Section 9 ACS 450 PC Tool

Introduction 9-1

The LMV5 system can be completely set-up (parameters adjusted and combustion / O2 trim curves set) buy using the AZL5 or by using a PC with ACS450 software. Most people find that using the AZL5 is more convenient than the ACS450 for a “manual” set-up of the LMV5 parameters. However, the ACS450 has additional capabilities that are not available with the AZL5 / LMV5 alone. These additional, valuable capabilities are:

1) Saving and / or printing out all LMV5 settings, combustion curves, and information in a report format. This provides a convenient, comprehensive start-up report.
2) Saving and / or uploading entire LMV5 parameter sets to or from a PC.
3) Updating AZL5 software.
4) The ability to view and save trends (particularly useful for tuning PID loops)
5) A “dashboard” to view all of the LMV5 inputs and outputs as well as the operating state.

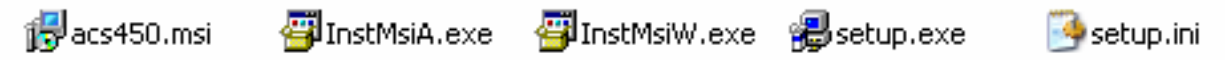
The pages following the installation and set-up procedure will explain how to execute these additional functions that the ACS450 offers. Since most people prefer to use the AZL5 to set parameters and combustions curves, the procedure to do this with ACS450 will not be covered in detail. Document number CC1J7550en covers setting parameters and combustion curves with the ACS450 in greater detail.

Before the ACS450 can be used, it must be installed on the PC and the correct cords obtained. The next few pages will describe the installation and set-up in detail.

Installation and Set-up Procedure 9-2

The following steps outline the procedure for installing the ACS450 software on a PC.
This procedure is valid for AZL5 software up to, and including version 4.20.

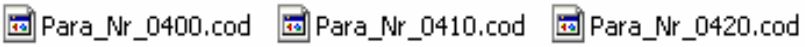
1) If installing from an email attachment, or a series of email attachments, ensure that the following files are in the same folder on your computer: (If using the CD, skip to step 2.)



2) Click on the setup.exe file. This should start the installation. Pick the desired options as the installation prompts.

3) After the installation is complete, most of the files necessary for the ACS450 should be on the computer under C:\Program Files\ACS450. Notice that there are files such as **para_nr_0170.cod** in this directory. On some software installs (older versions), these .cod files only go up to **para_nr_0390.cod**. If the latest version of software is installed, the .cod files will go up to **para_nr_0420.cod.**

4) If the files only go up to 0390.cod some additional .cod files are necessary so that the ACS450 is compatible with the latest AZL5 software. Copy and paste the additional, necessary .cod flies under C:\Program Files\ACS450.



5) At this point, the ACS450 is ready to run. The first time ACS450 is started it will prompt for a license code. When prompted, type the following license code: **041028000703GH.**

6) Next, the PC can be connected to the AZL5 through the RS232 (9 pin) port on the front of the AZL5 (under the small plastic door). If the computer has a serial port a male to female 9 pin (commonly referred to as RS232) null modem cable is needed to connect the computer to the AZL5. A plain male / female cable could also be used with a null modem adapter. If the computer only has USB ports available, a USB to serial adapter will be necessary with a null modem adapter on the 9 pin end of the USB to serial adapter.

7) In order to connect, the AZL5 must be put into InterfacePC mode. This selection is found under the AZL5 menu: *Operation* > *Optgmodeselect* > *InterfacePC*.

8) Once the AZL5 is in interface mode, attempt to connect with the ACS450 on the user level. If the connection is successful, then this means that the cord connections are correct and the com ports are assigned correctly. If the connection is not successful on the user level, check the connection cord and / or try to use a different com port. The com port for the ACS450 can be changed under the ACS450 drop down menu, *System LMV5x* > *Options.*

9) After the connection at the user level is successful, disconnect from the AZL5 and then reconnect at the service or OEM level, if desired. Remember that a password will be necessary to access the LMV5 on a service or OEM level, and that the password is case sensitive.

Note: If a fault window appears, it is not necessary to close the fault window. It can be moved to the side and temporarily ignored. Most tasks, such as saving parameter sets, can be done with the fault window open. If the fault window is closed and the fault is not cleared, the fault window will reappear in a few seconds.

Creating a LMV5 Start-Up Report 9-3

The following steps outline the procedure for saving, viewing and printing out a start-up report (.mdb file) to a PC.

Saving the .mdb file

1) Ensure that the ACS 450 software is open, and the PC is connected to the AZL5 at the user, service, or OEM level. See installation and set-up 9-2 if necessary. A full report will be saved at any password level. The report can be filtered by password level when it is viewed.

2) Go to the ACS450 System LMV5x dropdown menu, and select *Backup for offline mode*.

3) The ACS450 will then read the parameters on the LMV5, and compose the report. The status of the backup (report) will be indicated on the backup window. The backup process may take up to 10 minutes. This report will be automatically saved in C:\Program files\ ASC450 \ daten.

4) After the backup process is complete, go to the ACS450 System LMV5x dropdown menu, and select *Disconnect*. A window will appear that asks *Do you want to store parameters for offline mode?.* Since this was just done is Step 3, it is not necessary to repeat. Click *no*.

5) The ACS450 is now disconnected from the LMV5, and the .mdb file is saved. Once disconnected, the .mdb file can be viewed or printed with the ACS450 software.

Viewing and printing the .mdb file contents

6) Ensure that the ACS 450 software is open, and **not connected** to the LMV5. Go to the *File* dropdown menu, and select *Show Parameters*. When this is selected a window will appear. Select the .mdb file to be opened. The default location for the .mdb files is C:\Program files\ ASC450 \ daten. Once the file is selected, another window will appear for the access level. Any level can be chosen to view and print the parameter list without needing a password. The level chosen will affect what parameters appear, so selecting the OEM level will show all parameters available in the .mdb file. Once the access level is selected a list of the parameters and their settings should appear.

7) Once the parameter list is visible on the screen, it can be viewed and / or printed. The fault and lockout history can also be viewed and / or printed. To access the fault and lockout history, go to the *Parameters* dropdown menu and slide the cursor to *Operating State*. The options of *Fault History* and *Lockout History* should appear. Click on either to view.

Note: Many people prefer to create the start-up report in a more universal document format, such as a .pdf file type. This can be done with various Adobe ® software that has a writer function. To create the .pdf files, simply print the desired pieces of the .mdb file to the .pdf writer instead of an actual paper and toner printer. Most people prefer to .pdf the parameter list, fault history, and lockout history. These pieces together provide a very inclusive LMV5 start-up report.

Saving and Uploading Parameter Sets 9-4

The following steps outline the procedure for saving parameter sets from a LMV5 to a PC and also uploading parameter sets from a PC to a LMV5.

Saving the .par file

1) Ensure that the ACS 450 software is open, and the PC is connected to the AZL5 at the service or at the OEM level. See installation and set-up 9-2 if necessary.

2) To save a LMV5 parameter set to a PC, go to the *ACS450 System LMV5x* dropdown menu, and select *Back-up LMV > PC*.

3) A window will appear titled *Backup Info*, and will have a message at the bottom stating the *status*. The *Status* will start as "*1*" and will proceed to saying *Input file name*. From the time the window appears to when the message states *Input file name* could take up to three minutes, but is usually less.

4) A comment can be typed in if desired. If not, click on *Save in file* and another window will come up. In this window, type the file name (a name containing the burner ID is recommended) and select an appropriate folder to save the file. Click on *Save*.

5) When being saved, the message on the backup info window should state *Reading parameters*. When saving is completed successfully, the message should say *Success,* press *Close*. The .par file is now stored on the PC in the specified location.

Note: The default location for .par file storage is C:\Program files\ ASC450 \ daten.

The .par file is stored in machine language, so it is not useful as a start-up report. The .mdb file (a window will appear to save this when *disconnect* is selected) contains text that is useful as a start-up report.
Creation of the .mdb is covered in section 9-3.

Uploading the .par file

6) Ensure that the ACS 450 software is open, and the PC is connected to the AZL5 at the service or at the OEM level. See installation and set-up 9-2 if necessary.

7) To upload a parameter set from the PC to the LMV5, go to the ACS450 *System LMV5x* dropdown menu, and select *Restore PC > LMV*.

8) A prompt will appear, asking for the desired .par file (parameter set). Select the desired .par file (parameter set) and click on *Open*. **This .par (parameter set) will overwrite the parameter set on the LMV5 and will determine the behavior of the LMV5. Be sure that the correct .par file is selected.**

9) A window will appear titled *Restore PC > LMV*. If the message on the bottom of the window states *Burner ID ok*, or *New base unit* the proceed to step 9. If the message states *Burner ID is different* proceed to the next step.

10) If the burner ID contained in the .par file (parameter set) is different than the burner ID on the LMV5, ACS450 will **not** permit the .par file to be uploaded to the LMV5. The exception to this is if the burner ID on the LMV5 is blank. If the burner ID is blank, then the upload is permitted. If the burner ID is different, two options are available. The next two steps (11 and 12) detail these options.

11) Change the burner ID on the LMV5 to match the burner ID contained in the .par file. This can be done via the ACS450 or though the AZL5 directly. The OEM password is required to do this with either method.

    a. If using the ACS450 – Once connected at the OEM level, go to the *System LMV5x* dropdown menu. The path is *Operation* > *Burner ID*. Change the Burner ID in the dropdown menu.

    b. If using the AZL5 - Disconnect the PC. Once disconnected, the path through the AZL5 is *Updating* > *Burner ID*. A prompt will appear for the password when Updating is selected on the AZL5.

12) Reset and then and then initialize the LMV5 using the ACS450.

    a. Connect to the LMV5 with the ACS450 at the Service or OEM level. After connecting successfully, go to the *System LMV5x* dropdown menu and select *Reset BU*. A reset window will appear that states the burner ID and fuel train will be deleted.

    b. Click *Reset*, and the LMV5 will be reset (burner ID and fuel train). An alarm window will immediately appear that states *No Fuel Train Defined*. This alarm window does not need to be closed. The alarm window can be moved out of the way. Click on *Close* to close the reset window.

    c. The burner ID and fuel train is now erased. Go under the *System LMV5x* dropdown menu and select *Disconnect*. A window will appear that asks *Do you want to store parameters for offline mode?.* Click *No* if a backup (.mdb file) file is not necessary. If *Yes* is clicked, the ACS450 will create an .mdb file. The .mdb file creation can take up to 10 minutes. Creating an .mdb file is discussed in section 9-3.

    d. Next, go to the *System LMV5x* dropdown menu and select *Init BU*. A window will appear and the ACS450 will begin reading the parameters. This will take a few minutes. After this is complete, a window will appear that asks for a .par file. Select the .par file that contains the parameters set to be uploaded. **This parameter set (.par) will overwrite the parameter set on the LMV5 and will determine the behavior of the LMV5. Be sure that the correct .par file is selected.**

13) A window titled *Restore PC > LMV* will appear. The message at the bottom of the window should state *New base unit* (if burner ID was previously erased by *Reset BU*) or *Burner ID ok* if the burner ID matches. Click on *Store in LMV*. This will start the upload process.

14) The messages should appear on the *Restore PC > LMV* window. These messages are (in order): *Function Succeeded*, *Transferring Parameters*, *Status =1*, *Status = 2*, *Status = 3*, *Parameter Transfer Succeeded*. The upload process my take up to five minutes to complete. Also, an alarm may occur during the upload. This alarm is normal, and is to alert the technician that the new parameter set has been uploaded to the LMV5.

15) Once the *Parameter Transfer Succeeded* message is shown on the *Restore PC > LMV* window, click on *Close*. The alarm resulting from the upload can also be reset at this time. The upload is now complete.

Updating AZL5 Software 9-5

The AZL5 contains two sectors of flash memory. One is used to store parameter sets and the other contains the AZL5's software. The software portion of the memory can be loaded with updated software if necessary. Updated AZL5 software is required if the AZL5 indicates *Version Conflict* when the AZL5 / LMV5 is connected and powered.

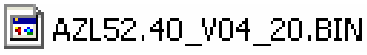
The following steps outline the procedure for checking the software version on the AZL5 and re-flashing the AZL5 with new software if needed. Obviously, if the AZL52 displays *Version Conflict* immediately, the AZL52 software will need updated, and the current software version does not need to be checked. If *Version Conflict* appears on the AZL52 screen, skip down to Step 2. At the time of publication, the latest software version for the AZL52 is 4.20.

1) Go to the topmost menu on the AZL5, and scroll down to *Parameters & Display*. The path needed to check the software ver. is: *Parameters & Display> Access w-out PW> AZL > SW Version*. Select *SW Version* and press *Enter* on the AZL52. If the software version reads *Curr : 0420* then no updating is needed. This indicates version 4.20 software. If this is not the case, proceed to Step 2.

2) Ensure that ACS450 is installed on the computer that will be used to re-flash the AZL52. If the latest version of ACS450 is not necessary to re-flash the AZL52, but is necessary for other functions, such as backing up parameters. See installation and set-up 9-2 if necessary.

Note: Prior to attempting an AZL5 software update, deactivate the Modbus port (RJ45) on the back of the AZL5 if it is being used. Also, physically unplug the Modbus cable. The port can be deactivated under: *Operation* > *OptgModeSelect* > *GatewayBASoff*.

3) Locate the correct .bin file. The ACS450 will prompt for the file later in this procedure. The .bin file that is necessary for the update is shown below. Contact Siemens to obtain the .bin file if the correct file is not available on the PC.



4) Connect the 9 pin cable or USB to serial adapter from the computer to the AZL52. The requirements of this connection are outlined in Section 9-2.

5) On the topmost menu in the AZL52, scroll down to *Updating*. When enter is pressed, a password prompt will appear. Either the service or the OEM level password will be necessary. After access is gained, scroll down to *Load_SW_from_PC* and press enter. This screen will state *Start Process with ENTER*. Press *Enter*.

Note: If the AZL52 displays *Version Conflict*, Esc can be pressed on the AZL52 in order to get to the main menu that contains the *Updating* menu. When the AZL52 is in a *Version Conflict*, **only** the service password will grant access to the *Load_SW_from_PC* option.

6) Open up the ACS450 on the computer, go to *System LMV5x*, and select *Update AZL flash*. The ACS450 will then ask for the .bin file. Locate and open the .bin file.

7) The AZL5 screen should say *SW-Update* on the top. If everything is working properly, the AZL5 should say *clearing flash* and then it should say *programming*. During the process. There should be a horizontal bar on the AZL5 screen and also on the computer screen that slowly fills in from the left to the right. The update procedure takes at least 5 minutes. When everything is finished, the ACS450 should say *Transfer finished, press cancel* and the AZL should say *SW_Update OK FLASH :V04.20 Cancel : left key* .

8) Press *Escape* on the AZL5. It will go into *System Test* and then come up normally. The AZL5 flash update is now complete.

Saving and Viewing Trends 9-6

The ACS450 can also be used to view and save trends. Trending enables the technician to easily view and quantify system behavior over time. This feature is particularly useful for setting up PID loops since “hunting” can be easily recognized on a trend. The following steps outline the procedure for viewing and saving trends with the ACS450.

1) Connect to the AZL5 at any access level. See installation and set-up 9-2 if necessary. After the connection is established, go to the *System LMV5x* dropdown menu and select *Record Trending*. A window will appear, asking where the trending flies are to be saved. Type a appropriate name in front of the .tbd extension. Thus a valid name would look like : siemens.tdb Notice that the * is no longer in the name.

2) After the name is typed in, click on *Open*. Also click on *Yes* when the window appears asking if you would like to create the file. The trending screen should now appear.

3) The trending screen will trend all the variables that are checked on the right hand side of the screen. These can be turned off and on by clicking on the check. The variables can be identified and pen colors changed by clicking in the box to the right of each variable.

4) The title and measurement interval for the trend can be changed in the measurement box. Triggers can also be set to start the trending automatically.

5) After the trending screen is set-up, trends can be recorded. To start recording a trend manually, click on *Start*. The state window should indicate that the measurement has started.

6) Trends will be buffered until *Stop* is clicked. When *Stop* is clicked, the trends will be saved under the previously defined .tbd file.

7) Trends can be viewed when the ACS450 is disconnected from the AZL5. To view trends, go to the *File* dropdown menu and select *Show Trending*. A window will appear prompting for the correct .tbd file. Select the .tbd file that contains the trends to be viewed and / or exported.

8) Select the trend to be viewed or exported. If *Ok* is clicked then the trend can be seen in ACS450. If *Export* is clicked, a .csv file can be created that can be opened with MS Excel.

Viewing the LMV5x “Dashboard” 9-7

When connected to the AZL5, the ACS450 can provide an overview screen or “Dashboard”. This provides an useful summary of the LMV5 inputs and outputs, as well as the operating state of the LMV5. The following steps outline the procedure for viewing the ACS450 “Dashboard”.

1) Connect to the AZL5 at any password level. This is covered in the installation and set-up section 9-2.

2) Once connected, go to the *Parameters* drop down menu, followed by the *Operating State* menu . Click on *Normal Operation*, and the “Dashboard” should appear detailing the operating state of the LMV5.