- Chopper resistors still cooling down (this is necessary)

Alarm value (r2124, interpret decimal):
1: No voltage at the U, V, W connections of the SIMOREG CCP.
2: The voltage at C-D at the SIMOREG CCP does not match the voltage C-D at the SINAMICS DCM.
3: The turn-off capacitors of the SIMOREG CCP have not reached the setpoint voltage.
4: No connection between SINAMICS DCM (X165_2, fast pulse inhibit interface) and SIMOREG CCP (X165).
5: No connection between SINAMICS DCM (X177) and SIMOREG CCP (X172) via the serial interface.
6: No connection between several SIMOREG CCPs (X29_PAR or X30_PAR, turn-off pulse interface).
7: SIMOREG CCP data invalid or not available (r51570, r51571, r51572).
11: The I2t value (r51575) of the voltage limiting chopper 1 is too high (> 100 %).
12: The I2t value (r51576) of the voltage limiting chopper 2 is too high (> 100 %).
20: The chopper capacitors were not able to be precharged within the time set in p50089.

Note:
r50047[0]: Alarm value
r50047[1]: CCP state (extended status word + r51574)
r50047[2]: Armature voltage

Remedy: Interpret the fault value and rectify the fault correspondingly.
Reaction upon F: NONE
Acknowl. upon F: IMMEDIATELY
Reaction upon N: NONE
Acknowl. upon N: NONE

Appendix

A

Content

A.1 ASCII table (characters that can be displayed)

The following table includes the decimal and hexadecimal notation of ASCII characters that can be displayed (printable).

Table A-1 ASCII table (characters that can be displayed)

Character	Decimal	Hexadecimal	Meaning
	32	20	Space
!	33	21	Exclamation mark
"	34	22	Quotation mark
#	35	23	Number sign
$	36	24	Dollar
%	37	25	Percent
&	38	26	Ampersand
’	39	27	Apostrophe, closing single quotation mark
(	40	28	Opening parenthesis
)	41	29	Closing parenthesis
*	42	2A	Asterisk
+	43	2B	Plus
,	44	2C	Comma
-	45	2D	Hyphen, minus
.	46	2E	Period, decimal point
/	47	2F	Slash, slant
0	48	30	Digit 0
1	49	31	Digit 1
2	50	32	Digit 2
3	51	33	Digit 3
4	52	34	Digit 4
5	53	35	Digit 5
6	54	36	Digit 6
7	55	37	Digit 7
8	56	38	Digit 8
9	57	39	Digit 9
:	58	3A	Colon
;	59	3B	Semicolon
<	60	3C	Less than
=	61	3D	Equals
>	62	3E	Greater than
?	63	3F	Question mark
@	64	40	Commercial At

Table A-1 ASCII table (characters that can be displayed), continued

Character	Decimal	Hexadecimal	Meaning
A	65	41	Capital letter A
B	66	42	Capital letter B
C	67	43	Capital letter C
D	68	44	Capital letter D
E	69	45	Capital letter E
F	70	46	Capital letter F
G	71	47	Capital letter G
H	72	48	Capital letter H
I	73	49	Capital letter I
J	74	4A	Capital letter J
K	75	4B	Capital letter K
L	76	4C	Capital letter L
M	77	4D	Capital letter M
N	78	4E	Capital letter N
O	79	4F	Capital letter O
P	80	50	Capital letter P
Q	81	51	Capital letter Q
R	82	52	Capital letter R
S	83	53	Capital letter S
T	84	54	Capital letter T
U	85	55	Capital letter U
V	86	56	Capital letter V
W	87	57	Capital letter W
X	88	58	Capital letter X
Y	89	59	Capital letter Y
Z	90	5A	Capital letter Z
[	91	5B	Opening bracket
\	92	5C	Backslash
]	93	5D	Closing bracket
^	94	5E	Circumflex
_	95	5F	Underline
‘	96	60	Opening single quotation mark
a	97	61	Small letter a
b	98	62	Small letter b
c	99	63	Small letter c
d	100	64	Small letter d

Table A-1 ASCII table (characters that can be displayed), continued

Character	Decimal	Hexadecimal	Meaning
e	101	65	Small letter e
f	102	66	Small letter f
g	103	67	Small letter g
h	104	68	Small letter h
i	105	69	Small letter i
j	106	6A	Small letter j
k	107	6B	Small letter k
l	108	6C	Small letter l
m	109	6D	Small letter m
n	110	6E	Small letter n
o	111	6F	Small letter o
p	112	70	Small letter p
q	113	71	Small letter q
r	114	72	Small letter r
s	115	73	Small letter s
t	116	74	Small letter t
u	117	75	Small letter u
v	118	76	Small letter v
w	119	77	Small letter w
x	120	78	Small letter x
y	121	79	Small letter y
z	122	7A	Small letter z
{	123	7B	Opening brace
|	124	7C	Vertical line
}	125	7D	Closing brace
~	126	7E	Tilde

A.2 List of abbreviations

Note

The following list of abbreviations includes all abbreviations and their meanings used in the entire SINAMICS family of drives.

Abbreviation	Derivation of abbreviation	Significance
A		
A…	Alarm	Warning
AC	Alternating Current	Alternating current
ADC	Analog Digital Converter	Analog digital converter
AI	Analog Input	Analog input
AIM	Active Interface Module	Active Interface Module
ALM	Active Line Module	Active Line Module
AO	Analog Output	Analog output
AOP	Advanced Operator Panel	Advanced Operator Panel
APC	Advanced Positioning Control	Advanced Positioning Control
AR	Automatic Restart	Automatic restart
ASC	Armature Short-Circuit	Armature short-circuit
ASCII	American Standard Code for Information Interchange	American coding standard for the exchange of information
AS-i	AS-Interface (Actuator Sensor Interface)	AS-Interface (open bus system in automation technology)
ASM	Asynchronmotor	Induction motor
AVS	Active Vibration Suppression	Active load vibration damping
B		
BB	Betriebsbedingung	Operation condition
BERO	-	Contactless proximity switch
BI	Binector Input	Binector input
BIA	Berufsgenossenschaftliches Institut für Arbeitssicherheit	BG-Institute for Occupational Safety and Health
BICO	Binector Connector Technology	Binector connector technology
BLM	Basic Line Module	Basic Line Module
BO	Binector Output	Binector output
BOP	Basic Operator Panel	Basic Operator Panel
C		
C	Capacitance	Capacitance
C…	-	Safety message
CAN	Controller Area Network	Serial bus system
CBC	Communication Board CAN	Communication Board CAN
CBE	Communication Board Ethernet	PROFINET communication module (Ethernet)
CD	Compact Disc	Compact disc
CDS	Command Data Set	Command data set
CF Card	CompactFlash Card	CompactFlash card

Abbreviation	Derivation of abbreviation	Significance
CI	Connector Input	Connector input
CLC	Clearance Control	Clearance control
CNC	Computerized Numerical Control	Computer-supported numerical control
CO	Connector Output	Connector output
CO/BO	Connector Output/Binector Output	Connector output/Binector output
COB-ID	CAN Object-Identification	CAN object identification
CoL	Certificate of License	Certificate of License
COM	Common contact of a change-over relay	Center contact of a changeover contact
COMM	Commissioning	Startup
CP	Communication Processor	Communication processor
CPU	Central Processing Unit	Central processing unit
CRC	Cyclic Redundancy Check	Cyclic redundancy check
CSM	Control Supply Module	Control Supply Module
CU	Control Unit	Control Unit
CUA	Control Unit Adapter	Control Unit Adapter
CUD	Control Unit DC	Control Unit DC
D		
DAC	Digital Analog Converter	Digital analog converter
DC	Direct Current	DC current
DCB	Drive Control Block	Drive Control Block
DCBRK	DC Brake	DC braking
DCC	Drive Control Chart	Drive Control Chart
DCN	Direct Current Negative	Direct current negative
DCP	Direct Current Positive	Direct current positive
DDC	Dynamic Drive Control	Dynamic Drive Control
DDS	Drive Data Set	Drive data set
DI	Digital Input	Digital input
DI/DO	Digital Input/Digital Output	Digital input/output, bidirectional
DMC	DRIVE-CLiQ Hub Module Cabinet	DRIVE-CLiQ Hub Module Cabinet
DME	DRIVE-CLiQ Hub Module External	DRIVE-CLiQ Hub Module External
DMM	Double Motor Module	Double Motor Module
DO	Digital Output	Digital output
DO	Drive Object	Drive object
DP	Decentralized Peripherals	Distributed I/O
DPRAM	Dual Ported Random Access Memory	Dual-Port Random Access Memory
DQ	DRIVE-CLiQ	DRIVE-CLiQ
DRAM	Dynamic Random Access Memory	Dynamic Random Access Memory
DRIVE-CLiQ	Drive Component Link with IQ	Drive Component Link with IQ
DSC	Dynamic Servo Control	Dynamic Servo Control
DSM	Doppelsubmodul	Double submodule
DTC	Digital Time Clock	Timer

Abbreviation	Derivation of abbreviation	Significance
E		
EASC	External Armature Short-Circuit	External armature short-circuit
EDS	Encoder Data Set	Encoder data set
EEPROM	Electrically Erasable Programmable Read-Only Memory	Electrically Erasable Programmable Read-Only-Memory
EGB	Elektrostatisch gefährdete Baugruppen	Electrostatically sensitive devices
EIP	EtherNet/IP	EtherNet Industrial Protocol (realtime Ethernet)
ELCB	Earth Leakage Circuit Breaker	Residual current operated circuit breaker
ELP	Earth Leakage Protection	Ground-fault monitoring
EMC	Electromagnetic Compatibility	Electromagnetic compatibility
EMF	Electromotive Force	Electromotive force
EMK	Elektromotorische Kraft	Electromotive force
EMV	Elektromagnetische Verträglichkeit	Electromagnetic compatibility
EN	Europäische Norm	European standard
EnDat	Encoder-Data-Interface	Encoder interface
EP	Enable Pulses	Pulse enable
EPOS	Einfachpositionierer	Basic positioner
ES	Engineering System	Engineering system
ESB	Ersatzschaltbild	Equivalent circuit diagram
ESD	Electrostatic Sensitive Devices	Elektrostatisch gefährdete Baugruppen
ESM	Essential Service Mode	Essential service mode
ESR	Extended Stop and Retract	Extended stop and retract
F		
F…	Fault	Fault
FAQ	Frequently Asked Questions	Frequently asked questions
FBLOCKS	Free Blocks	Free function blocks
FCC	Function Control Chart	Function Control Chart
FCC	Flux Current Control	Flux current control
FD	Function Diagram	Function diagram
F-DI	Failsafe Digital Input	Fail-safe digital input
F-DO	Failsafe Digital Output	Fail-safe digital output
FEPROM	Flash-EPROM	Non-volatile write and read memory
FG	Function Generator	Function generator
FI	-	Fault current
FOC	Fiber-Optic Cable	Fiber-optic cable
FP	Funktionsplan	Function diagram
FPGA	Field Programmable Gate Array	Field Programmable Gate Array
FW	Firmware	Firmware
G		
GB	Gigabyte	Gigabyte
GC	Global Control	Global control telegram (broadcast telegram)

Abbreviation	Derivation of abbreviation	Significance
GND	Ground	Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as M)
GSD	Gerätestammdatei	Generic Station Description: Describes the features of a PROFIBUS slave
GSV	Gate Supply Voltage	Gate supply voltage
GUID	Globally Unique Identifier	Globally Unique Identifier
H		
HF	High frequency	High frequency
HFD	Hochfrequenzdrossel	Radio frequency reactor
HLA	Hydraulic Linear Actuator	Hydraulic linear actuator
HLG	Hochlaufgeber	Ramp-function generator
HM	Hydraulic Module	Hydraulic Module
HMI	Human Machine Interface	Human Machine Interface
HTL	High-Threshold Logic	Logic with high interference threshold
HW	Hardware	Hardware
I		
i. V.	In Vorbereitung	Under development: This property is currently not available
I/O	Input/Output	Input/output
I2C	Inter-Integrated Circuit	Internal serial data bus
IASC	Internal Armature Short-Circuit	Internal armature short-circuit
IBN	Inbetriebnahme	Startup
ID	Identifier	Identification
IE	Industrial Ethernet	Industrial Ethernet
IEC	International Electrotechnical Commission	International Electrotechnical Commission
IF	Interface	Interface
IGBT	Insulated Gate Bipolar Transistor	Insulated gate bipolar transistor
IGCT	Integrated Gate-Controlled Thyristor	Semiconductor power switch with integrated control electrode
IL	Impulslöschung	Pulse suppression
IP	Internet Protocol	Internet protocol
IPO	Interpolator	Interpolator
IT	Isolé Terre	Non-grounded three-phase line supply
IVP	Internal Voltage Protection	Internal voltage protection
J		
JOG	Jogging	Jogging
K		
KDV	Kreuzweiser Datenvergleich	Data cross-check
KHP	Know-how protection	Know-how protection
KIP	Kinetische Pufferung	Kinetic buffering
Kp	-	Proportional gain
KTY84	-	Temperature sensor

Abbreviation	Derivation of abbreviation	Significance
L		
L	-	Symbol for inductance
LED	Light Emitting Diode	Light emitting diode
LIN	Linearmotor	Linear motor
LR	Lageregler	Position controller
LSB	Least Significant Bit	Least significant bit
LSC	Line-Side Converter	Line-side converter
LSS	Line-Side Switch	Line-side switch
LU	Length Unit	Length unit
LWL	Lichtwellenleiter	Fiber-optic cable
M		
M	-	Symbol for torque
M	Masse	Reference potential for all signal and operating voltages, usually defined as 0 V (also referred to as GND)
MB	Megabyte	Megabyte
MCC	Motion Control Chart	Motion Control Chart
MDI	Manual Data Input	Manual data input
MDS	Motor Data Set	Motor data set
MLFB	Maschinenlesbare Fabrikatebezeichnung	Machine-readable product code
MM	Motor Module	Motor Module
MMC	Man-Machine Communication	Man-machine communication
MMC	Micro Memory Card	Micro memory card
MSB	Most Significant Bit	Most significant bit
MSC	Motor-Side Converter	Motor-side converter
MSCY_C1	Master Slave Cycle Class 1	Cyclic communication between master (class 1) and slave
MSR	Motorstromrichter	Motor-side converter
MT	Messtaster	Probe
N		
N. C.	Not Connected	Not connected
N…	No Report	No report or internal message
NAMUR	Interessengemeinschaft Automatisierungstechnik der Prozessindustrie	User Association of Automation Technology in Process Industries
NC	Normally Closed (contact)	NC contact
NC	Numerical Control	Numerical control
NEMA	National Electrical Manufacturers Association	Standardization association in USA (United States of America)
NM	Nullmarke	Zero mark
NO	Normally Open (contact)	NO contact
NSR	Netzstromrichter	Line-side converter
NTP	Network Time Protocol	Standard for synchronization of the time of day
NVRAM	Non-Volatile Random Access Memory	Non-volatile read/write memory

Abbreviation	Derivation of abbreviation	Significance
O		
OA	Open Architecture	Software component which provides additional functions for the SINAMICS drive system
OAIF	Open Architecture Interface	Version of the SINAMICS firmware as of which the OA-application can be used
OASP	Open Architecture Support Package	Extends the commissioning tool to include the corresponding OA-application
OC	Operating Condition	Operation condition
OCC	One Cable Connection	One-cable technology
OEM	Original Equipment Manufacturer	Original equipment manufacturer
OLP	Optical Link Plug	Bus connector for fiber-optic cable
OMI	Option Module Interface	Option Module Interface
P		
p…	-	Adjustable parameters
P1	Processor 1	Processor 1
P2	Processor 2	Processor 2
PB	PROFIBUS	PROFIBUS
PcCtrl	PC Control	Master control
PD	PROFIdrive	PROFIdrive
PDC	Precision Drive Control	Precision Drive Control
PDS	Power unit Data Set	Power unit data set
PDS	Power Drive System	Drive system
PE	Protective Earth	Protective ground
PELV	Protective Extra Low Voltage	Safety extra-low voltage
PFH	Probability of dangerous failure per hour	Probability of dangerous failure per hour
PG	Programmiergerät	Programming device
PI	Proportional Integral	Proportional integral
PID	Proportional Integral Differential	Proportional integral differential
PLC	Programmable Logical Controller	Programmable logic controller
PLL	Phase-Locked Loop	Phase-locked loop
PM	Power Module	Power Module
PMI	Power Module Interface	Power Module Interface
PMSM	Permanent-magnet synchronous motor	Permanent-magnet synchronous motor
PN	PROFINET	PROFINET
PNO	PROFIBUS Nutzerorganisation	PROFIBUS user organization
PPI	Point to Point Interface	Point-to-point interface
PRBS	Pseudo Random Binary Signal	White noise
PROFIBUS	Process Field Bus	Serial data bus
PS	Power Supply	Power supply
PSA	Power Stack Adapter	Power Stack Adapter
PT1000	-	Temperature sensor
PTC	Positive Temperature Coefficient	Positive temperature coefficient
PTP	Point To Point	Point-to-point

Abbreviation	Derivation of abbreviation	Significance
PWM	Pulse Width Modulation	Pulse width modulation
PZD	Prozessdaten	Process data
Q		
R		
r…	-	Display parameters (read only)
RAM	Random Access Memory	Memory for reading and writing
RCCB	Residual Current Circuit Breaker	Residual current operated circuit breaker
RCD	Residual Current Device	Residual current operated circuit breaker
RCM	Residual Current Monitor	Residual current monitor
REL	Reluctance motor textile	Reluctance motor textile
RESM	Reluctance synchronous motor	Synchronous reluctance motor
RFG	Ramp-Function Generator	Ramp-function generator
RJ45	Registered Jack 45	Term for an 8-pin socket system for data transmission with shielded or non-shielded multi-wire copper cables
RKA	Rückkühlanlage	Cooling unit
RLM	Renewable Line Module	Renewable Line Module
RO	Read Only	Read only
ROM	Read-Only Memory	Read-only memory
RPDO	Receive Process Data Object	Receive Process Data Object
RS232	Recommended Standard 232	Interface standard for a cable-connected serial data transmission between a transmitter and receiver (also known as EIA232)
RS485	Recommended Standard 485	Interface standard for a cable-connected differential, parallel, and/or serial bus system (data transmission between a number of transmitters and receivers, also known as EIA485)
RTC	Real Time Clock	Real-time clock
RZA	Raumzeigerapproximation	Space-vector approximation
S		
S1	-	Continuous duty
S3	-	Intermittent duty
SAM	Safe Acceleration Monitor	Safe acceleration monitoring
SBC	Safe Brake Control	Safe brake control
SBH	Sicherer Betriebshalt	Safe operating stop
SBR	Safe Brake Ramp	Safe brake ramp monitoring
SBT	Safe Brake Test	Safe brake test
SCA	Safe Cam	Safe cam
SCC	Safety Control Channel	Safety Control Channel
SCSE	Single Channel Safety Encoder	Single-channel safety encoder
SD Card	SecureDigital Card	Secure digital memory card
SDC	Standard Drive Control	Standard Drive Control
SDI	Safe Direction	Safe motion direction
SE	Sicherer Software-Endschalter	Safe software limit switch

Abbreviation	Derivation of abbreviation	Significance
SESM	Separately-excited synchronous motor	Separately excited synchronous motor
SG	Sicher reduzierte Geschwindigkeit	Safely-limited speed
SGA	Sicherheitsgerichteter Ausgang	Safety-related output
SGE	Sicherheitsgerichteter Eingang	Safety-related input
SH	Sicherer Halt	Safe stop
SI	Safety Integrated	Safety Integrated
SIC	Safety Info Channel	Safety Info Channel
SIL	Safety Integrity Level	Safety integrity level
SITOP	-	Siemens power supply system
SLA	Safely-Limited Acceleration	Safety limited acceleration
SLM	Smart Line Module	Smart Line Module
SLP	Safely-Limited Position	Safely-limited position
SLS	Safely-Limited Speed	Safely-limited speed
SLVC	Sensorless Vector Control	Sensorless vector control
SM	Sensor Module	Sensor Module
SMC	Sensor Module Cabinet	Sensor Module Cabinet
SME	Sensor Module External	Sensor Module External
SMI	SINAMICS Sensor Module Integrated	SINAMICS Sensor Module Integrated
SMM	Single Motor Module	Single Motor Module
SN	Sicherer Software-Nocken	Safe software cam
SOS	Safe Operating Stop	Safe operating stop
SP	Service Pack	Service pack
SP	Safe Position	Safe position
SPC	Setpoint Channel	Setpoint channel
SPI	Serial Peripheral Interface	Serial peripheral interface
SPS	Speicherprogrammierbare Steuerung	Programmable logic controller
SS1	Safe Stop 1	Safe Stop 1 (time-monitored, ramp-monitored)
SS1E	Safe Stop 1 External	Safe Stop 1 with external stop
SS2	Safe Stop 2	Safe Stop 2
SS2E	Safe Stop 2 External	Safe Stop 2 with external stop
SSI	Synchronous Serial Interface	Synchronous serial interface
SSL	Secure Sockets Layer	Encryption protocol for secure data transfer (new TLS)
SSM	Safe Speed Monitor	Safe feedback from speed monitor
SSP	SINAMICS Support Package	SINAMICS support package
STO	Safe Torque Off	Safe torque off
STW	Steuerwort	Control word
T		
TB	Terminal Board	Terminal Board
TEC	Technology Extension	Software component which is installed as an additional technology package and which expands the functionality of SINAMICS (previously OA-application)

Abbreviation	Derivation of abbreviation	Significance
TIA	Totally Integrated Automation	Totally Integrated Automation
TLS	Transport Layer Security	Encryption protocol for secure data transfer (previously SSL)
TM	Terminal Module	Terminal Module
TN	Terre Neutre	Grounded three-phase line supply
Tn	-	Integral time
TPDO	Transmit Process Data Object	Transmit Process Data Object
TSN	Time-Sensitive Networking	Time-Sensitive Networking
TT	Terre Terre	Grounded three-phase line supply
TTL	Transistor-Transistor-Logic	Transistor-transistor logic
Tv	-	Rate time
U		
UL	Underwriters Laboratories Inc.	Underwriters Laboratories Inc.
UPS	Uninterruptible Power Supply	Uninterruptible power supply
USV	Unterbrechungsfreie Stromversorgung	Uninterruptible power supply
UTC	Universal Time Coordinated	Universal time coordinated
V		
VC	Vector Control	Vector control
Vdc	-	DC-link voltage
VdcN	-	Partial DC-link voltage negative
VdcP	-	Partial DC-link voltage positive
VDE	Verband Deutscher Elektrotechniker	Association of German Electrical Engineers
VDI	Verein Deutscher Ingenieure	Association of German Engineers
VPM	Voltage Protection Module	Voltage Protection Module
Vpp	Volt peak to peak	Volt peak to peak
VSM	Voltage Sensing Module	Voltage Sensing Module
W		
WEA	Wiedereinschaltautomatik	Automatic restart
WZM	Werkzeugmaschine	Machine tool
X		
XML	Extensible Markup Language	Extensible markup language (standard language for Web publishing and document management)
Y		
Z		
ZK	Zwischenkreis	DC link
ZM	Zero Mark	Zero mark
ZSW	Zustandswort	Status word

Siemens AG
Process Industries and Drives
Large Drives
Postbox 4743
90025 NUREMBERG
GERMANY

Please scan the QR code for more information on SINAMICS DCM.