

# SIEMENS



## ACS410

### PC software for microprocessor-based burner controls

### Installation and Operating Instructions

For use with software version 4.0 release 3 or higher

Date of issue: July 22, 2024

Software version 4.0 release 3 or higher

Smart Infrastructure

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# Contents

1	Typographical conventions .....	5
2	Introduction .....	6
3	System requirements .....	7
3.1	Prerequisites for using ACS410 .....	8
4	Safety notes .....	8
4.1	Setting the correct system parameters .....	8
4.2	Setting the electronic fuel-air ratio control system (only with LMV2/LMV3) .....	8
4.3	Changing the parameters or the plant's configuration .....	9
4.4	Shutdown function of LME / LMV2/LMV3 burner controls via ACS410 .....	9
4.5	Place of installation .....	9
4.6	ACS410 with Modbus (LMV2/LMV3 only) .....	9
5	END USER LICENSE AGREEMENT .....	10
6	Procurement of ACS410 .....	13
7	Languages .....	13
8	General note! .....	14
9	Installing/deinstalling the ACS410 .....	15
9.1	Installing the ACS410 .....	15
9.2	Deinstalling the ACS410 .....	23
9.3	Files included in the scope of delivery .....	25
10	Connecting to the plant .....	26
10.1	Data exchange via the OCI410 .....	27
10.2	Data exchange via the OCI400 (only with LME / LMO) .....	28
11	Starting the program .....	29
11.1	Logging on to the burner control – online operation .....	29
11.2	Offline operation without burner control .....	33
11.2.1	Offline backup files .....	34
11.2.2	Offline trending and report function .....	36
11.2.3	Report function/printout (offline) .....	38
12	Program window .....	39
12.1	Menu bar .....	39


12.1.1	File.....	39
12.1.2	Logging on.....	41
12.1.3	Settings.....	42
12.1.4	Extras .....	48
12.1.5	Help .....	49
12.1.6	Locking the ACS410.....	49
12.2	Toolbar .....	50
12.2.1	Resetting via the PC tool.....	51
12.2.2	Burner controls that cannot be reset .....	52
12.2.3	Locking via the PC tool.....	53
12.3	Status bar .....	54
13	Working with the ACS410.....	55
13.1	Info / Service window.....	55
13.2	Parameters window .....	56
13.2.1	Parameter changes (general).....	57
13.2.2	Resetting parameters .....	59
13.3	Ratio control settings (only with LMV2/LMV3).....	61
13.3.1	Modulating operation .....	62
13.3.2	Multistage operation .....	75
13.4	Status window of burner control .....	84
13.5	Data recording (trending).....	85
13.5.2	Selecting the parameters (general) .....	88
13.5.3	Recording data .....	90
13.5.4	Creating a trigger event .....	93
13.5.5	Triggering .....	102
13.6	Backup/restore .....	103
13.6.1	Backup.....	103
13.6.2	Restore .....	107
13.6.3	Copying a parameter set .....	109
14	PME backup/restore.....	110
14.1	PME program module restore process.....	114
14.2	PME program module backup process .....	116
14.3	PME program module OEM backup.....	117
15	UDS operation.....	119
16	List of the most important error messages .....	120
16.1	Error messages <i>Error</i> .....	120
16.2	Error messages in alphabetical order.....	124
17	Legend of symbols .....	129

18	Glossary.....	130
19	Index.....	131

# 1 Typographical conventions



## 1.1 Safety guidelines

These Installation and Operating Instructions contain notes which must be observed to ensure your personal safety and to protect the product and the connected equipment. Such notes are highlighted by a warning triangle:

	<b>Warning</b>	Indicates that death, personal injury or substantial property damage <b>can</b> result if adequate precautions are not taken.
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## 1.2 Additional notes

The following symbols are used for notes and references:

	<b>Note</b>	Draws your attention to particularly <b>important information</b> on the product, product handling, or to a special part of the documentation.
	<b>Reference</b>	Makes reference to <b>additional information</b> given in other pieces of technical documentation or chapters.

## 1.3 Qualified personnel

ACS410 is protected by access levels. These access levels define the scope of functions for the respective user group. Naturally, special qualifications are required for the different user groups. For example, it is the OEM's or the heating engineer's responsibility to ensure that the settings made on the burner control are in compliance with the standards applying to the relevant plant.

## 1.4 Correct usage

This software may only be used on the applications described in the technical documentation, and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens.

## 2 Introduction



### Note

When using the ACS410, compliance with the technical documentation on the respective type of burner control (LMV2/LMV3 / LME1/LME2/LME4-standard / LME39 / LME6 / LME7/LME8 / LMO standard) is mandatory!

Suitable types of burner controls and relevant pieces of documentation:

Burner control	Data Sheet no.	Basic Documentation no.
LME1/LME2/LME4-standard	N7101	---
LME39	N7106	P7106
LME6	N7104	---
LME7	N7105	P7105
LME81	---	P7109
LMO-standard	N7130	---
LMO39	N7154	P7154
LMV2	---	P7541
LMV3	---	P7546

Interface module	Data Sheet no.	Basic Documentation no.
OCI410	N7616	---
OCI400	N7614	---

### General

The ACS410 is a convenient tool designed to visualize, save and transmit all data delivered by advanced microprocessor-based burner controls made by Siemens.

The ACS410 provides the following functions for burner controls with BCI interface (LMV2/LMV3 / LME39 / LME7/LME8) via OCI410, or for burner controls with UDS interface (LME39 / LMO-standard / LME-standard) via OCI400):

- Reading the settings and parameters, operating states and types of errors of burner controls
- Data logger (recording, triggering and presenting the data delivered by the burner controls)
- *Reporting* functions for printing the burner control settings for documentation purposes

Extra functions available when using burner controls with BC interface (LMV2/LMV3 / LME39 / LME7/LME8) via OCI410:

- Parameter settings
- Backup/restore

All key data can be saved in files and retrieved later, even without having the burner control connected.

Operation of the program is primarily based on Windows standards and requires basic knowledge of the software used by this operating system.



### Note

This document was issued on July 22, 2024, and covers ACS410 version 4.0 release 3 or higher.

### 3 System requirements

**Operating system:**

- Windows ® Windows 10
- Windows ® Windows 11

The system requirements are determined mainly by the choice of Microsoft operating system used!

Example: Minimum hardware requirements!

System	32 bit	64 bit
Processor	1 GHz (x86) or higher	1 GHz (x64) or higher
Main memory (RAM)	1 GB	2 GB
Hard disk memory	16 GB	20 GB
Graphics card	DirectX 9 graphics card with WDDM driver	
Screen resolution	Minimum screen resolution 1024 x 786.	

Different, higher requirements may apply due to the choice of operating system or hardware used. More detailed information is available at [www.microsoft.com](http://www.microsoft.com).

## 3.1 Prerequisites for using ACS410

When using online help, you need Acrobat Reader. To make a download, go to Adobe's homepage at [www.adobe.com](http://www.adobe.com).

For connection of ACS410 with the burner control, the following additional components are required:

- In the case of communication via UDS interface (with optical data transmission): OCI400
- In the case of communication via BCI (Burner Communication Interface): OCI410
- 25 MB free hard disk memory (for the data logger function, additional memory is required for saving data files)
- Free serial RS-232-COM interface, for operation with OCI400, a USB-RS-232 adapter can be used on an existing USB-COM interface as an alternative
- Free USB 1.1 interface or higher, for operation with OCI410
- Input devices: Keyboard and mouse or touchpad
- Optional: CD-ROM drive for installing the ACS410 via CD
- Optional: Internet access, for sending e-mails from the ACS410 or downloading the ACS410 via the Siemens Extranet

## 4 Safety notes



### Warning!

The ACS410 is a convenient tool for use by qualified personnel, designed to commission and optimize combustion plant. Since the required actions and settings are safety-related, the user has a special obligation to exercise due care. Although specific technical measures have been taken to prevent incorrect entry of data and wrong parameter values, the user must check the correct function of the plant in a conventional way both during and after commissioning and – if required – ensure manual shutdown.

### 4.1 Setting the correct system parameters



### Warning!

It should be noted that the characteristics of the burner control are determined primarily by the parameter settings to be made, rather than by the type of unit. It is especially the OEM which is responsible for making certain that the basic unit's parameter settings are in compliance with the standards covering the respective application or type of plant. Responsibility for the parameter settings is assumed by the person who, in accordance with the access rights, makes or has made changes on the respective setting level. The detailed descriptions and safety notes given in the Basic Documentation on the system components must also be observed.

### 4.2 Setting the electronic fuel-air ratio control system (only with LMV2/LMV3)



### Warning!

When setting the electronic fuel-air ratio control system, the user is required to make checks with the help of a flue gas analysis system. If necessary, the plant must be shut down manually. This applies to both modulating and multistage operation. In addition, the user must fully operate the parameterized plant without the ACS410, but using the AZL2, and to verify the correct settings.



## 4.3 Changing the parameters or the plant's configuration



### Warning!

The procedure (checking the savings) described in chapter *Parameters window* including checking of *Required* und *Actual* must be strictly observed. For that, the program offers special support. If there are deviations, the relevant notes must be observed. In addition, the user must verify the correct setting of all parameters with the help of the AZL2, without using the ACS410.

## 4.4 Shutdown function of LME / LMV2/LMV3 burner controls via ACS410



### Warning!

To ensure shutdown of plant in case of emergency, direct-acting means (mains isolator for opening the safety loop) should be used. Reason: Execution of shutdown via the PC could be impaired by a faulty PC, for example, or a disrupted connection.

## 4.5 Place of installation



### Warning!

The ACS410 is designed for use on site, that is, within viewing and hearing distance of the respective combustion plant. This means that remote control is not permitted.

## 4.6 ACS410 with Modbus (LMV2/LMV3 only)



### Note!

If the ACS410 is started when Modbus mode is activated on a LMV2/LMV3, it is no longer possible to write data via Modbus!  
Modbus data points can only be read in this state.

### Exception!

If data recording is activated with ACS410 (trending), individual pieces of data for the LMV2/LMV3 can be written via Modbus. If the data recording is stopped or the window is exited, the write access for Modbus to the LMV2/LMV3 is also blocked.



### Warning!

When the ACS410 is ended, the Modbus data of the overriding control system may have to be re-installed (e.g. target load).

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# 6 Procurement of ACS410

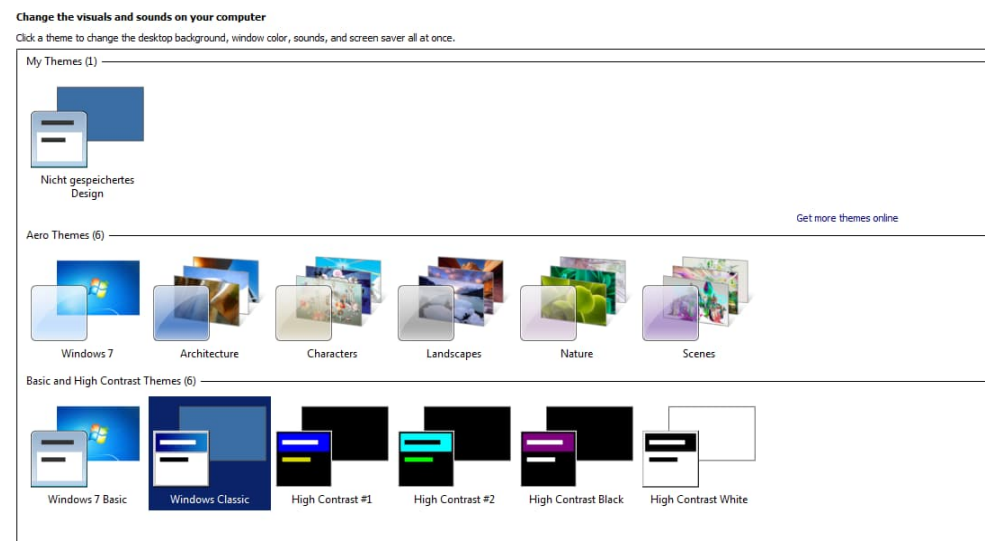
For ordering the ACS410 software and updates plus the drivers for the BC interface module OCI410 (Burner Communication Interface), please contact your distributor or heating engineer.

# 7 Languages

The ACS410 is available in English and German. To select one of them, go to program menu item **Settings** (⇒ chapter *Settings – languages*).

# 8 General note!

The visual appearance of the relevant screen content is influenced by the settings of the Windows operating system. In Windows, for example, the relevant settings can be found in **Settings** under **Personalization**.



All screenshots in this documentation have been created using the standard Windows setting.

## 9 Installing/deinstalling the ACS410



### Note

To install the software, you need to have administrator rights on your PC.

Before installing the software package, all active applications that are not really required should be closed. Also take care that your virus scanner is not activated.

Load all installation files of the ACS410 and the associated subdirectories to a directory of your choice.

### 9.1 Installing the ACS410

To start installing the ACS410, select the *setup.exe* file from the directory selected by you for installing the files of the ACS410. To start the installation, double-click the *setup.exe* file.

Name	Date modified	Type	Size
bin	7/30/2015 8:43 AM	File folder	
setup.exe	7/12/2015 2:28 PM	Application	1,412 KB
acs410_InnoSetup.iss	6/19/2015 5:34 PM	ISS File	3 KB
eula.rtf	2/4/2015 2:22 PM	Rich Text Format	59 KB
isetup-5.5.5-unicode.exe	2/4/2015 2:22 PM	Application	2,281 KB

Choose either German or English as the installation language!



## Installing the ACS410 (cont'd)

Follow the installation instructions.



Click **Next.>**

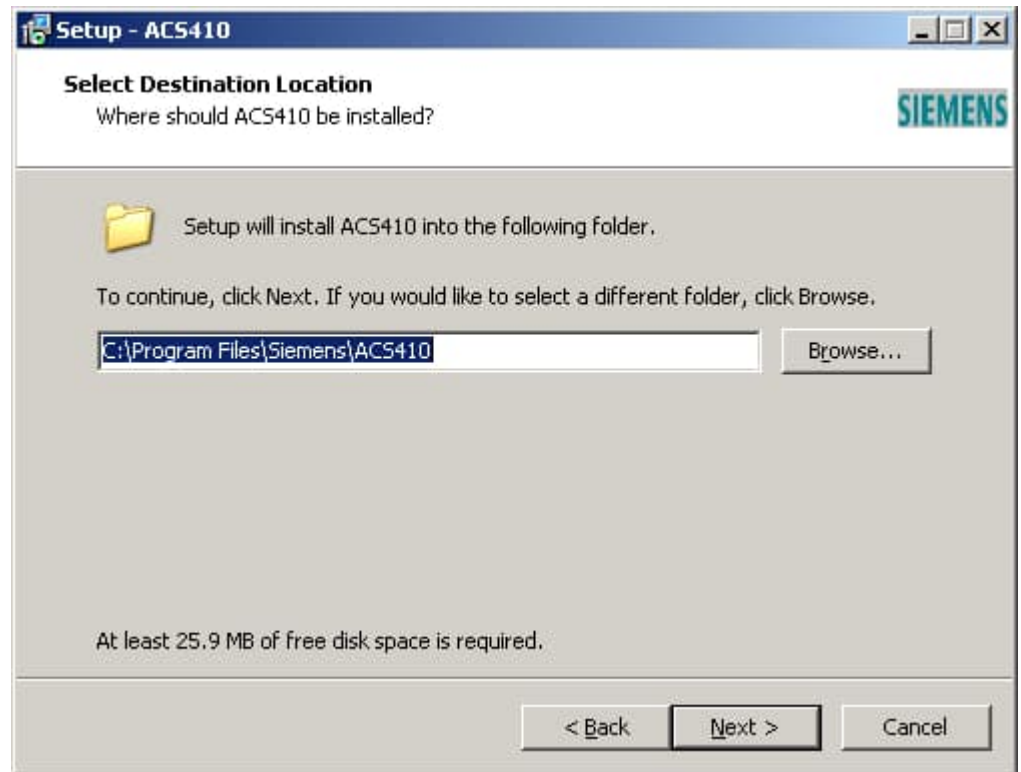


Read the EULA carefully. The agreement must be accepted before continuing with the installation. If you reject the agreement, the installation is canceled.

Click **Next.>**



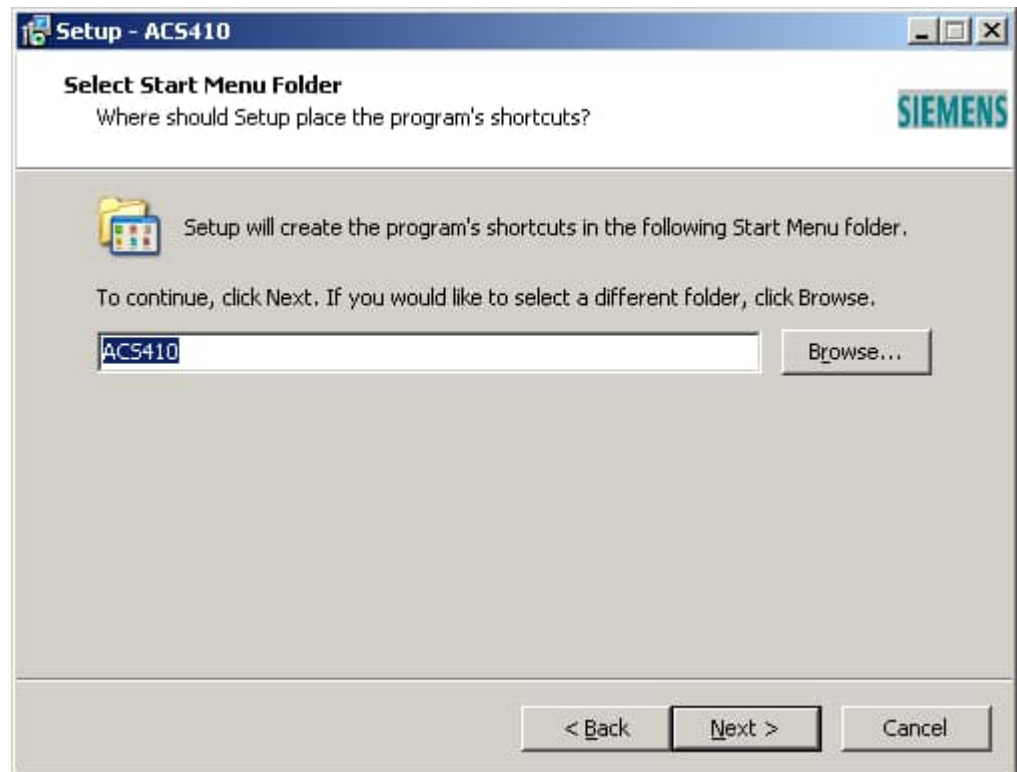
The setup will install the ACS410 in the following folder.



Click on **Browse ...** to select a different folder.

Click on **Next >** to continue.

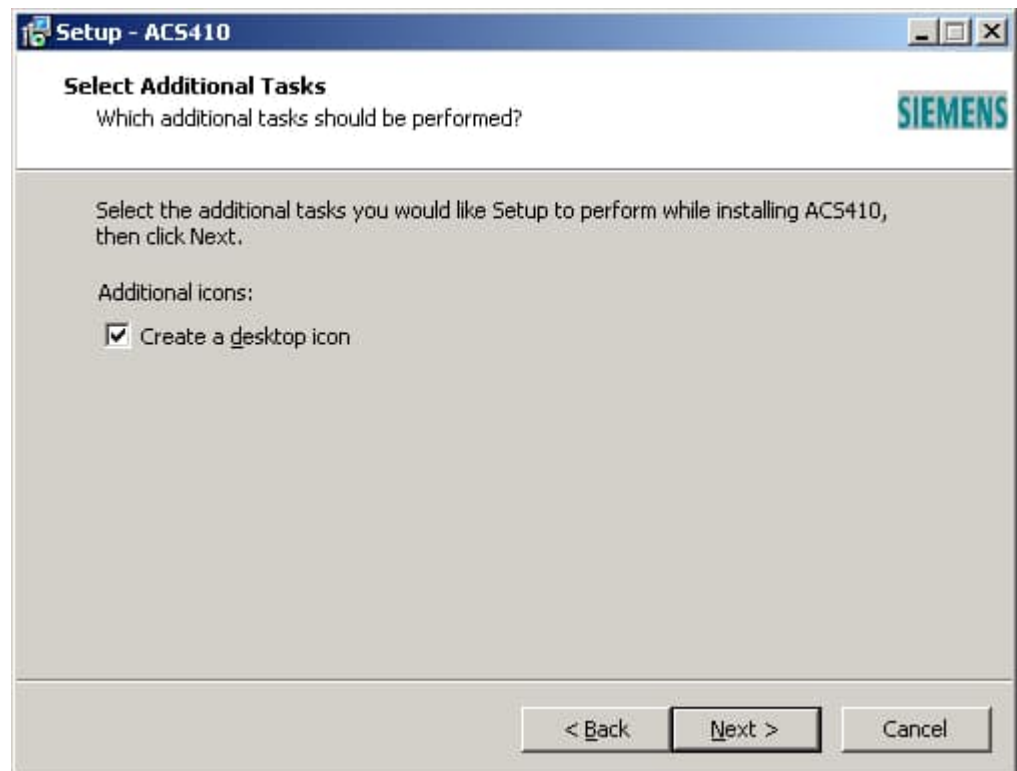
The setup will create the program links in the following start menu folder.



Click on **Browse ...** to select a different folder.

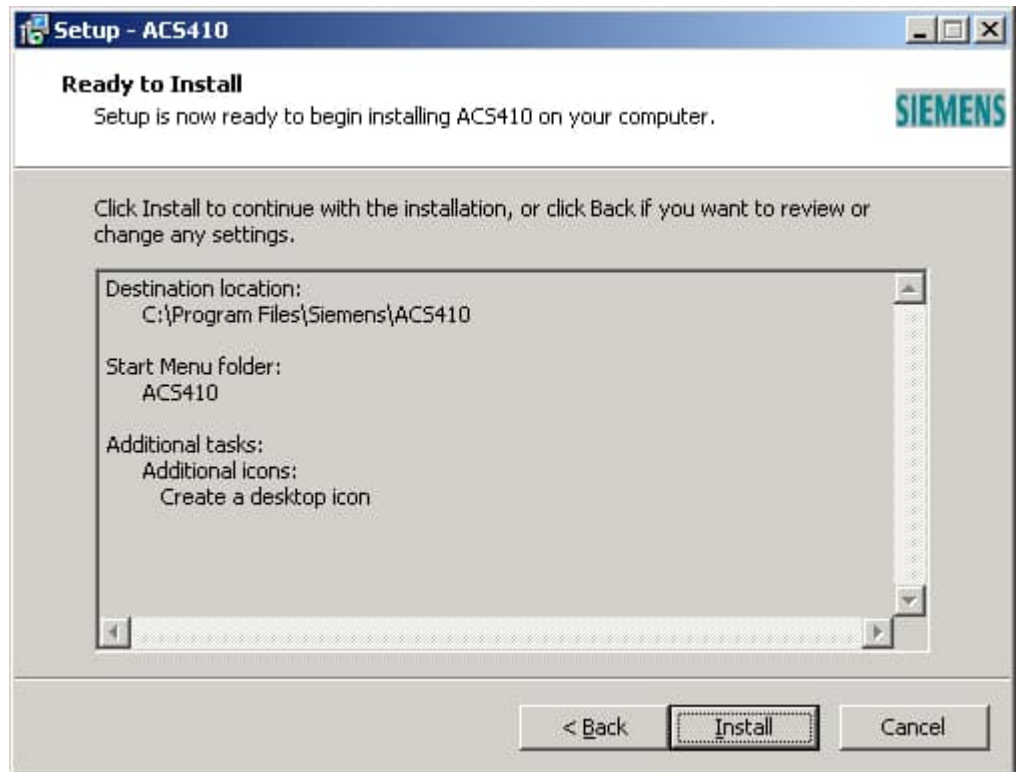
Click on **Next >** to continue.

Check the box ☒ next to **Create a desktop icon** if you would like to create a desktop icon. The setup will then create the icon during the installation of ACS410.



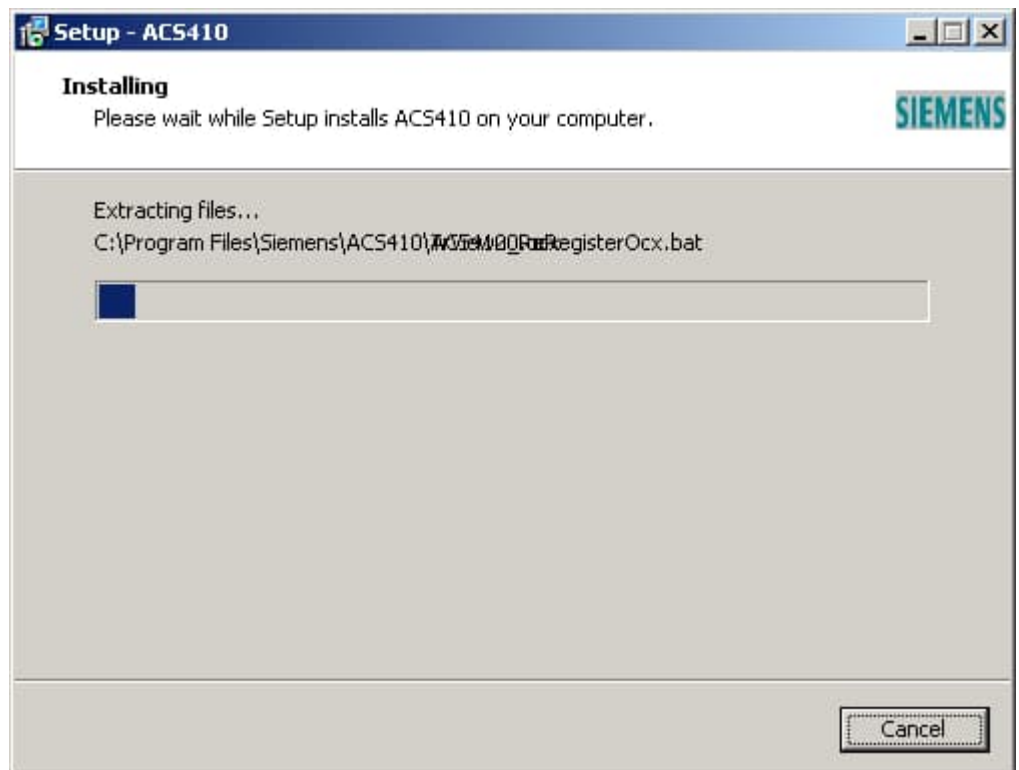
Click on **Next >** to continue.

Click on **Install** to start the installation.



The ACS410 is installed.

The device driver of OCI410 is then installed as part of the setup process.



The device driver installation assistant opens. The device drivers for the interface module OCI410 are installed with this assistant.



Click on **Next >** to continue.

The device drivers are installed.



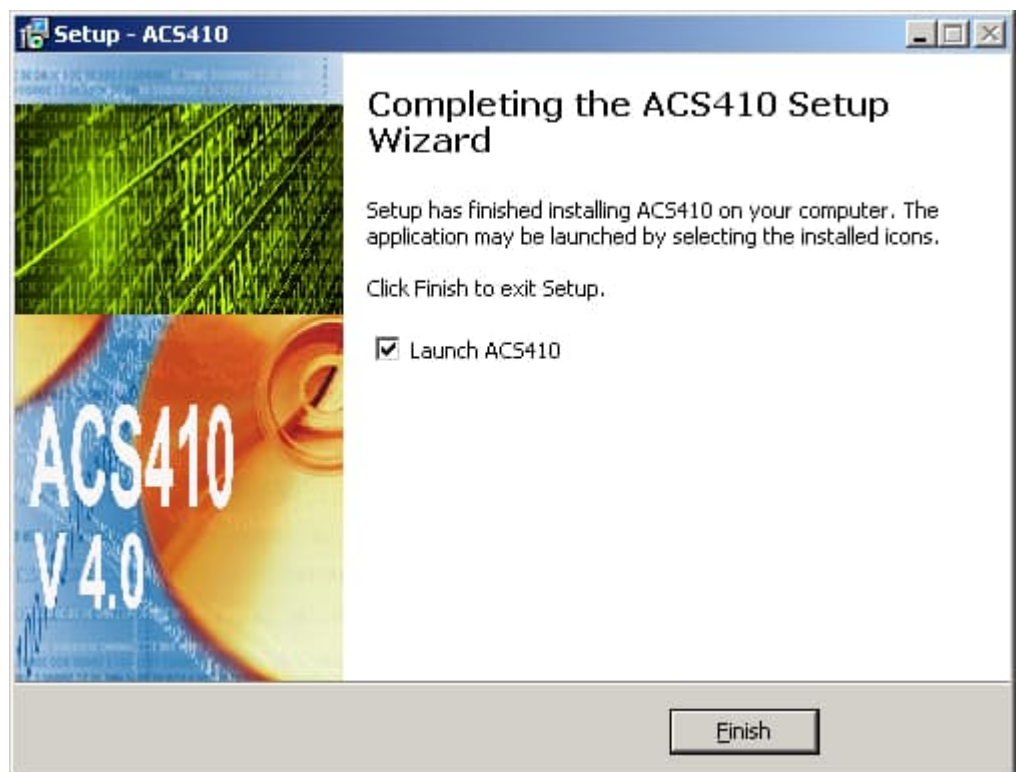
Click on **Finish** to end the installation successfully.



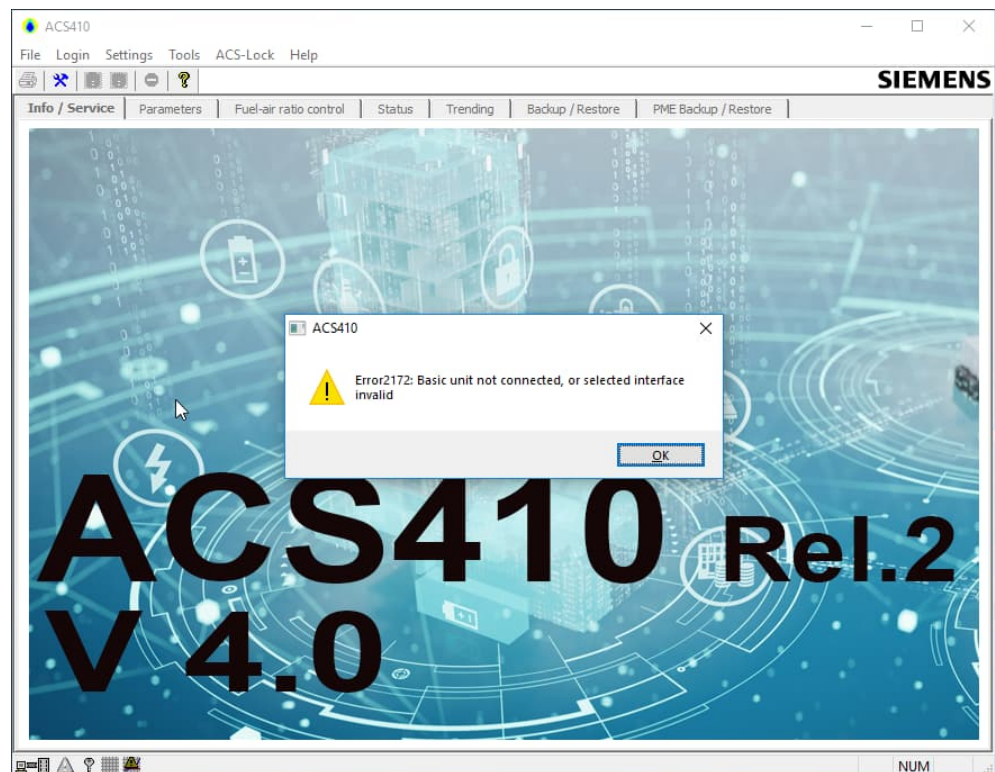
**Note!**

Connect an OCI410 to the USB port on your computer.

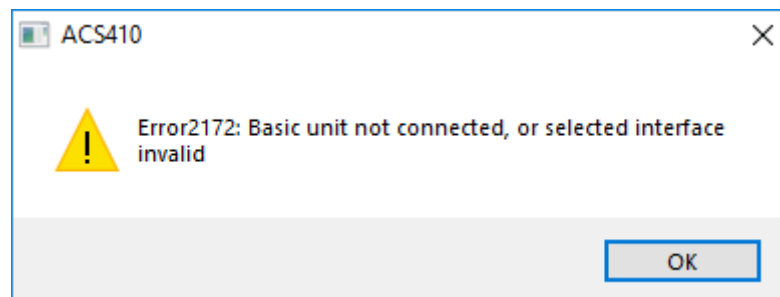
To start the ACS410, click on **Finish**.



The ACS410 has been successfully installed. First automatic program start after successful installation, without connected burner control.



If there is no burner control connected for the initial (automatic) program start, the following error message appears (in English):



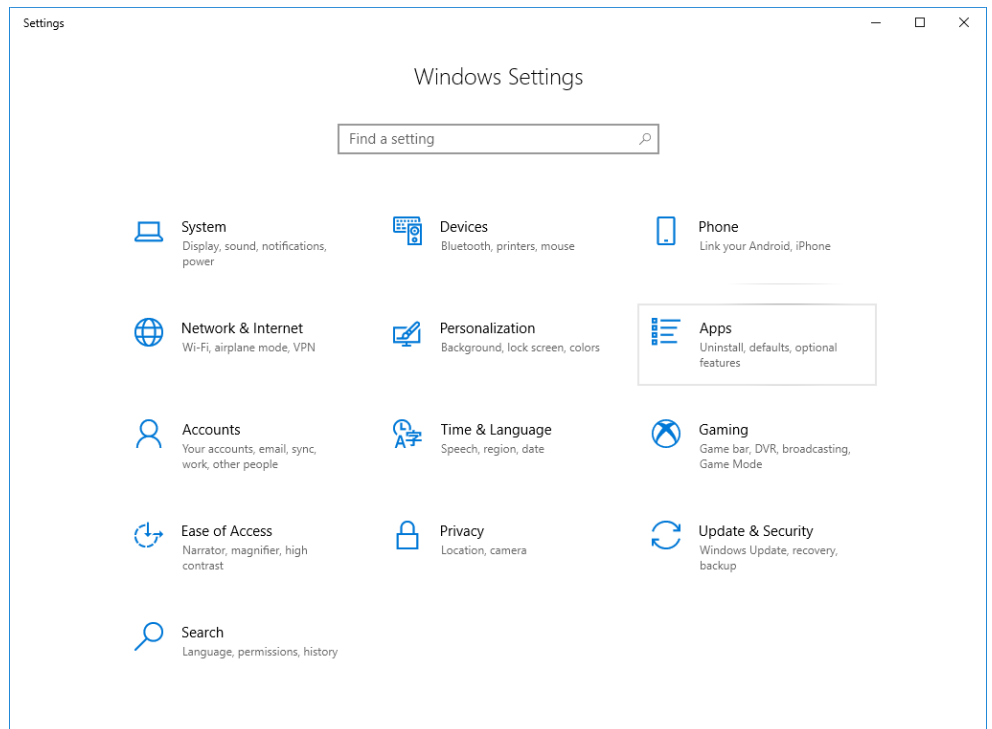
Click on **OK**.

End the ACS410 application and connect a burner control to the OCI410.

Start the ACS410 application again.

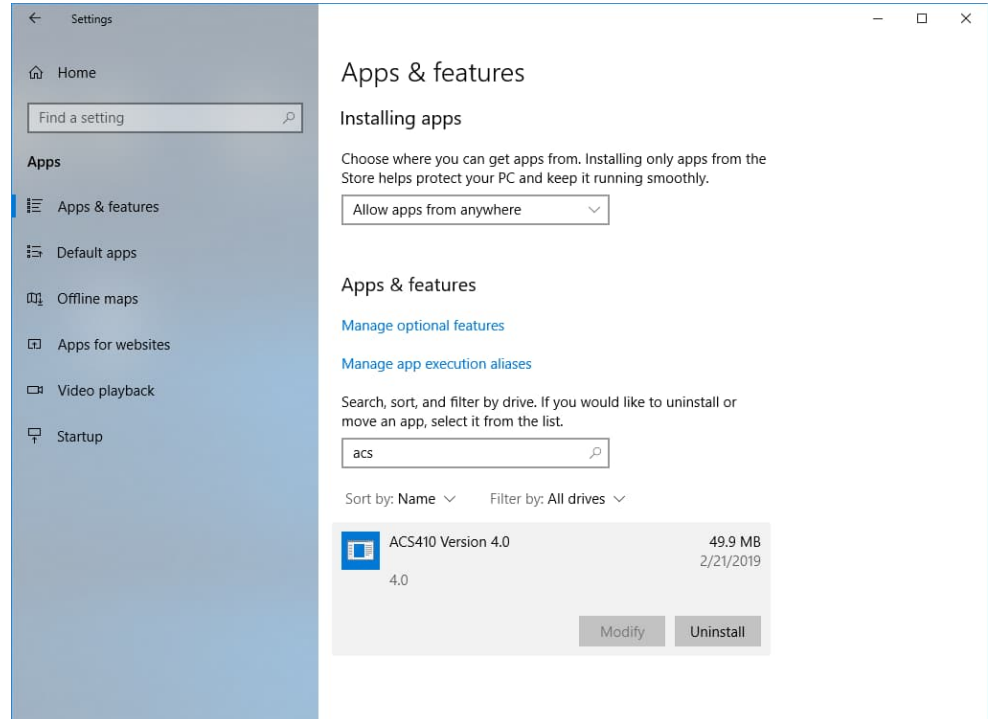
## 9.2 Deinstalling the ACS410

This function deinstalls the ACS410, installs missing files, or corrects corrupted files, connections and registration entries. From the Windows start menu, navigate to **Settings – System control** and select the **Apps** symbol.



Click to open the menu for uninstalling programs.

Highlight the entry **ACS410 version 4.0** and click **Uninstall**.



The ACS410 Version 4.0 is removed.



## 9.3 Files included in the scope of delivery

The following files are required and must be installed for running the ACS410:

Name	Date modified	Type	Size
bin	7/30/2015 8:43 AM	File folder	
setup.exe	7/12/2015 2:28 PM	Application	1,412 KB
acs410_InnoSetup.iss	6/19/2015 5:34 PM	ISS File	3 KB
eula.rtf	2/4/2015 2:22 PM	Rich Text Format	59 KB
isetup-5.5.5-unicode.exe	2/4/2015 2:22 PM	Application	2,281 KB

**Installation directory:**

Contents of the **bin** folder:

Name	Date modified	Type	Size
data	7/30/2015 8:43 AM	File folder	
doc	7/30/2015 8:43 AM	File folder	
hlp	7/30/2015 8:43 AM	File folder	
LOG	7/30/2015 8:43 AM	File folder	
oci	7/30/2015 8:43 AM	File folder	
oem	7/30/2015 8:43 AM	File folder	
res	7/30/2015 8:43 AM	File folder	
acs.exe	7/17/2015 10:00 PM	Application	4,036 KB
Tvl20ENG.dll	2/4/2015 2:22 PM	Application extension	40 KB
Tvl20GER.dll	2/4/2015 2:22 PM	Application extension	40 KB
TrView20.ocx	2/4/2015 2:22 PM	ActiveX control	868 KB
ACS410_ReRegisterOcx.bat	2/4/2015 2:22 PM	Windows Batch File	1 KB
msxml6.dll	2/4/2015 2:22 PM	Application extension	2,443 KB
msxml6r.dll	2/4/2015 2:22 PM	Application extension	2 KB

# 10 Connecting to the plant

Ensure compliance with the relevant national safety regulations!



## Warning!

- Before making any wiring changes in the connection area of a burner control completely isolate the burner control from mains supply (all-polar disconnection)
- Ensure protection against electric shock hazard by providing adequate protection for the burner control's connection terminals

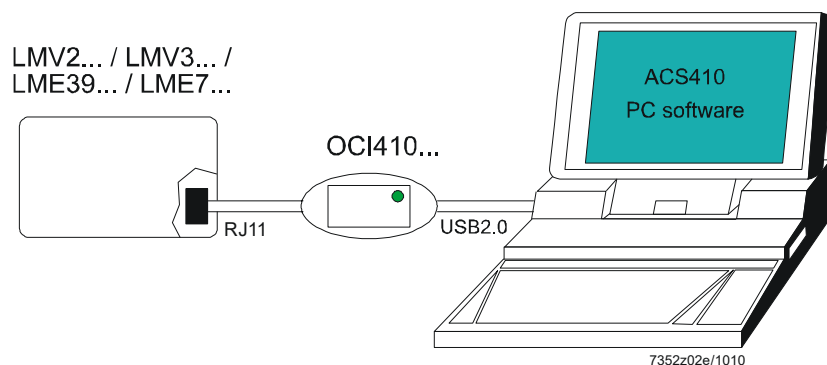
## 10.1 Data exchange via the OCI410

Connect the OCI410 interface for BCI communication with LMV2/LMV3 or LME burner controls to the USB port of your PC (without any further extensions) as shown in the example below.

Authorization for making use of the respective functionality of the ACS410 is enabled by the different types of OCI410. The table below shows the different types of OCI410 with the relevant authorizations and the resulting functions in connection with the ACS410.

Type of OCI410	Authorization
OCI410.20	IS (installer) Functionality is dependent on the type of device: <ul style="list-style-type: none"> <li>• Reading info/service data</li> <li>• Reading parameters</li> <li>• Reading and printing status data</li> <li>• Recording and saving trending data</li> <li>• Resetting the startup counter and the hours run and fuel meter</li> <li>• Changing the preselected manual output</li> </ul>
OCI410.30	SO (heating engineer) Functionality is dependent on the type of device (see IS): <ul style="list-style-type: none"> <li>• Changing parameters (SO level)</li> </ul> In addition: <ul style="list-style-type: none"> <li>• Setting the ratio control curves of the LMV2/LMV3</li> <li>• Changing burner ID on the burner control</li> <li>• Executing backup and restoring data in the burner control</li> </ul>
OCI410.31	OEM (burner or boiler manufacturer) Only with LME39! Functionality is dependent on the type of device (see IS): In addition: <ul style="list-style-type: none"> <li>• Changing burner ID in the burner control</li> <li>• Changing parameters (OEM level)</li> <li>• Changing passwords on the burner control</li> <li>• Executing backup and restoring data in the burner control</li> </ul>
OCI410.40	OEM (burner or boiler manufacturer) Functionality is dependent on the type of device (see IS or SO): In addition: <ul style="list-style-type: none"> <li>• Changing parameters (OEM level)</li> <li>• Changing passwords on the burner control</li> </ul>

### OCI410

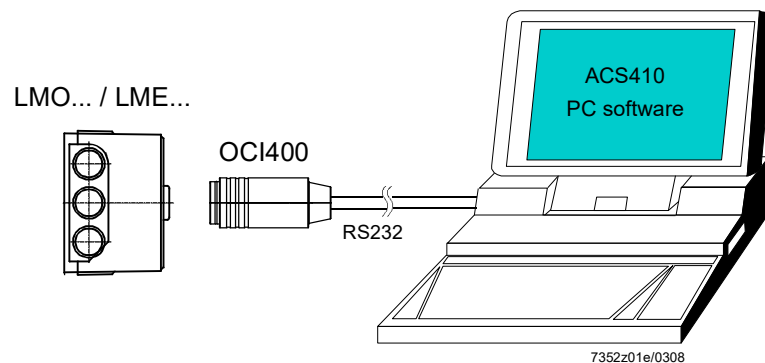


## 10.2 Data exchange via the OCI400 (only with LME / LMO)

Connect the OCI400 interface for diagnostics via optical communication (UDS) with LMO or LME burner controls to the respective port of your PC (without any further extensions) as shown in the example below.

Type of OCI4x	Authorization
OCI400	<p>IS (installer)</p> <p>Handling data from UDS-compatible devices (LMO1 / LMO2 / LMO4 / LME1 / LME2 / LME3 / LME4 / LME6), such as:</p> <ul style="list-style-type: none"><li>• Reading and printing info/service data, parameters, status data (see SO)</li><li>• Accepting and saving trending data</li></ul>

### OCI400



# 11 Starting the program

Connect the burner control to your PC via the OCI400 or OCI410 interface. To start the ACS410, click the ACS410 icon on the Desktop or select ACS410 from the Windows start menu under **Programs**.

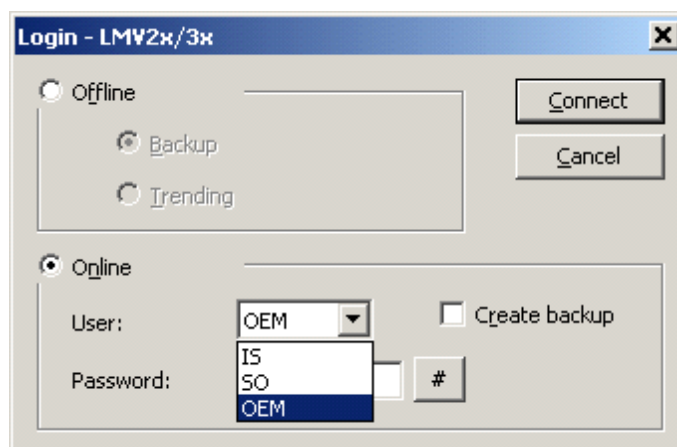
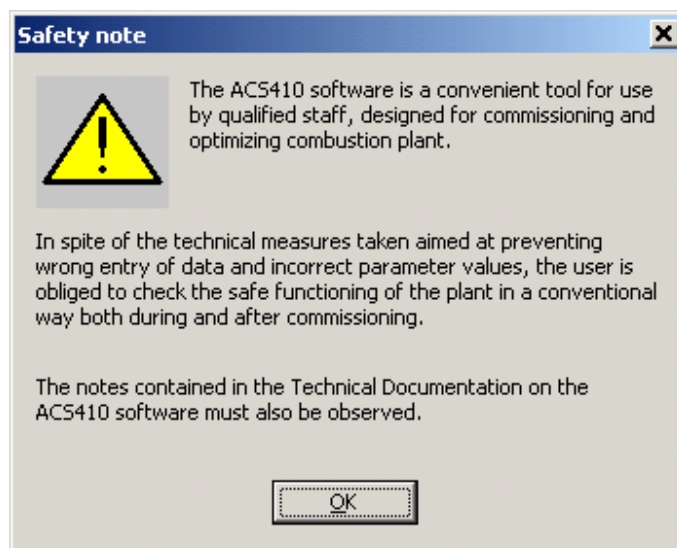


## Note

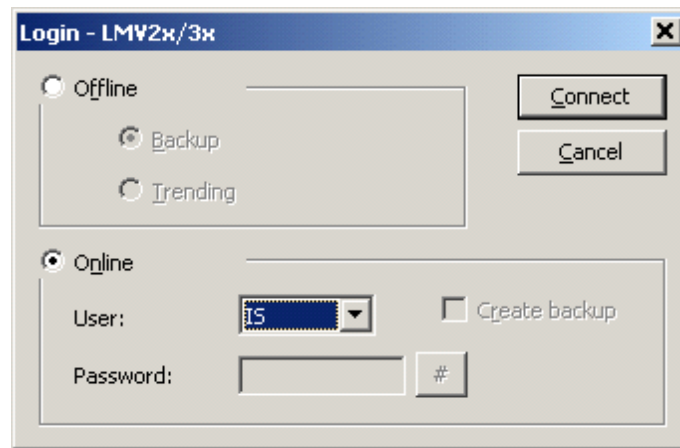
ACS410 automatically identifies the COM port used. Selection of the COM port to which the OCI4xx interface is connected is required in rare cases only (⇒ chapter *Settings – General*). If the burner control is exchanged, the ACS410 must be closed and restarted.

## 11.1 Logging on to the burner control – online operation

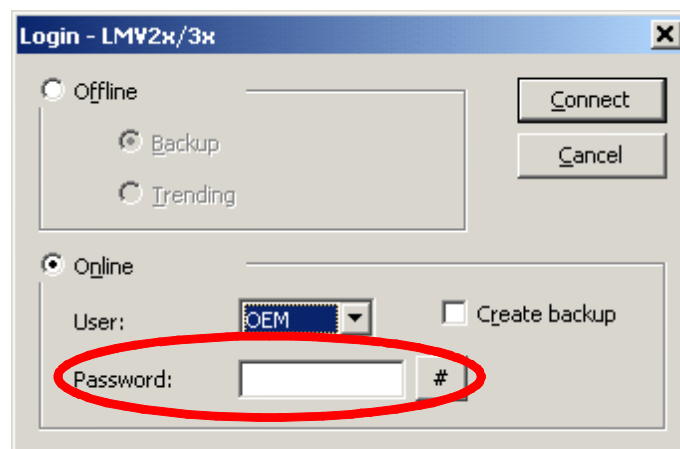
First, the following message appears. Please read it carefully and confirm by clicking **OK**.



Depending on the user level in accordance with the type of OCI410, select IS (installer), SO (heating engineer), or OEM (burner or boiler manufacturer).



User IS (installer) requires no password. The available operations are limited (⇒ chapter *Connecting to the plant*).



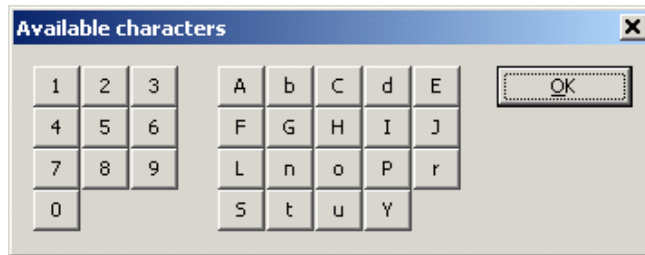
Users SO and OEM require specific passwords.



**Note!**

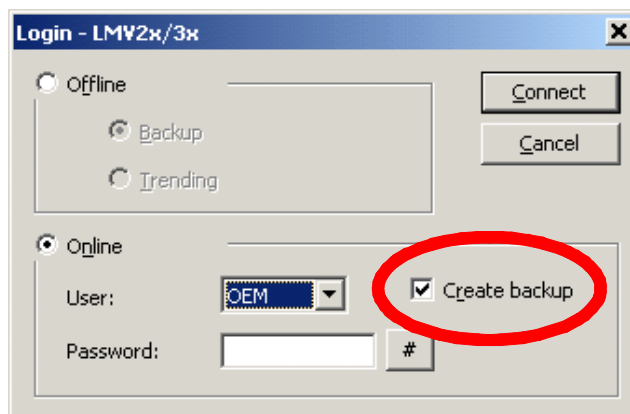
If you don't have the required password, or if you forgot it, contact the boiler, burner or burner control manufacturer!

- # Click this button to access the start menu with all available letters and numbers.



Click on the required numbers and letters to copy them to the password box. After entering the password, close the display by clicking **OK**.

- ☒ Creating a backup file



When ticked, a file is created after logging on, where the parameters and the burner control's current operating state are saved. This file can be viewed in offline mode or restored as a restore file in online mode.



**Note!**

Prerequisite: Burner control must have a burner ID.

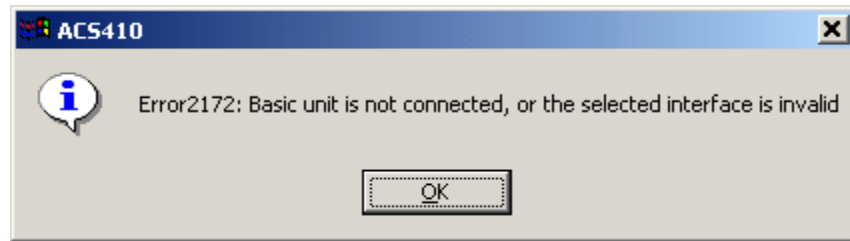
When clicking **Connect**, the ACS410 is connected to the relevant burner control.



**Note!**

If the connection attempt proves unsuccessful, the following messages may appear:

- Message box when no OCI4xx interface was found at the selected COM port



Remedy: Select the COM port where the OCI4xx interface is connected (⇒ chapter *Settings – General*).

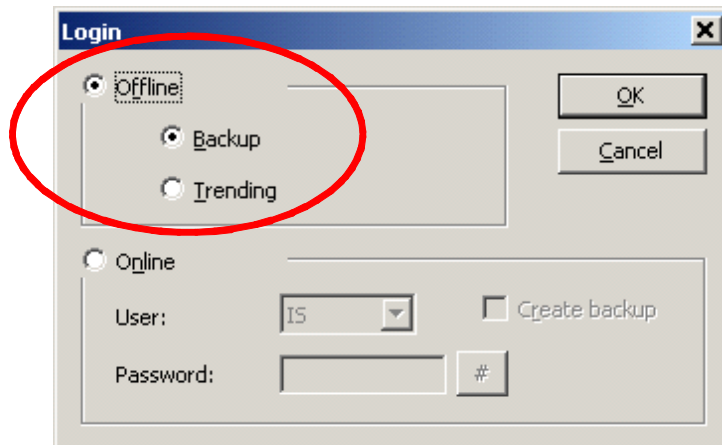
- Only customized OCI410 with customized burner controls may be used, or standard OCI410 with standard burner controls. Otherwise, the following message box appears:



Confirm by clicking **OK** and select the required combination of devices.



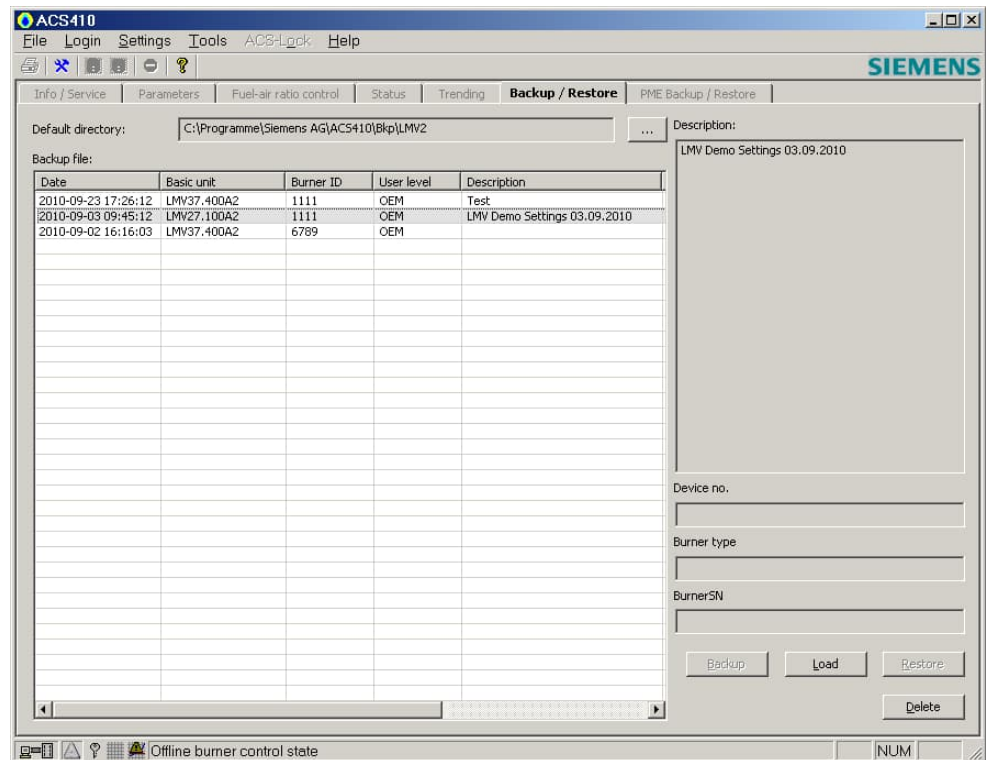
## 11.2 Offline operation without burner control



When starting the program offline, it is possible to view backup files and trending files without having a connection to the burner control. Using the trending and backup files, it is also possible to print a status report of the burner control at the time of recording.

## 11.2.1 Offline backup files

After selecting **Backup** from the log-on screen under **Offline** and confirming with **OK**, the **Backup / Restore** selection window opens (⇒ chapter *Backup/restore*).



Here, a backup file can be selected. Column **Description** on the right displays the free text that was saved together with the file.

- **Load** Copies the parameter and status data to the **Info / Service, Parameters and Ratio Control** windows of the ACS410

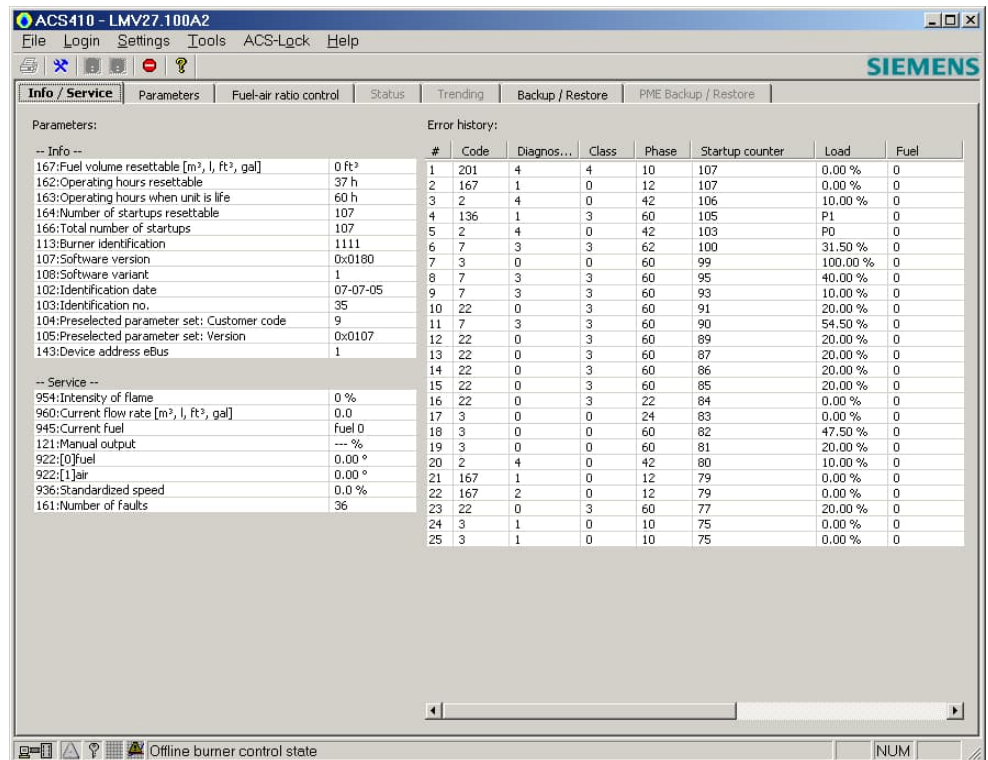
- **Delete** Removes and deletes the selected file from the list



### Note!

Restoring or backup of the saved data and settings in the burner control is only possible in online mode.

### 11.2.1.1 Info / Service window based on the backup files



The screenshot shows the 'Info / Service' window of the ACS410 - LMV27.100A2 software. The window has a menu bar (File, Login, Settings, Tools, ACS-Lock, Help) and a toolbar. The 'Info / Service' tab is active, showing two main sections: 'Parameters' and 'Error history'.

**Parameters:**

- Info --
- 167: Fuel volume resettable [m³, l, ft³, gal] 0 ft³
- 162: Operating hours resettable 37 h
- 163: Operating hours when unit is life 60 h
- 164: Number of startups resettable 107
- 166: Total number of startups 107
- 113: Burner identification 1111
- 107: Software version 0x0180
- 108: Software variant 1
- 102: Identification date 07-07-05
- 103: Identification no. 35
- 104: Preselected parameter set: Customer code 9
- 105: Preselected parameter set: Version 0x0107
- 143: Device address eBus 1
- Service --
- 954: Intensity of flame 0 %
- 960: Current flow rate [m³, l, ft³, gal] 0.0
- 945: Current fuel fuel 0
- 121: Manual output --- %
- 922: {0} fuel 0.00 °
- 922: {1} air 0.00 °
- 936: Standardized speed 0.0 %
- 161: Number of faults 36

**Error history:**

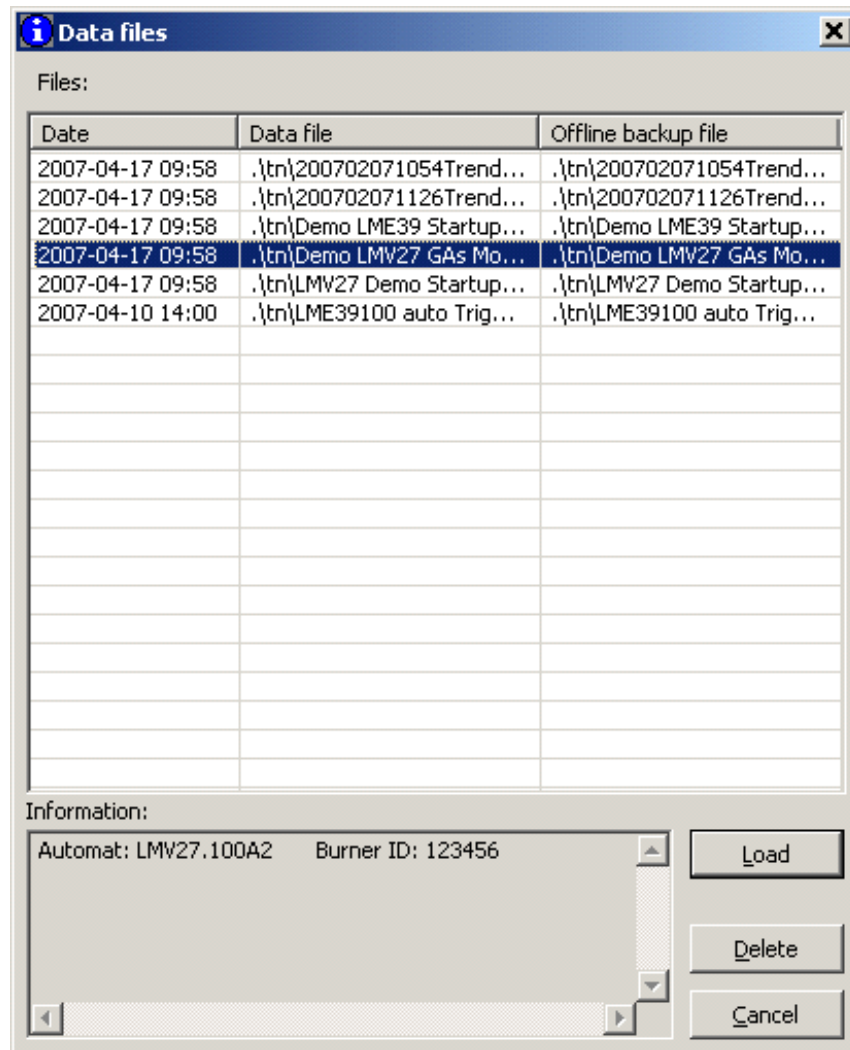
#	Code	Diagnos...	Class	Phase	Startup counter	Load	Fuel
1	201	4	4	10	107	0.00 %	0
2	167	1	0	12	107	0.00 %	0
3	2	4	0	42	106	10.00 %	0
4	136	1	3	60	105	P1	0
5	2	4	0	42	103	P0	0
6	7	3	3	62	100	31.50 %	0
7	3	0	0	60	99	100.00 %	0
8	7	3	3	60	95	40.00 %	0
9	7	3	3	60	93	10.00 %	0
10	22	0	3	60	91	20.00 %	0
11	7	3	3	60	90	54.50 %	0
12	22	0	3	60	89	20.00 %	0
13	22	0	3	60	87	20.00 %	0
14	22	0	3	60	86	20.00 %	0
15	22	0	3	60	85	20.00 %	0
16	22	0	3	22	84	0.00 %	0
17	3	0	0	24	83	0.00 %	0
18	3	0	0	60	82	47.50 %	0
19	3	0	0	60	81	20.00 %	0
20	2	4	0	42	80	10.00 %	0
21	167	1	0	12	79	0.00 %	0
22	167	2	0	12	79	0.00 %	0
23	22	0	3	60	77	20.00 %	0
24	3	1	0	10	75	0.00 %	0
25	3	1	0	10	75	0.00 %	0

The window also includes a status bar at the bottom with icons for burner control and a 'NUM' button.

Here, the info, service and parameter data from the time of recording can be viewed.

### 11.2.2 Offline trending and report function

After selecting **Trending** from the log-on screen under **Offline** and confirming with **OK**, the selection window with the archived files opens.

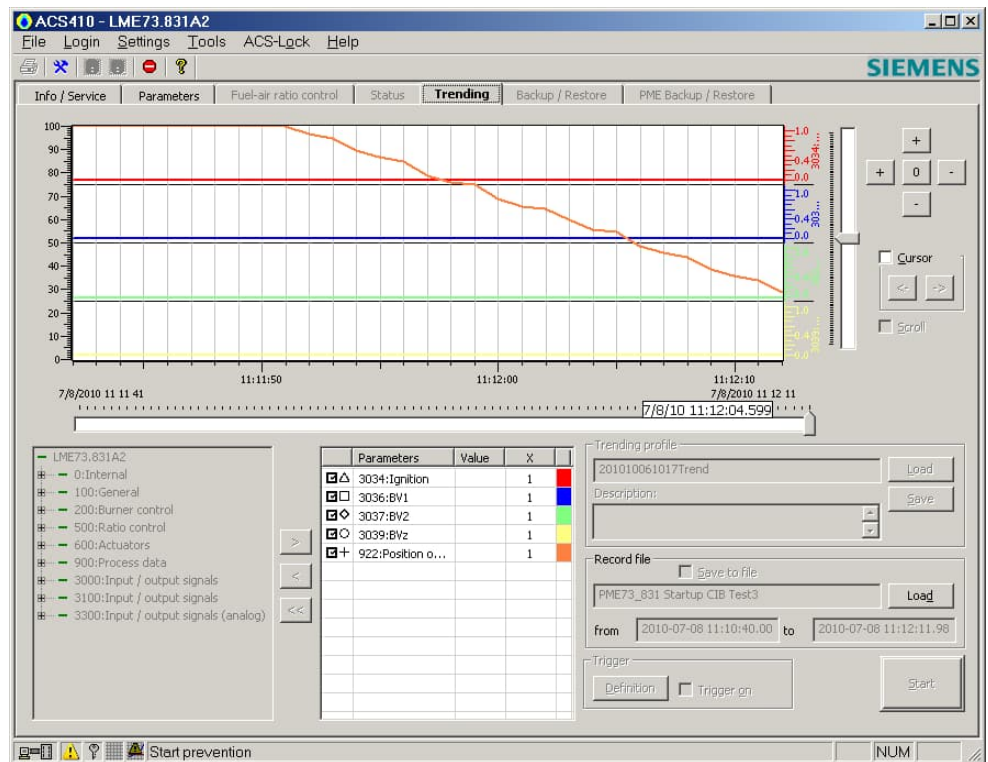


When selecting a file, the **Information** window shows the type of burner control and the relevant burner ID.

- **Load** Copies the file to the graph of the **Trending** window
- **Delete** Removes and cancels the selected file from the directory and the list
- **Cancel** Closes the display and the selection window

### 11.2.2.1 Trending window offline

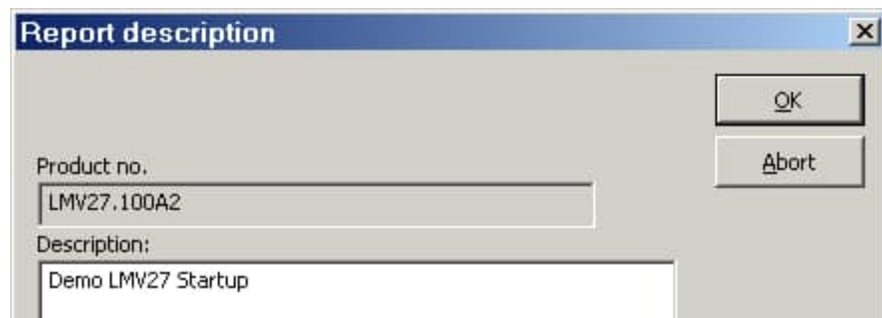
(⇒ chapter *Data recording (trending)*)



Here, the trend recording can be checked and analyzed.

### 11.2.3 Report function/printout (offline)

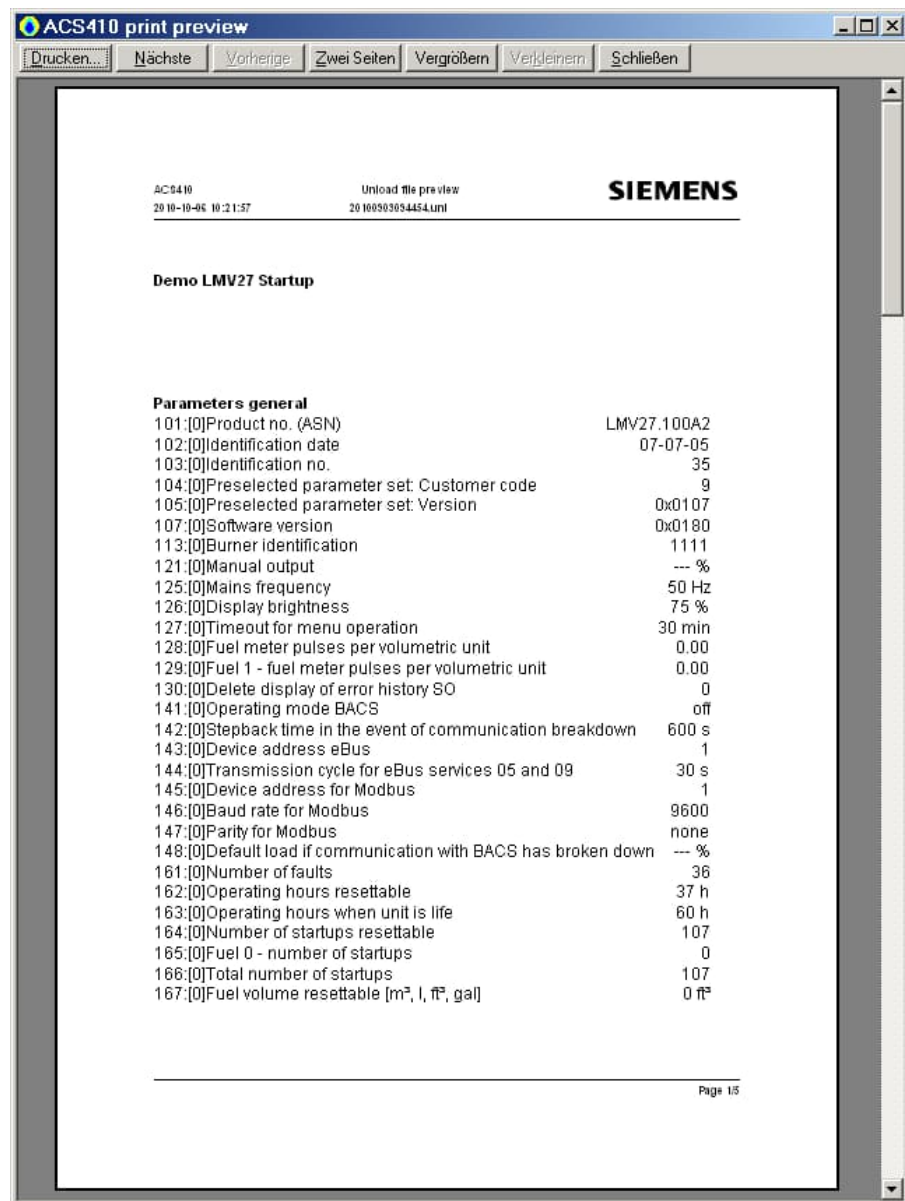
After selecting **Report** from the drop-down menu **File**, the following dialog box appears:



The dialog box titled "Report description" contains two input fields. The first field, labeled "Product no.", contains the text "LMV27.100A2". The second field, labeled "Description:", contains the text "Demo LMV27 Startup". To the right of the fields are two buttons: "OK" and "Abort".

Here, a description of the report can be entered, which will then be printed out together with the report.

When clicking **OK**, the preview window for the *Print* function opens (⇒ chapter *File*).



The preview window titled "ACS410 print preview" displays a report. At the top, it shows "ACS410" and "Unload file preview" with a timestamp "20 10-10-05 10:21:57". The Siemens logo is on the right. The report title is "Demo LMV27 Startup". Below this is a section titled "Parameters general" followed by a list of parameters and their values. The parameters are listed in two columns, with the first column containing the parameter ID and description, and the second column containing the value. The values are right-aligned. The list ends with "167:[0]Fuel volume resettable [m³, l, ft³, gal]" with a value of "0 ft³". At the bottom right, it says "Page 1/5".

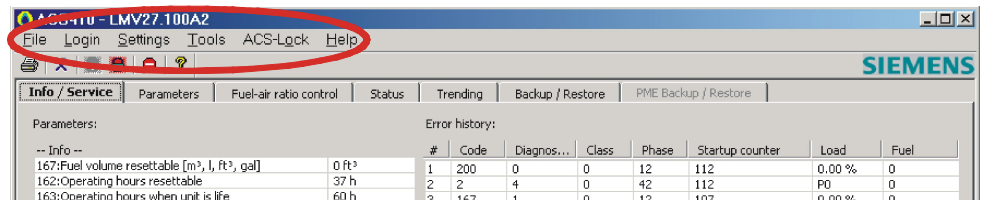
Parameter ID	Description	Value
101:[0]	Product no. (ASN)	LMV27.100A2
102:[0]	Identification date	07-07-05
103:[0]	Identification no.	35
104:[0]	Preselected parameter set: Customer code	9
105:[0]	Preselected parameter set: Version	0x0107
107:[0]	Software version	0x0180
113:[0]	Burner identification	1111
121:[0]	Manual output	--- %
125:[0]	Mains frequency	50 Hz
126:[0]	Display brightness	75 %
127:[0]	Timeout for menu operation	30 min
128:[0]	Fuel meter pulses per volumetric unit	0.00
129:[0]	Fuel 1 - fuel meter pulses per volumetric unit	0.00
130:[0]	Delete display of error history SO	0
141:[0]	Operating mode BACS	off
142:[0]	Stepback time in the event of communication breakdown	600 s
143:[0]	Device address eBus	1
144:[0]	Transmission cycle for eBus services 05 and 09	30 s
145:[0]	Device address for Modbus	1
146:[0]	Baud rate for Modbus	9600
147:[0]	Parity for Modbus	none
148:[0]	Default load if communication with BACS has broken down	--- %
161:[0]	Number of faults	36
162:[0]	Operating hours resettable	37 h
163:[0]	Operating hours when unit is life	60 h
164:[0]	Number of startups resettable	107
165:[0]	Fuel 0 - number of startups	0
166:[0]	Total number of startups	107
167:[0]	Fuel volume resettable [m³, l, ft³, gal]	0 ft³

Example of preview window for the *Print* function

## 12 Program window

After logging on to the burner control via the ACS410, the program window opens.

### 12.1 Menu bar



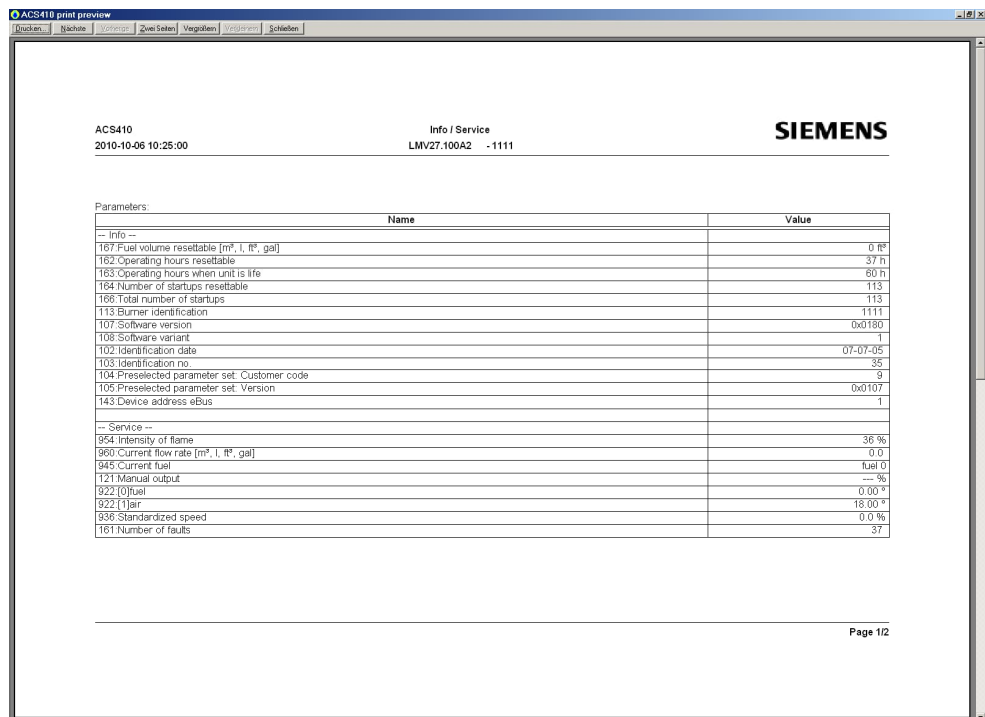
#### 12.1.1 File



**Note!**

**Print preview** and **Print...** can be selected only if you are logged on to the burner control (online operation).

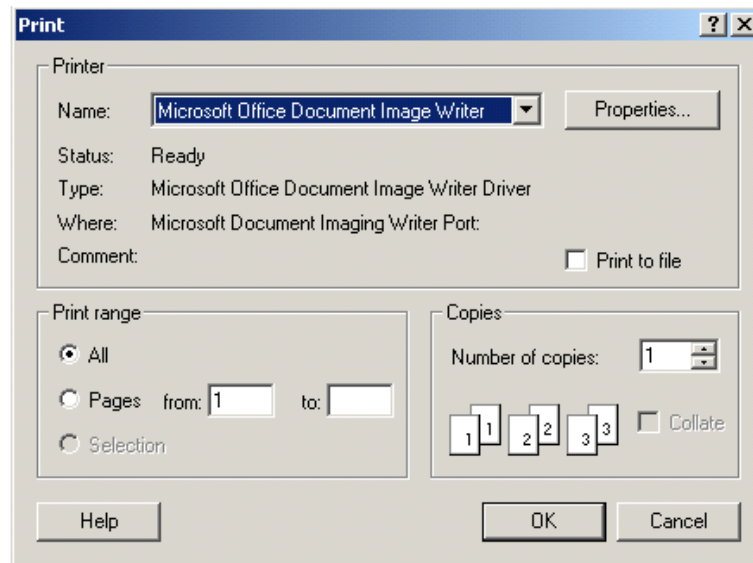
Page view: Print view of the table(s) with the current data from the selected program view (Info / Service)



Example of window showing the page view

<b>Print</b>	Prints the report on the selected printer
<b>Next Page</b>	Scrolls the display to the next page
<b>Prev Page</b>	Scrolls the display to the previous page
<b>One Page</b>	Shows one page of the report on the screen
<b>Zoom In</b>	Enlarges the current view
<b>Zoom Out</b>	Reduces the current view
<b>Close</b>	Closes the preview window

**Print:** The **Print** command opens the Windows menu for making the printer settings



Here, you can change the printer settings and output the current data from the selected program view.

**Report** Use this command to print a status report of the burner control in offline mode (overview of all relevant data)

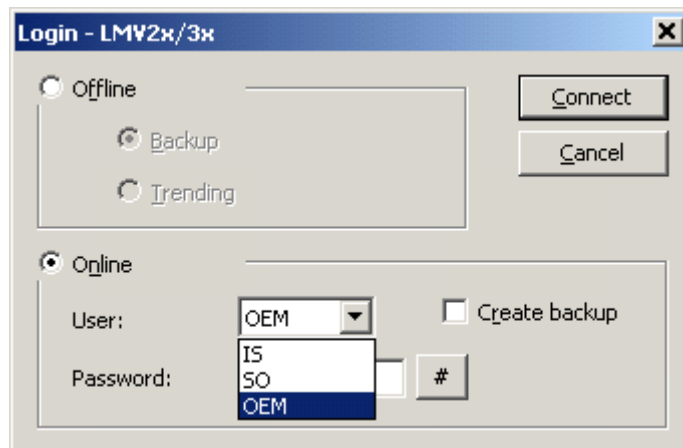
**Exit** Use this command to close the application



## 12.1.2 Logging on

Calling up the **Login** window:

Here, you can switch between program start online and offline, and between access levels, while the program is running.



### 12.1.2.1 Program start offline

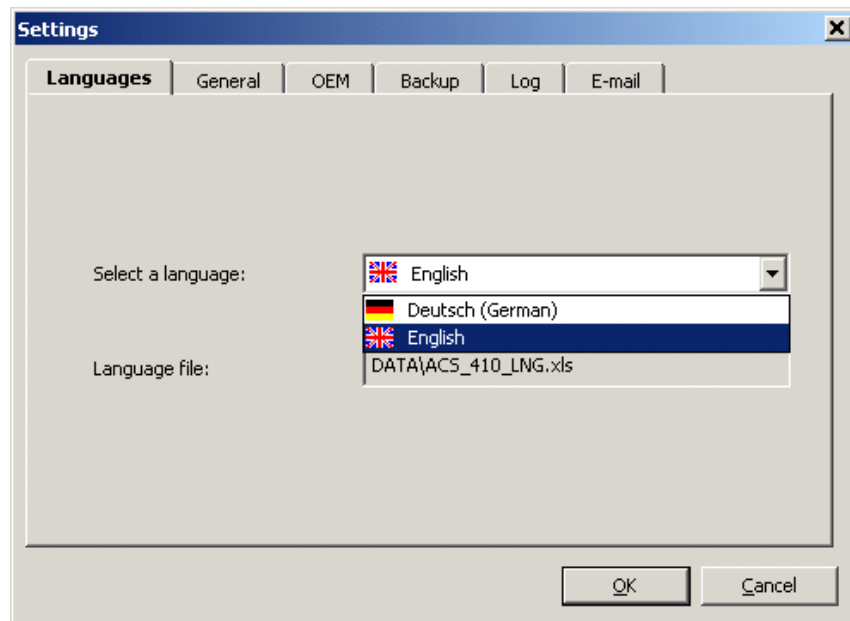
To show burner control files that have been saved (backup files) or trend files (trending) and to print status reports (⇒ chapter *Offline operation without burner control*).

### 12.1.2.2 Program start online

To log on to the burner control via the relevant online user level (requiring a password for SO or OEM), or to change to another logging on level (⇒ chapter *Logging on to the burner control*).

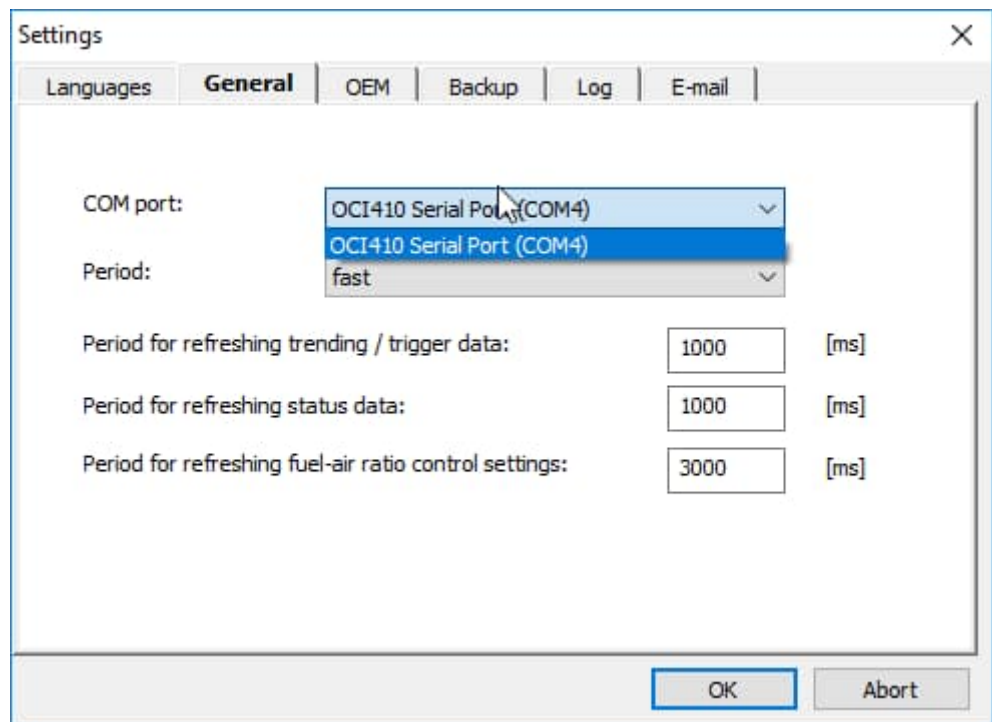
### 12.1.3 Settings

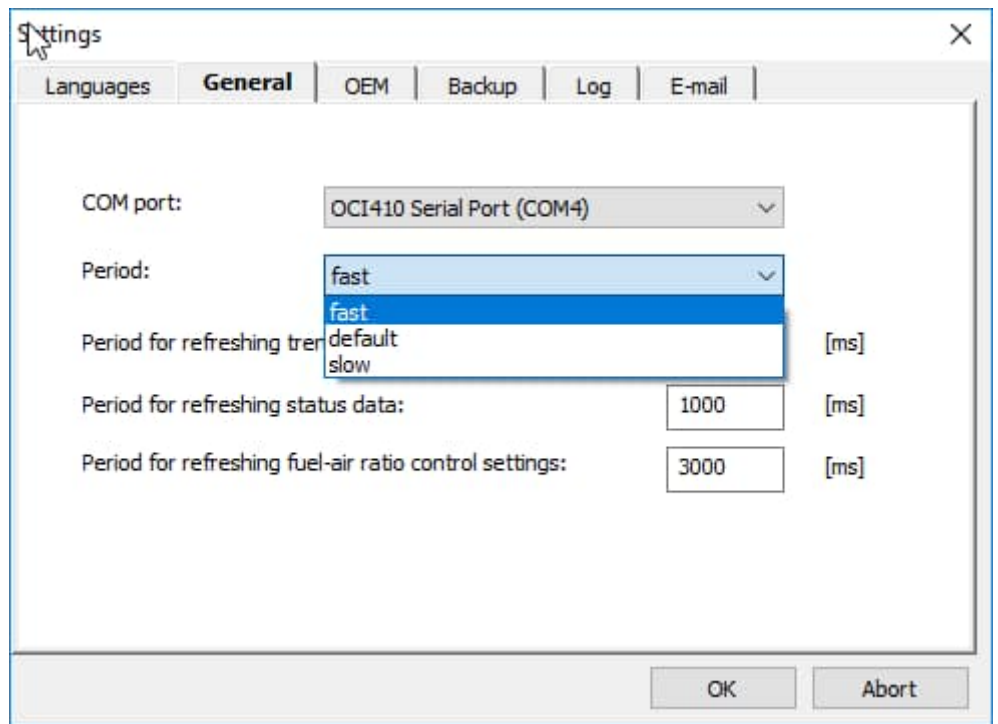
**Languages:** The available languages can be selected



**General:**

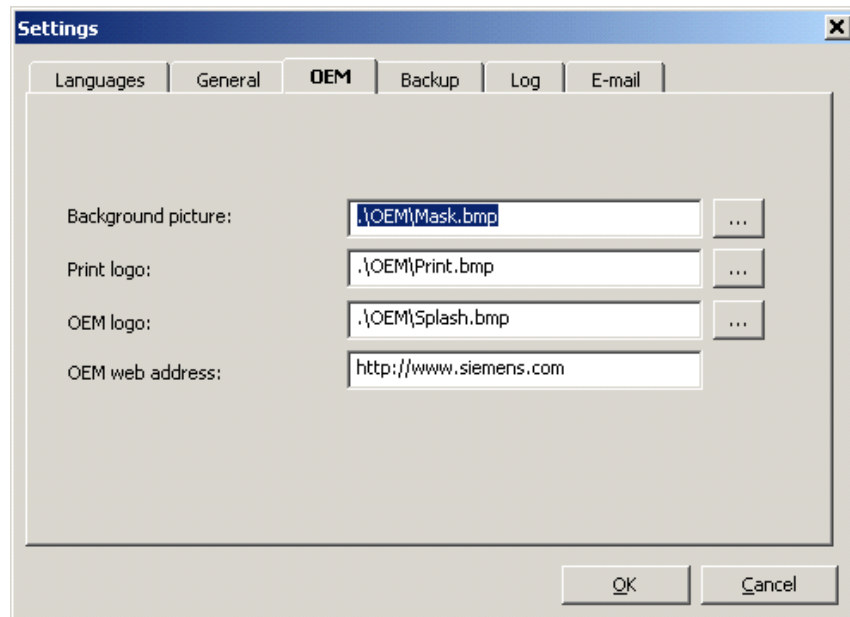
- COM ports: Available COM connections
- Period: Setting the rate of communication and the interval for refreshing data





**OEM:** Start picture and program logo in ACS410 can be changed (only by OEM). ACS410 target directory per default is the OEM subfolder. This window can also be used to enter data paths and files other than those of the standard settings.

- Background picture: Start picture used in the main window.  
Format: 944 x 629 pixels as a Bitmap (.bmp)
- Print logo: Company logo used with printouts and print views.  
Format: 104 x 19 pixels as a Bitmap (.bmp)
- OEM logo: Company logo in the program windows.  
Format: 104 x 19 pixels as a Bitmap (.bmp)
- OEM web address

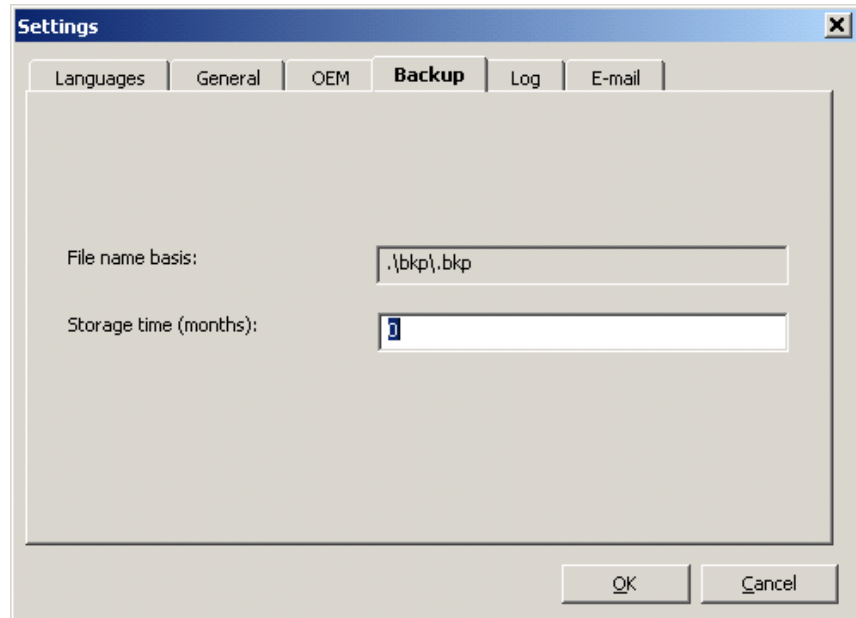


**Backup:** The storage time for the backup files (files with parameters and the current operating state of the burner control) can be entered here

0 = no limitation of storage time

≥1 = storage time in months

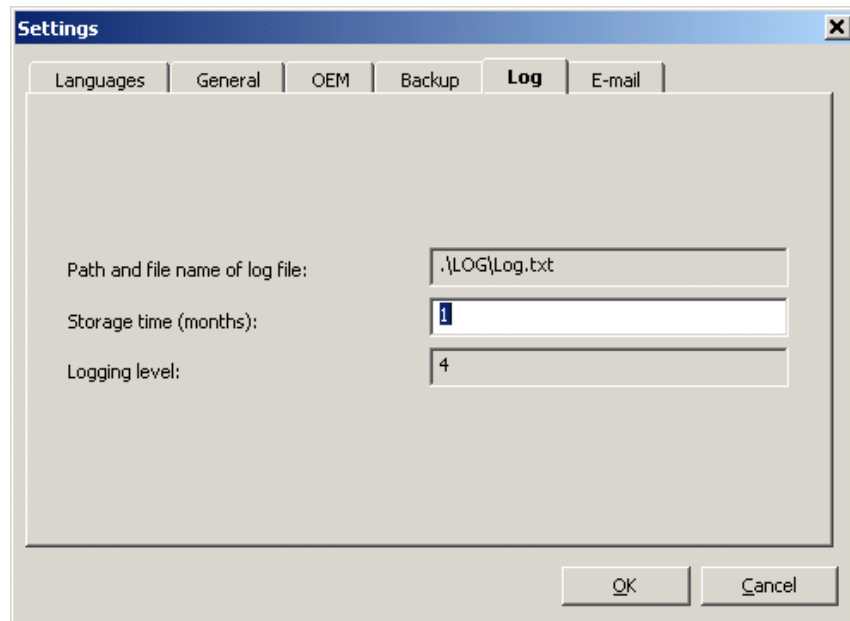
The files are saved in subfolder *bkp* of the ACS410 directory as standard (⇒ chapter *Files included in the scope of delivery*).



**Log:** The storage time for the log files can be entered here. Operations, actions and program messages exchanged between ACS410 and burner control during the time logging on took place are automatically saved in these files

0 = no limitation of storage time  
≥1 = storage time in months

The files are saved in subfolder *bkp* of the ACS410 directory (⇒ chapter *Files included in the scope of delivery*).



**E-mail:** E-mail settings for sending e-mails from the **Trigger** menu (⇒ chapter *Creating a trigger event*)

- Name: Name or IP address of a provider's mail output server and online service which offers e-mail services, such as "mailto.t-online.de" (SMTP of T-Online)
- Port: Port used to provide the service (usually port 25). If e-mail services shall be provided via some other port, contact your system administrator or your e-mail provider
- To: Recipient's e-mail address (e.g. "first name.familyname@provider.com")
- Subject: Entry on the e-mail's subject line (e.g. recording of plant)
- Text: Free text for e-mail (e.g. alarm message of plant XY including recording of trigger event)

The screenshot shows a 'Settings' window with several tabs: Languages, General, OEM, Backup, Log, and E-mail. The 'E-mail' tab is selected. Inside, there's a section titled 'E-mail server' with two input fields: 'Name' containing 'mailto.t-online.de' and 'Port' containing '25'. Below this are three more input fields: 'To:' containing 'Name @provider.com', 'Subject:' containing 'Triggering e-mail subject', and 'Text:' containing 'Triggering e-mail body text'. At the bottom right of the window are 'OK' and 'Cancel' buttons.



**Note!**

If changes were made to these text boxes (with the exception of language changes), the ACS410 must be closed and restarted, enabling the changes of the basic settings to be adopted when starting the program. The language can be changed while the program is running, without necessitating a restart of the ACS410.

## 12.1.4 Extras

**Change the password:** Here, the OEM can change its own OEM password plus the subordinate SO password saved in the connected burner control



### Note

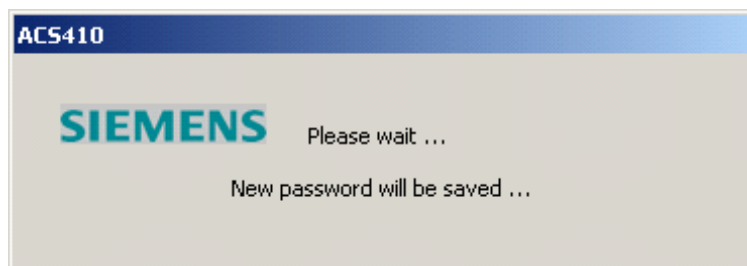
The passwords of the OEM and SO are saved in the connected burner control! ACS410 only sends the passwords! Enabling of access from the ACS410 is controlled by the connected burner control.

If you don't have the required password, or if you forgot it, contact the boiler, burner or burner control manufacturer!

- OEM password: Enter the current OEM password the burner control knows
- User: Select the user whose password you wish to change
- New password: Enter the new password you want to use
- Confirm password: Enter the new password a second time

When clicking #, you reach a start menu with all available letters and numbers. Confirm by clicking **OK**. The new password is then transmitted to the burner control.

During transmission, the following message appears:



Successful saving of the password is indicated.



Confirm by clicking **OK**.



## 12.1.5 Help

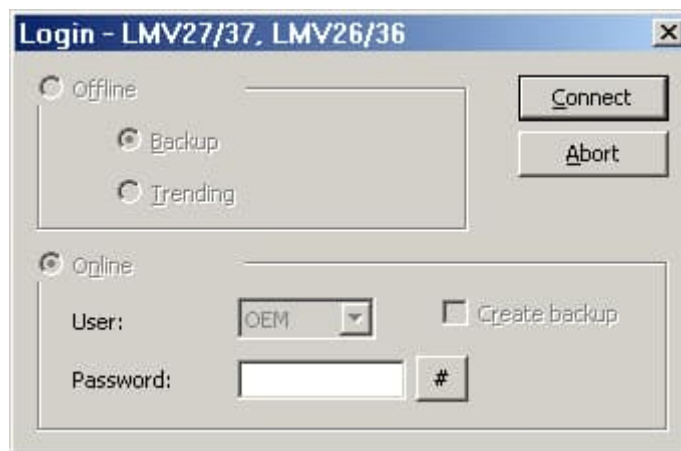
**Help topics:** Retrieval of ACS410 software documentation

**About ACS410:** Information about the software state of the ACS410



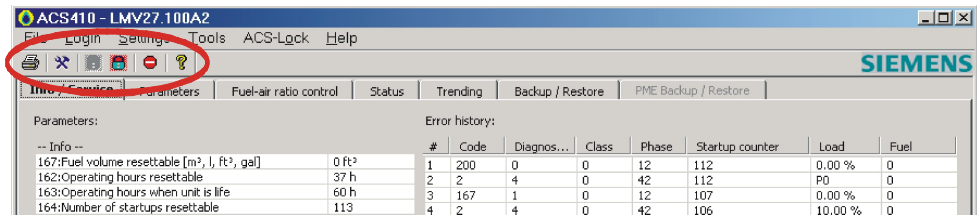
## 12.1.6 Locking the ACS410







Locking operation of the ACS410 and retrieving the **Login** window



This menu item can be used to lock operation of the ACS410. Further accesses to the *Program* functions are possible only when logging on again.

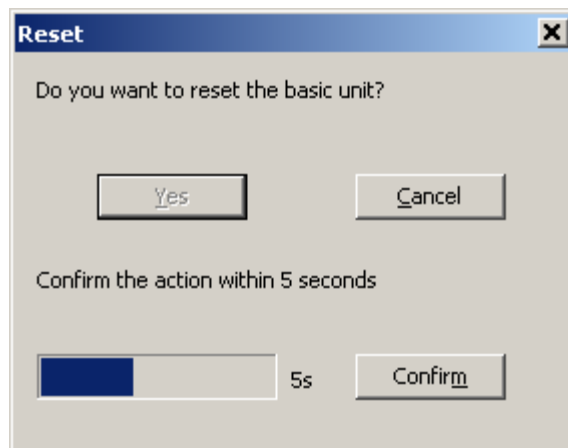
## 12.2 Toolbar



	Print	Click this button to open the menu for the printer settings
	Settings	Click this button to open the menu for the settings
	Reset	If the burner control has locked out (lockout position), you can start the reset sequence here
↓		
Only one of the 2 functions is active, depending on the burner control's state!		
↑		
	Locking	When the burner control is in operation, you can start the locking sequence by clicking this button
	Locking the ACS410	When clicking this button, operation via the ACS410 is locked. Locking can be canceled only when logging on again
	Help	When clicking this button, the PDF version of the documentation covering the ACS410 opens

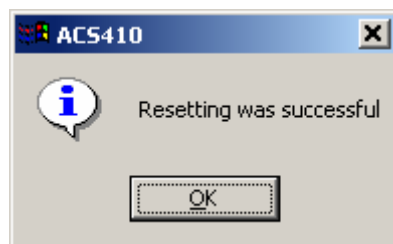
## 12.2.1 Resetting via the PC tool

The following dialog box appears:



- **Yes** Starts the reset
- **Confirm** Confirm here within 5 seconds after clicking **Yes**
- **Cancel** Closes the dialog box

If the action was successful, another dialog box appears:



Confirm by clicking **OK**.

If resetting is not confirmed within 5 seconds, another dialog box appears:



- **Yes** Repeats the action
- **No** Aborts the action and closes the dialog box

## 12.2.2 Devices that cannot be reset

The *Reset* function might not be enabled, depending on the type of burner control!



### Note


Such devices can only be reset directly via the respective reset button on the burner control – after lockout.

The following message may appear:

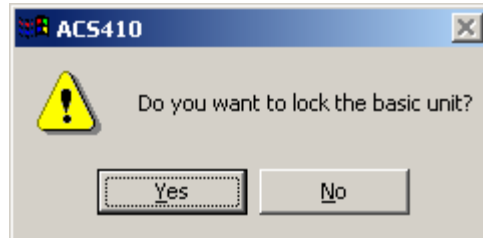


Confirm the message by clicking **OK** and make a reset directly on the burner control.

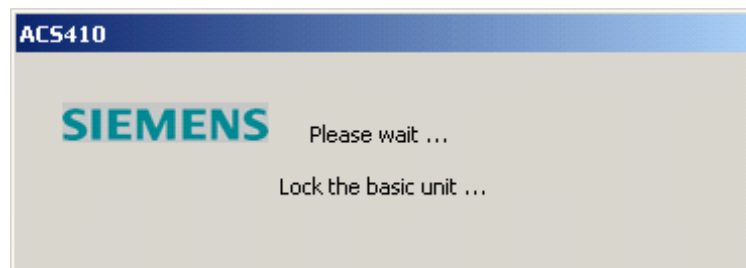
### 12.2.3 Locking via the PC tool

	Lock	Click this button to bring the burner control into the lockout position
---	------	---

The following dialog box appears:



- No Closes the dialog box
- Yes Starts lockout, followed by a message box

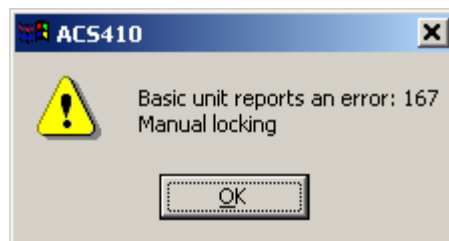


If the action was successful, another dialog box appears:




Confirm by clicking **OK**.

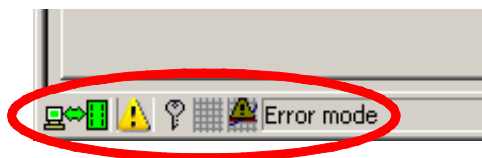
The following error message from the burner control appears:










Confirm by clicking **OK**.

	Help	Click this button to open the <b>Help topics</b> menu
---	------	---

## 12.3 Status bar



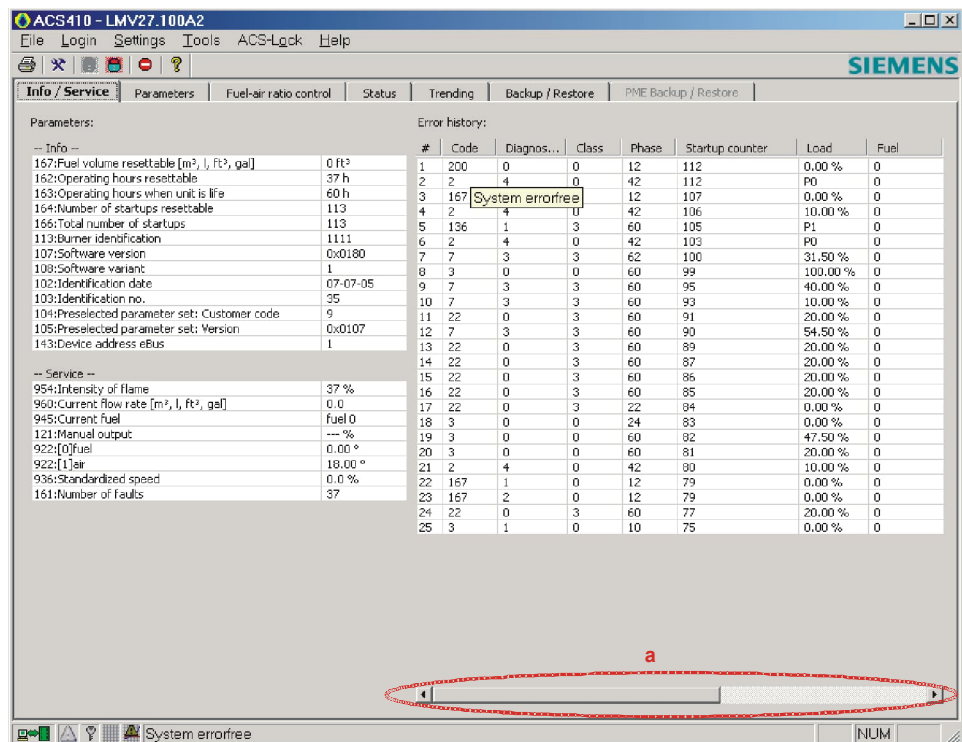
	Connection status	Indicates an online connection to the burner control
	Lockout position	Indicates when the burner control is in the lockout position
	Send password	Indicates when a password is sent
	Trend recording	Indicates when graphs are plotted in the <b>Trending</b> window
	Trigger handling	Indicates when trigger handling in the <b>Trending</b> window is active

	Status	Indicates the burner control's current operating state
	Errorfree	If an error occurred, the error message appears on the message line together with the respective diagnostics

# 13 Working with the ACS410

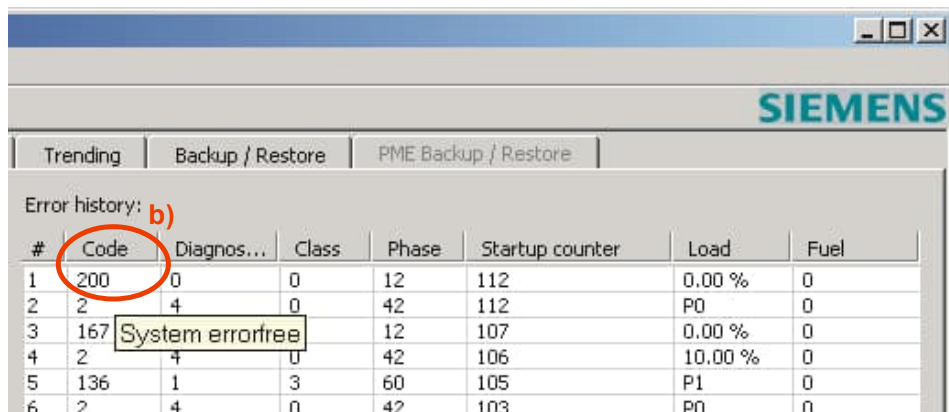
## 13.1 Info / Service window

The **Info / Service** window gives an overview of the burner control's operating states. The data are cyclically refreshed. Data in the process of refreshing appear blue.



Additional information about the error history or the diagnostic code is displayed by moving the scroll bar (a).

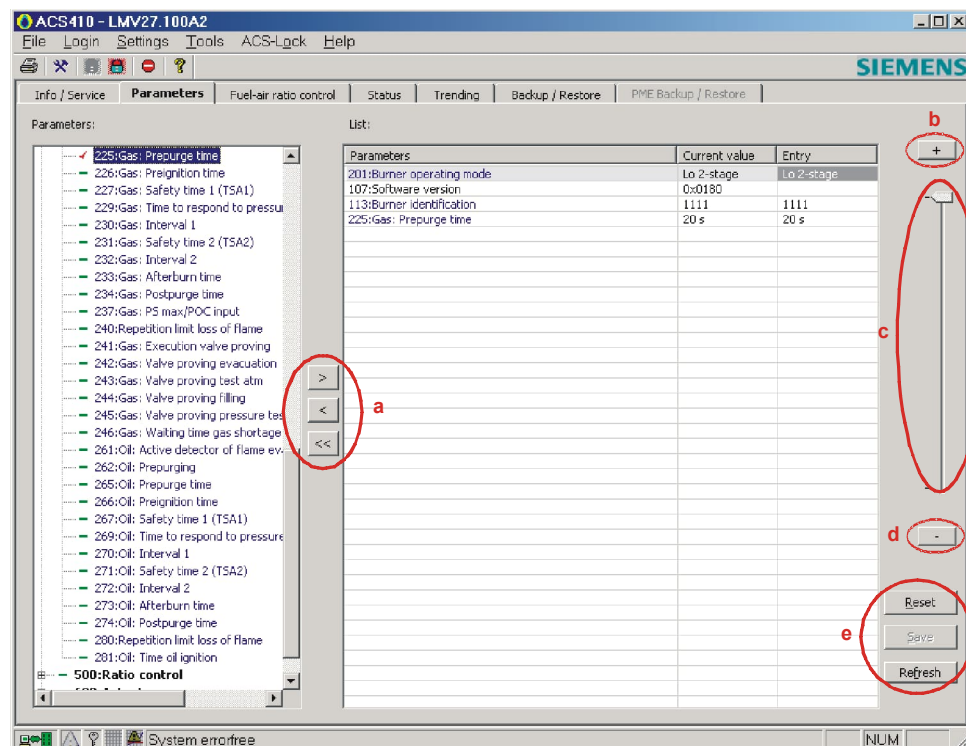
Brief explanations of the causes of error are displayed when moving the cursor over the respective **Code** (b) (under **Error history**). For more detailed information about the meaning of error codes, refer to the Technical Documentation on the respective type of burner control.



The current operating state of the device is displayed on the first line (b).

More detailed information about the cause of error is displayed by moving the pointer to the **Diagnostics** column.

## 13.2 Parameters window





## 13.2.1 Parameter changes (general)

All parameters displayed blue are editable. Parameters in black cannot be changed. You are authorized to change parameters, depending on your user level (⇒ chapter *Connecting to the plant*). Only certain parameters are displayed or can be changed, depending on the user level.

Select the required parameter from the list on the left. Move it to the table on the right by highlighting and double-clicking or by clicking the arrow button > (a). If you want to remove parameters from the table on the right, select them from the table. Then, use the arrow button < (a) for individual parameters, or << (a) for all parameters.

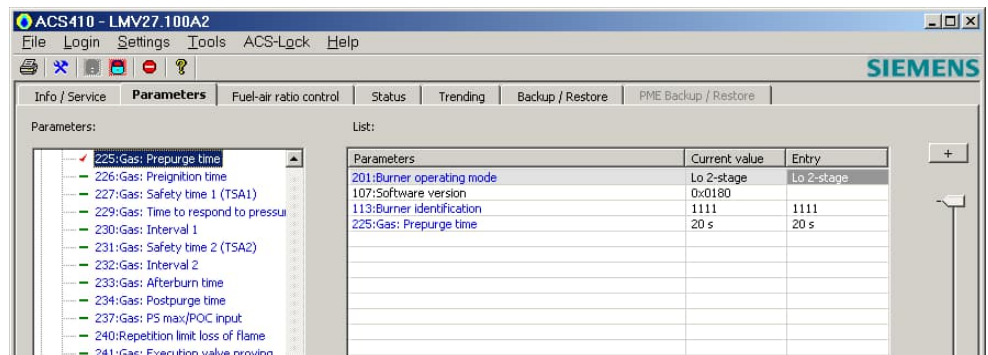
Highlight the individual entry cells in the table on the right under **Parameters** and change the value by moving the slider on the right (c) or by clicking the + (b) or – button (d).

First, the changed parameter is displayed, highlighted in blue.

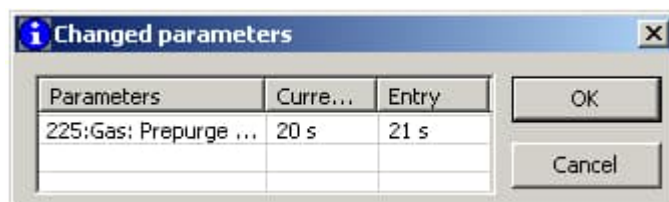


### Note!

Value changes are accelerated by keeping the + / - button or the > / < / << arrow button depressed.

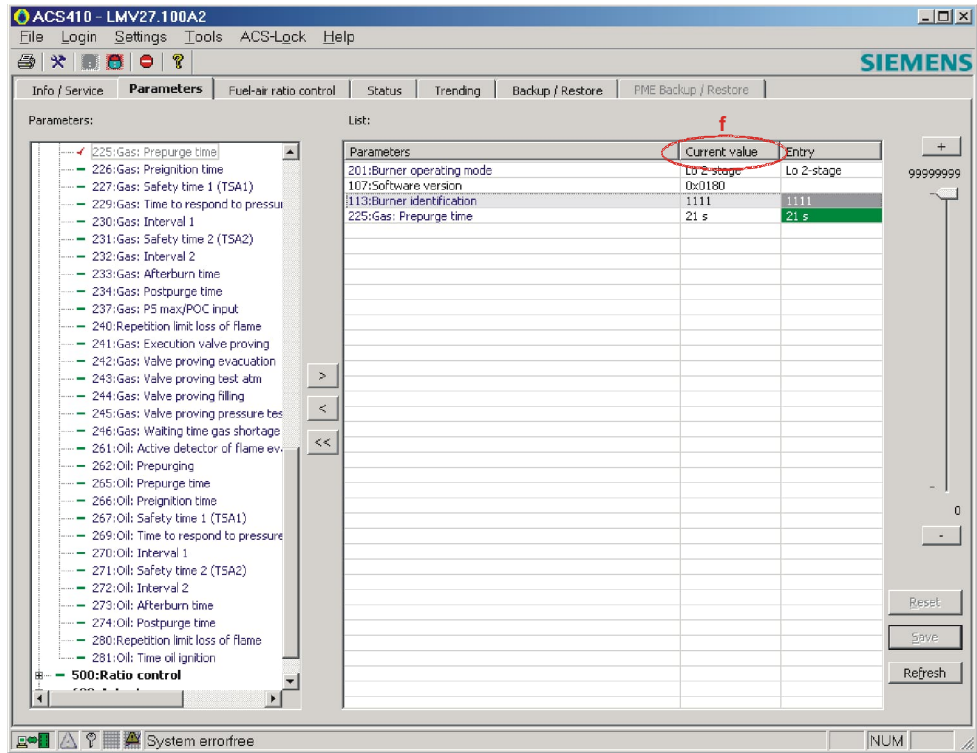


Click **Save** (e) to highlight in yellow the changes in the entry cell; then, the following dialog box appears:



- **OK**                      Sends the change value to the burner control
- **Cancel**                  Aborts the entry and closes the dialog box

After clicking **OK**, the changed parameter is shown highlighted in dark gray.



**Checking the memory**

After sending the parameters, the ACS410 automatically retrieves data from the burner control. If the action is successful, the ACS410 ensures that the text box will be highlighted in green. In addition, the user must make a visual comparison of **Current value** and **Entry**. Since the relevant values are highlighted in green, the values to be verified are easy to identify.



**Warning!**  
If the changed parameter is highlighted in red, copying to the burner control was not successful. If this error message occurs while a parameter is changed, the change on the burner control was most probably not made. For this reason, the correct setting on the burner control must be verified (repeat the action with the ACS410 or use the AZL2).



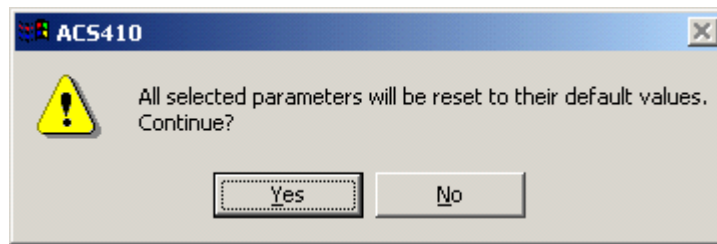
**Warning!**  
This visual check by the user is mandatory!

Click **Refresh** (e) to reload the data; this is especially required when refreshing process data.

## 13.2.2 Resetting parameters

By clicking **Reset** (e), individual parameters, such as fuel volume, number of startups, number of operating hours, or operating mode, can be reset to **0**, or to their default values.

After clicking **Reset** (e), the following dialog box appears:



- **Yes**                      Copies **0** or the default value to the text box
- **No**                        Aborts the entry and closes the dialog box

### 13.2.2.1 Deleting curves (only with LMV2/LMV3)

To delete the set curve parameters in the LMV2/LMV3, proceed as follows:

- From the list in the **Parameters** window on the left under directory *200: Burner control*, select parameter *201: Operating mode of burner ...* in the case of a dual-fuel unit  
Parameter *301: ... for fuel 1*.  
Highlight it and double-click, or use the arrow button > (a) to copy it to the table on the right
- Click **Reset** (e)
- Click **Save** (e)

⇒ In case parameter *201: Operating mode of burner ...* is reset, all curvepoints that were previously set, plus the previously selected fuel train, will be reset

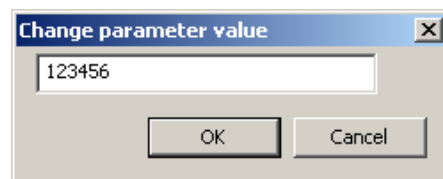
### 13.2.2.2 Changing the burner ID

A double click or use of arrow button > transfers the parameter for burner ID to the editing window on the right. Burner ID may be highlighted and can now be changed. The change is made with arrow button + or -. A new entry window opens where the new burner ID can be entered. If a burner ID has not yet been entered, the dialog box shows a numerical value or text. This represents the default setting. Once the burner ID is entered, the default setting cannot be entered anymore.

Numerical value or text for factory setting:

- LMV2/LMV3: 2147483648
- LME39: burnErID
- LME7/LME8: ---- ----

Example:



Here, a maximum of 8 digits for the burner's ID can be entered.

- **OK** Copies the number to the text box
- **Cancel** Aborts the entry and closes the dialog box

Then, click **Save** to permanently file the burner's ID in the burner control.

## 13.3 Ratio control settings (only with LMV2/LMV3)

The steps to be taken for the initial settings of the LMV2/LMV3 follow the operation of the AZL2 and are primarily determined by the type of LMV2/LMV3.

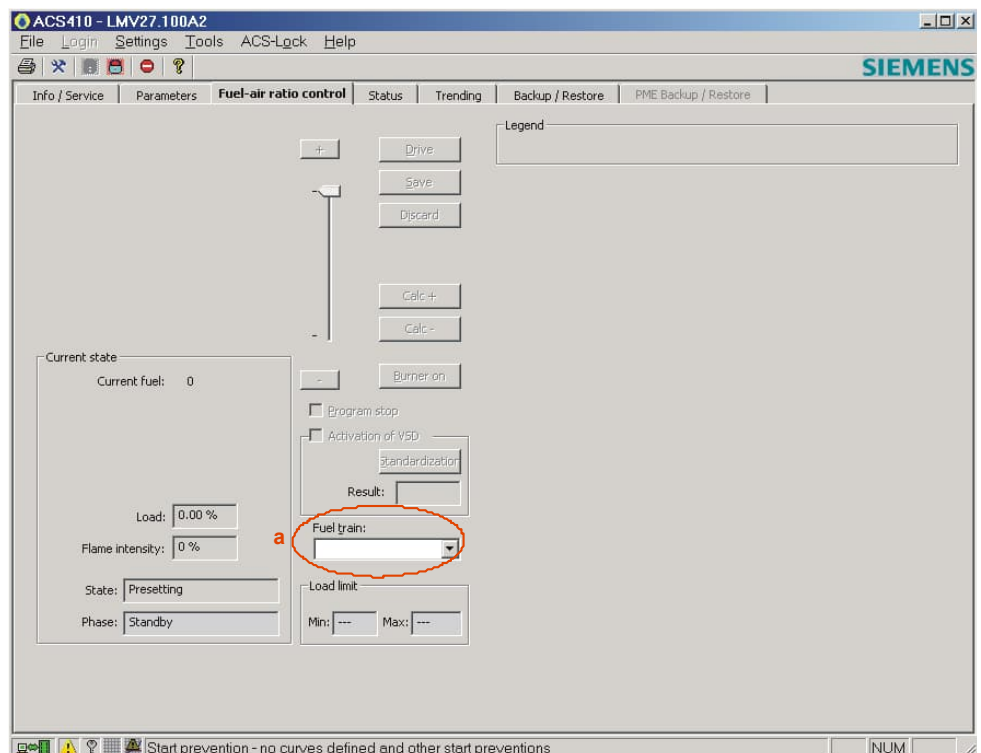


### Note

For fuel-air ratio control, compliance with the Basic Documentation on the respective type of LMV2/LMV3 is mandatory!

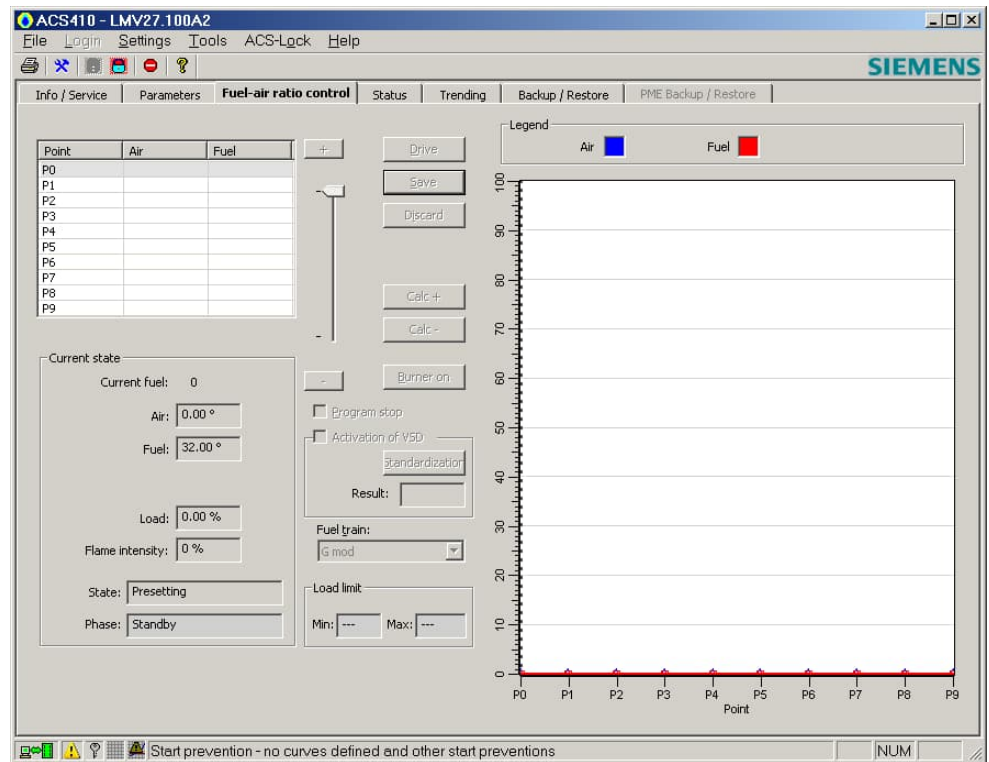
With the initial ratio control settings, or after curvepoints of ratio control have been reached, the preselection of output on the LMV2/LMV3 is only possible via the ACS410. A preselection of load on the LMV2/LMV3 via contact, analog input or BACS is not possible anymore. Readjustment of load via contact, analog input or BACS is released on the LMV2/LMV3 only after the ratio control settings have been made.

When making the initial settings of an LMV2/LMV3, start by selecting the fuel train (a). Then, click **Save** to adopt the fuel train and retrieve the mask for setting the curvepoints.

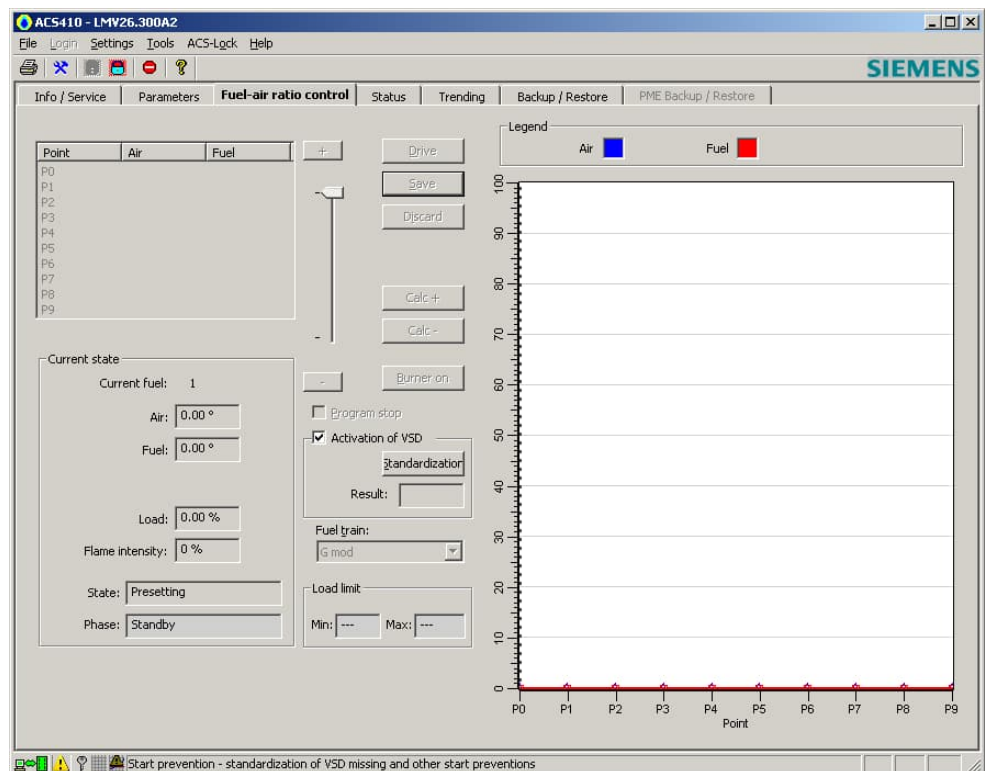


If previously set curvepoints shall be deleted, follow the procedure described in chapter *Resetting parameters – Deleting curves*.

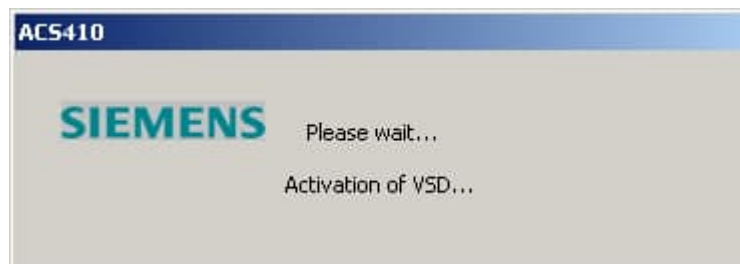
### 13.3.1 Modulating operation



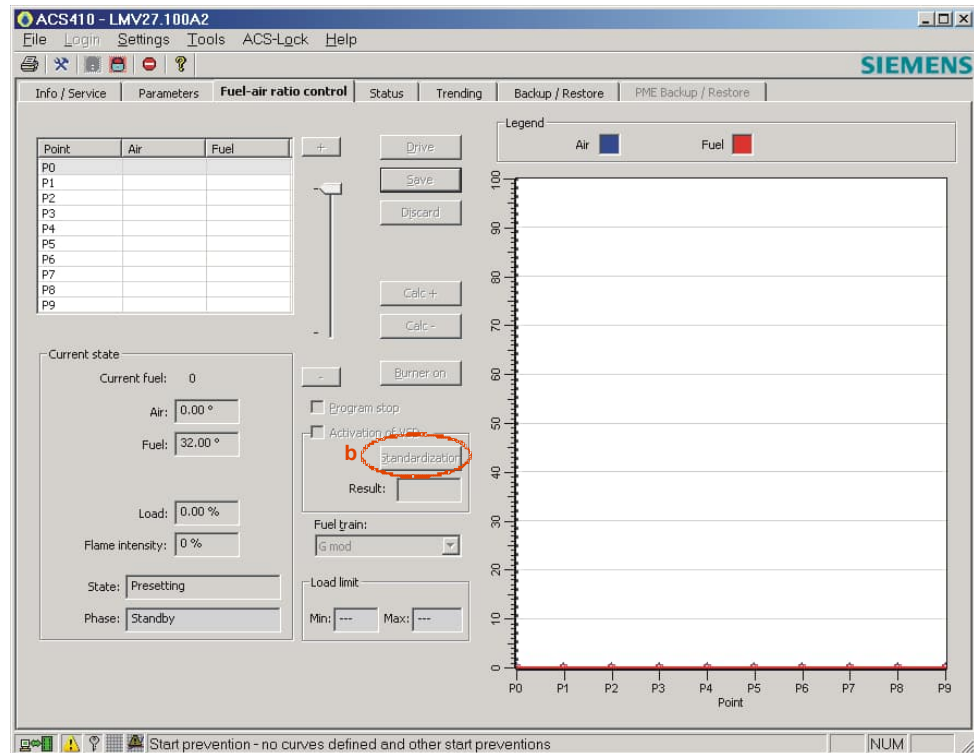
### 13.3.1.1 Activating the VSD (optional)



When ticking **Activation of VSD** in connection with LMV2/LMV3, the control of VSDs is switched on. Then, the following window opens:

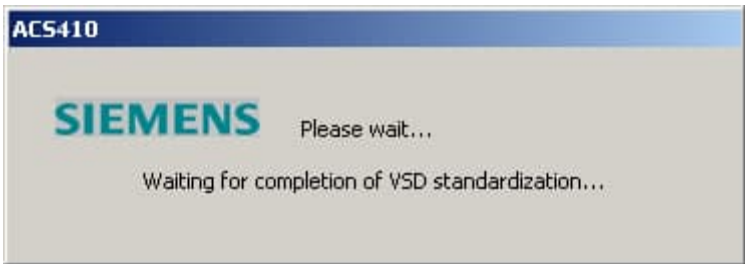
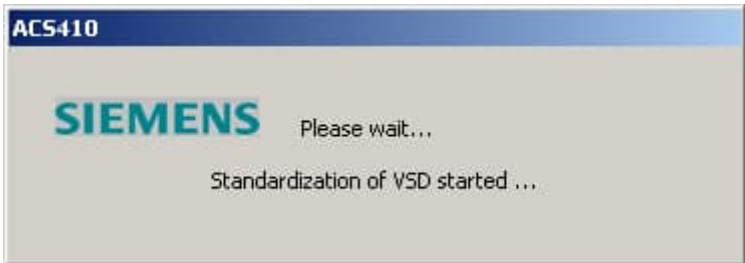


After activation of the VSD, column **VSD** appears.



If **Activation of VSD** is selected, standardization of the VSD is required.

To start the process, click **Standardization** (b). If valid standardization is already available, you can start by entering the curvepoints.





If speed standardization has failed, an error message appears!



Click **OK** to confirm. A numerical value providing more detailed information for cause of the error in the standardization (value <0) appears in box **Activation of VSD** under **Result**.



Reference!

The Basic Documentation covering the respective type of LMV2/LMV3 must be observed!

Rectify the error and restart standardizing the VSD.

Note!

After successful standardization, new standardization of the VSD in the mask for the ratio control settings is not possible. This can only be done via the parameter settings (parameter 641).



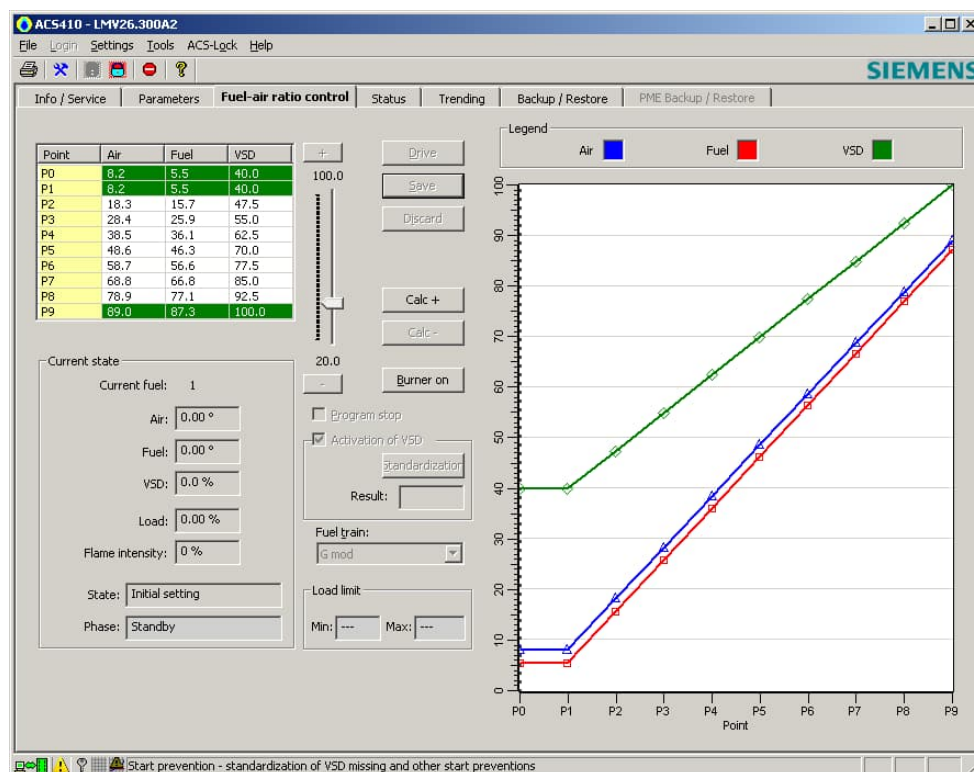
Procedure:

- Go to the mask for the parameters
- Select parameter 641
- Set the parameter to 1 and save it

After storage, new standardization is started.

- Click *Refresh* to check the result of the standardization (0 = standardization was successful, negative values = error during standardization)

The result appears in the **Result** box:



After standardization, the curvepoints can be set.

## Meaning of curvepoints

Table *Function curvepoints*:

Setting point	Function
P0	Curvepoint Ignition load
P1	Curvepoint Low-fire
P2 – P8	Curvepoint Ratio control
P9	Curvepoint High-fire

## Initial settings

Select **Fuel train** (f) and the required mode, then click **Save** (c).

The example given below shows the steps to be followed when making the initial settings for fuel train mode *G mod*.

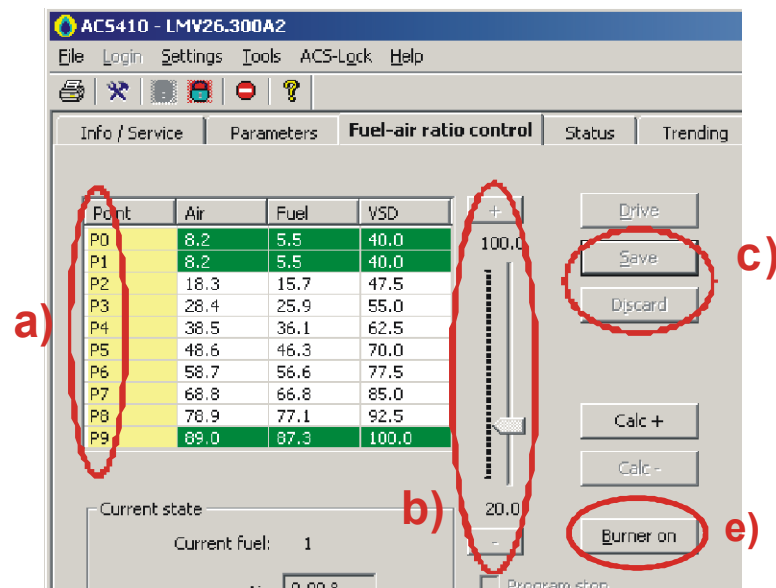


### Reference!

The Basic Documentation covering the respective type of LMV2/LMV3 must be observed!

### 13.3.1.2 Cold settings

Burner is shut down.



Select curvepoints **P0** (ignition load), **P9** (high-fire load) and **P1** (a) from the table. Highlight the air, fuel or VSD cell (only if VSD operation is activated) and change the values with the scroll bar on the right, or the + and – buttons (b), or the arrow keys of your keyboard according to (b). After a setting or change, every curvepoint must be copied to the LMV2/LMV3 by clicking **Save** (c). By clicking **Discard** (c), the changes made last can be canceled prior to saving.

Enter curvepoint **P1** (the ACS410 proposes the value of **P0**). Save curvepoint **P1**. Now, curvepoints **P2...P8** are automatically calculated.

It is then possible to recalculate curvepoints manually in order to linearize the ratio control curve from the selected point, in the + or – direction.



#### Note!

When making the calculation, the curvepoints of all actuators and of the VSD – if installed – are recalculated.

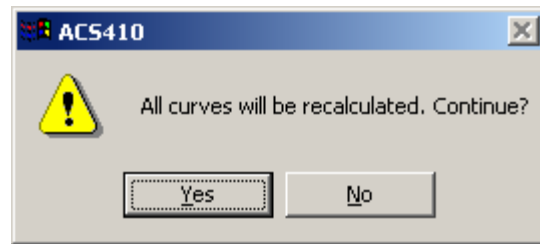
Select curvepoint **P4**, for example.

**Calc – (d)**                      Curvepoints between **P4** and **P1** are recalculated  
**Calc + (d)**                      Curvepoints between **P4** and **P9** are recalculated

When selecting a curvepoint from the table on the left (a), the graph displays a crosshair for that particular curvepoint in the respective color:

- Blue = air
- Red = fuel
- Green = VSD

When clicking **Calc +** or **Calc –** (d), the following dialog box appears:

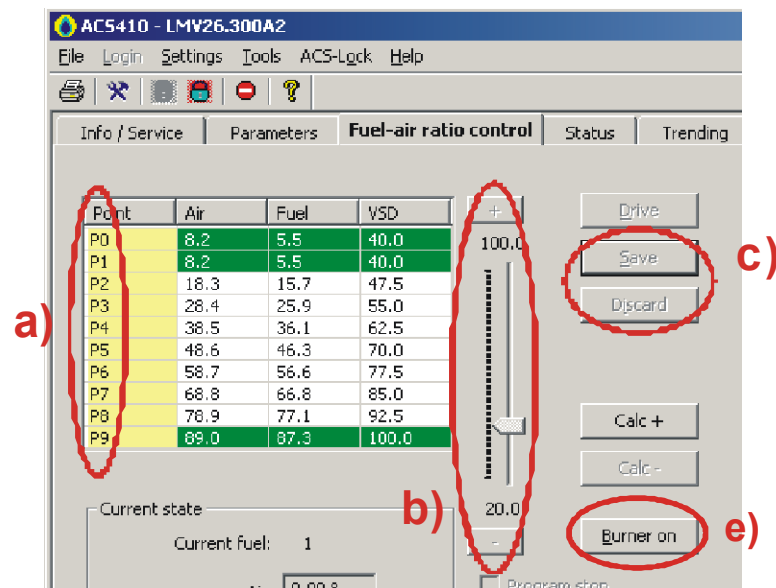


- **Yes** Starts calculation of the curve and copies it to the LMV2/LMV3. The curvepoints are read in again and the display is refreshed
- **No** Aborts the entry and closes the dialog box

On completion of the cold settings and after a heat request from the boiler controller to the burner, the burner can be put into operation by clicking **Burner on** (e).

### 13.3.1.3 Warm settings

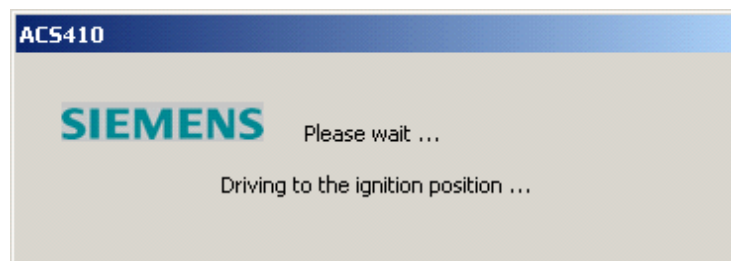
#### Burner is started up



From the table on the left (a), select curvepoint **P0** (ignition load) and then curvepoint **P9** (high-fire). Highlight the air, fuel or VSD cell (only when the VSD is working) and change the value as required using the slider on the right, or the **+** and **-** buttons (b), or the arrow keys of your keyboard. After a setting or change, every curvepoint must be copied to the LMV2/LMV3 by clicking **Save** (c) – or by clicking **Discard** (c), the changes made last are canceled prior to saving.

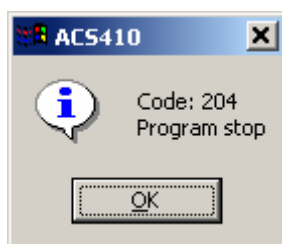
With **Burner on** (e) and the boiler controller's heat request to the burner, the curve's further parameterization is started:

The following dialog box appears:



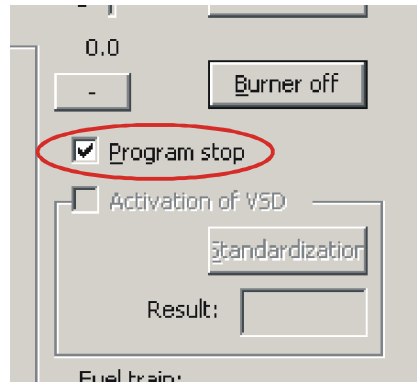
The LMV2/LMV3 travels to the ignition position. To ensure the LMV2/LMV3 stops at the ignition position, the ACS410 automatically sets a program stop.

When making the initial settings, the LMV2/LMV3 sets a program stop per default, which is indicated by the following dialog box:



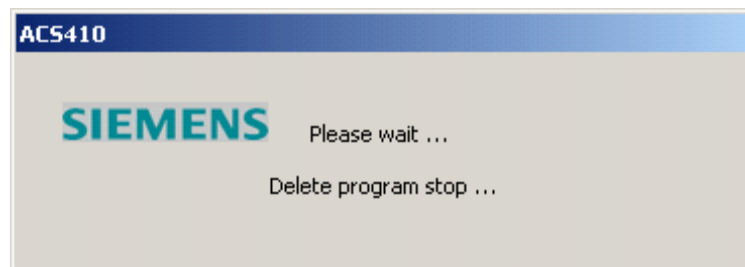
Confirm and close by clicking **OK**.

Remove the tick ☒ for the program stop ☐.

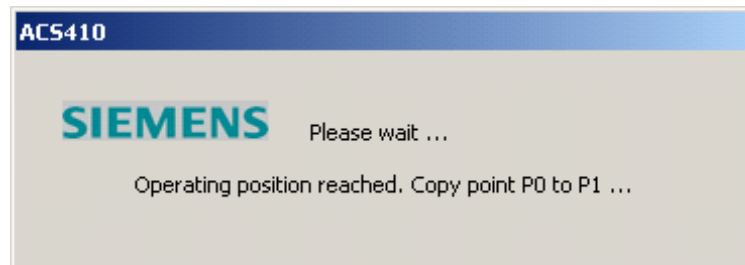


The LMV2/LMV3 proceeds.

Program stop is deleted.

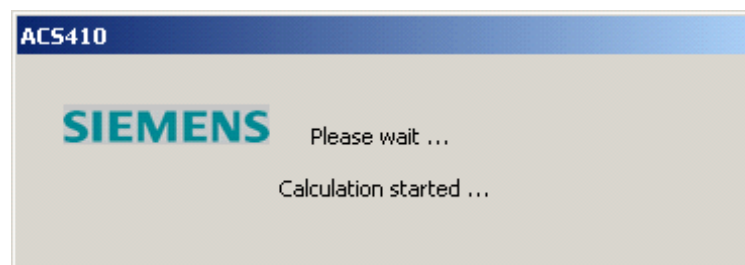


Entries made for **P0** are automatically copied to **P1**, if nothing else is entered here.



Save the curvepoints by clicking **Save** (c)

Then, the LMV2/LMV3 performs a linear calculation of the curvepoints between **P1** and **P9**.



The data are copied to the LMV2/LMV3. Then, the curvepoints are read in again and the display is refreshed. After that, it is also possible in this case to recalculate the curvepoints via **Calc +** or **Calc -** (e) to linearize the ratio control curve from the selected point, in the + or - direction.

## Driving to and changing curvepoints

From the table on the left (a), select the curvepoint to be approached by highlighting it with the mouse. When clicking **Drive** (c), the LMV2/LMV3 starts approaching the curvepoint. It is now possible to check or optimize the setting point. The values of a curvepoint can be changed in the table on the left (a). When clicking **Drive** (c), the system travels to the changed curvepoint. When clicking **Cancel** (c), the changes are canceled and the system returns to the initial curvepoint. By clicking **Save** (c), the changed values are transferred to the LMV2/LMV3 for permanent use.



### Note!

The impact of curvepoint changes on the combustion process must be checked on the burner!

Repeat the process with all curvepoints until all settings are correct.



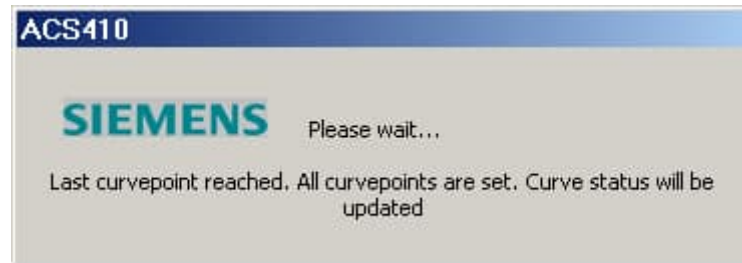
### Note!

The ACS410 highlights in yellow the curvepoints which have not yet been approached.

#### 13.3.1.4 Completing the initial settings

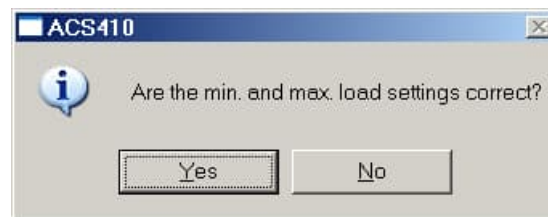
To complete the curve settings, all curvepoints from **P1** to **P9** must be approached and verified. Then, a message appears relating to the minimum and maximum output value settings. This message window concludes the initial ratio control settings.

After all curvepoints **P1...P9** have been approached and verified in initial setting mode, the following message appears:



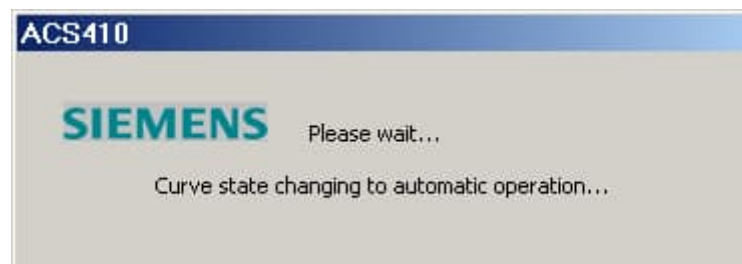
Then, the minimum/maximum load can be matched to the specific application. In the process, the possible modulation range is restricted.

The following message appears:



When clicking **Yes**, the initial settings are completed. Minimum and maximum load are not limited and the ratio control curve from **P1** to **P9** is completely traversed.

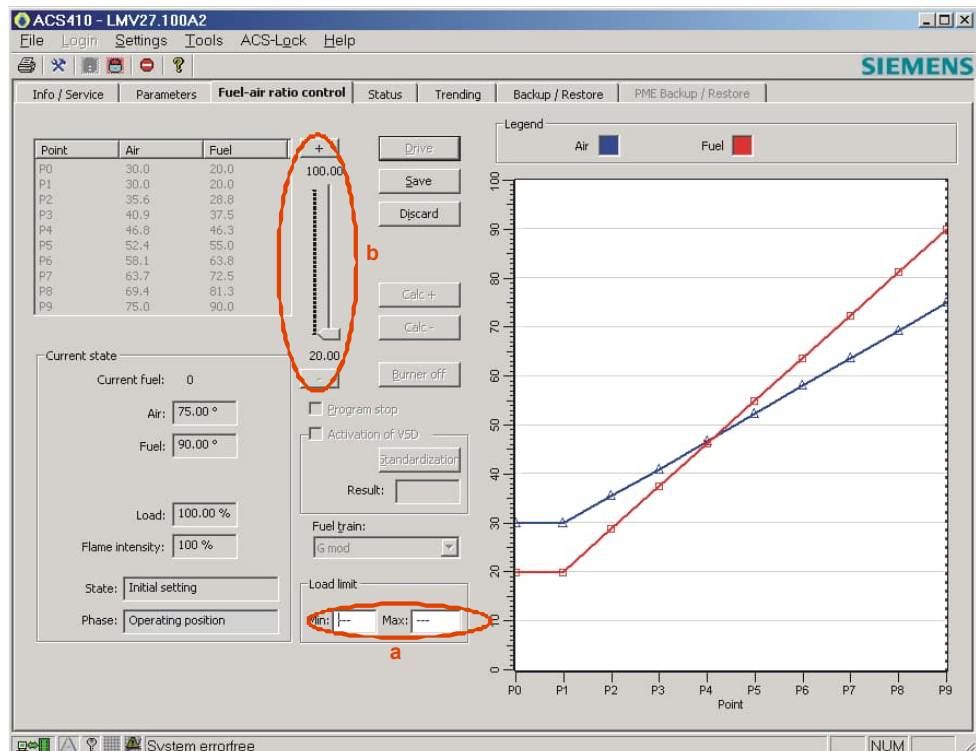
The following message appears:



The LMV2/LMV3 changes from the initial settings to automatic operation.

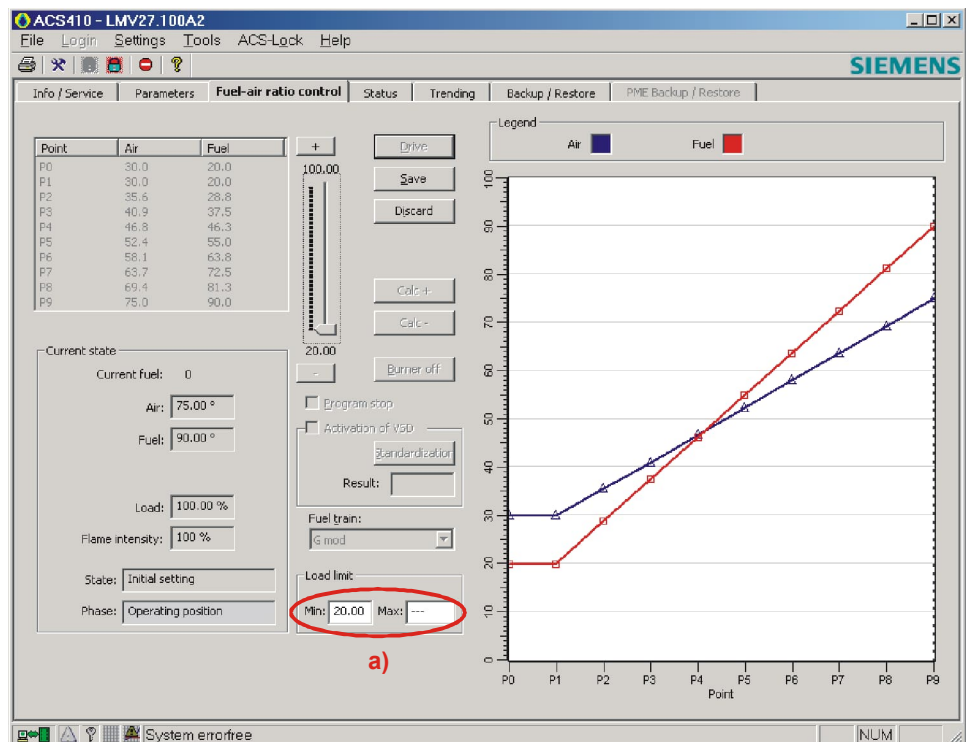


The minimum/maximum load can be limited by clicking **No**. In the ratio control box **Load limit** (a), select **Min:** or **Max:**, depending on the required limitation.

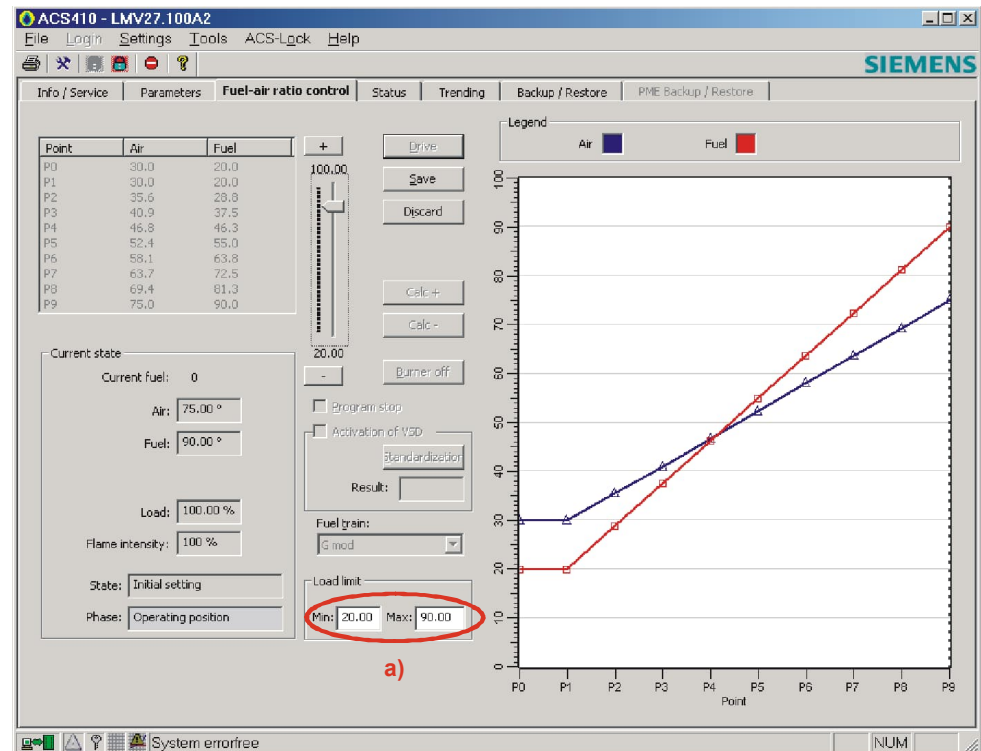


Use the slider (b) to select the required value.

Example of minimum limit:

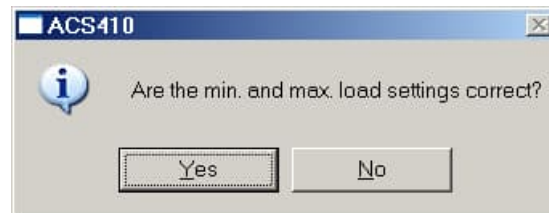


Example of maximum limit:



Click **Save** to adopt the values.

The following message appears again:



Click **No** if you want to change the minimum/maximum load again; click **Yes** to conclude the initial settings.

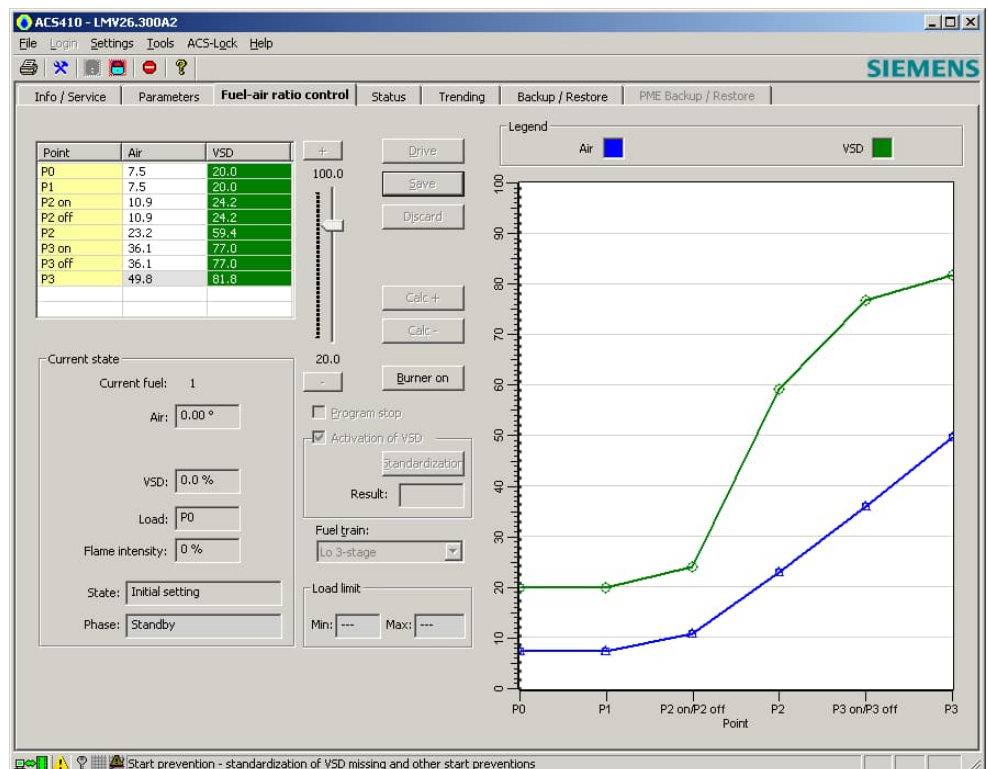
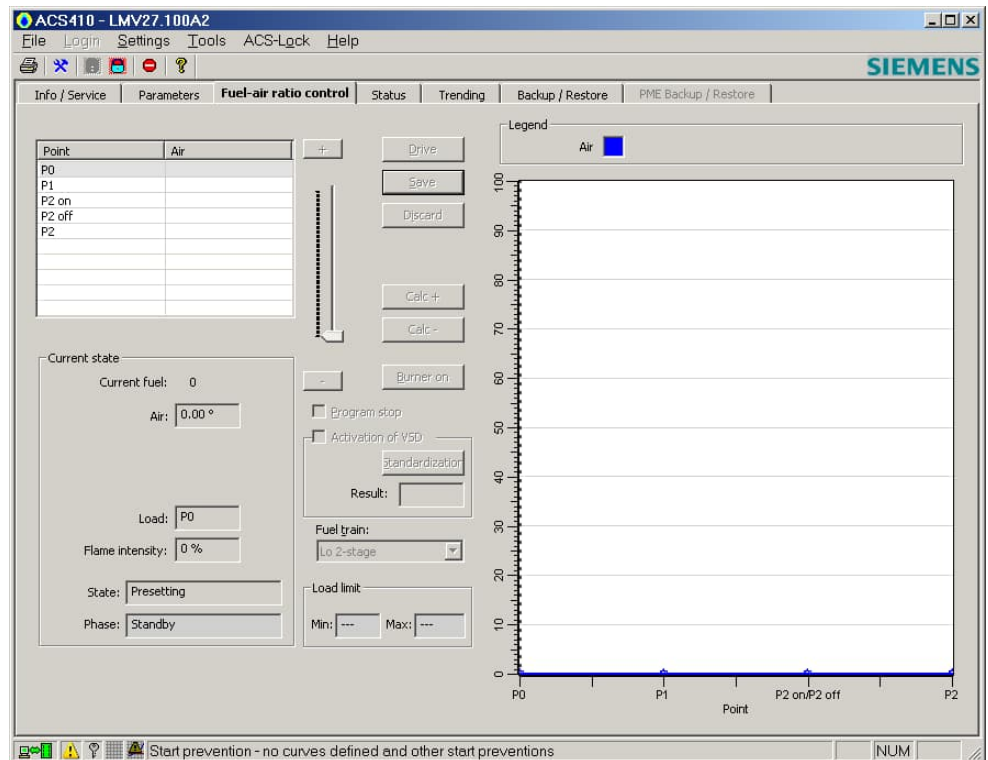
The following message appears:



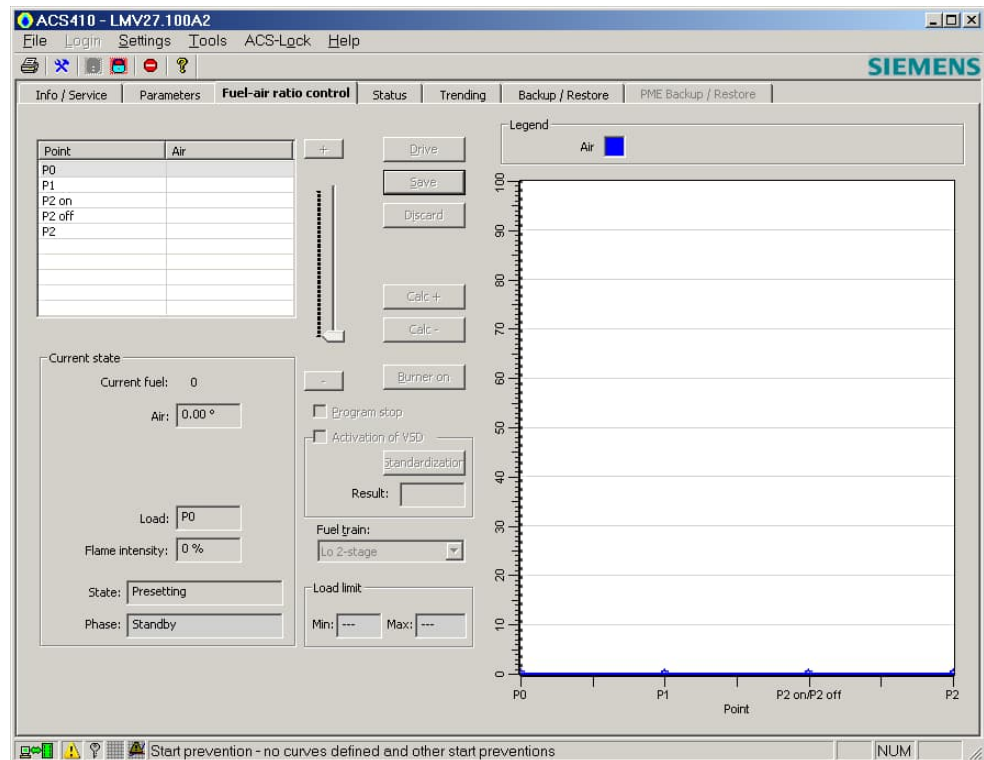
The LMV2/LMV3 changes from the initial settings to automatic operation. The initial settings are thus concluded.

### 13.3.2 Multistage operation

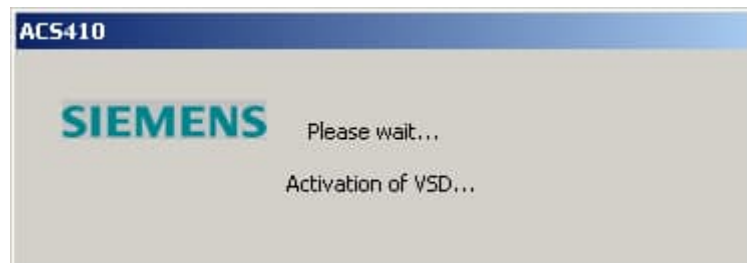
If a multistage fuel train was parameterized, the respective load points are displayed (see following illustration).



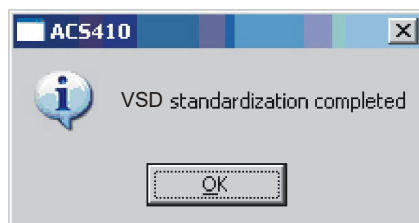
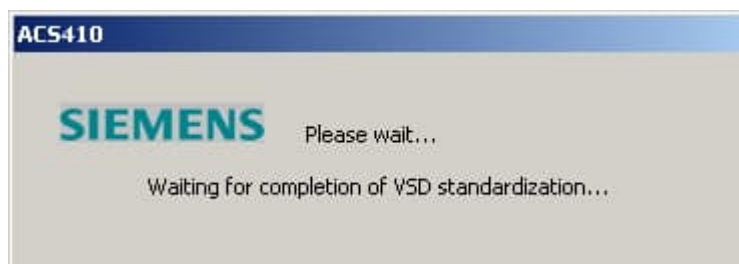
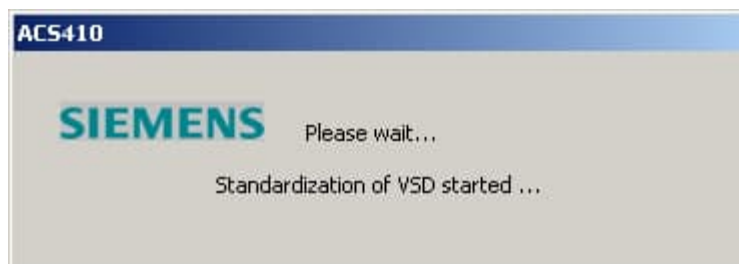
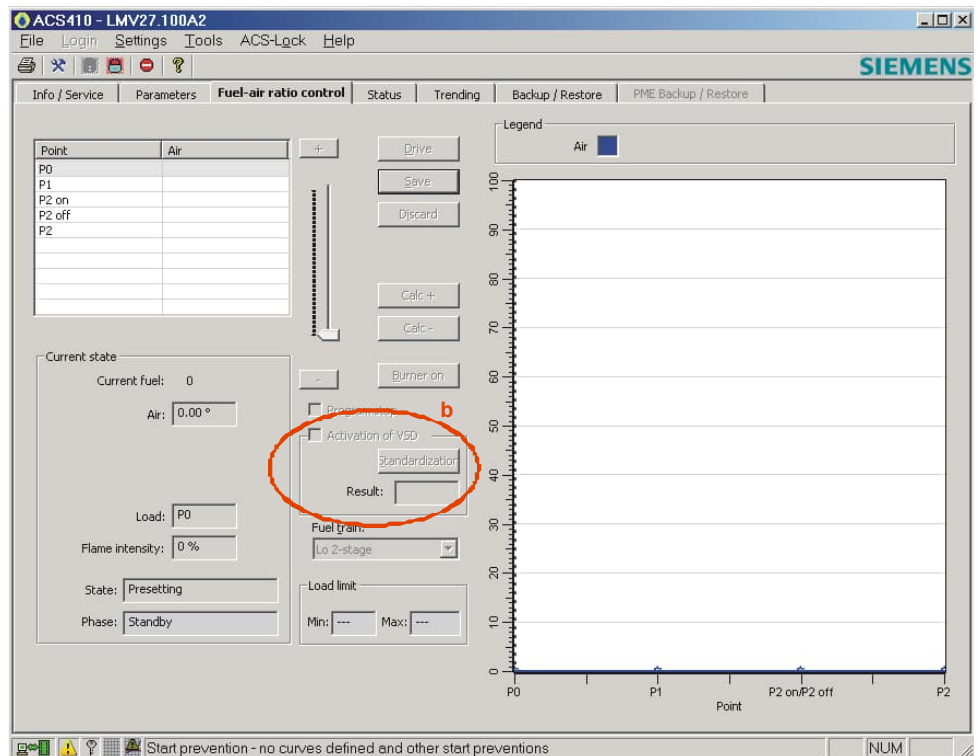
### 13.3.2.1 Activation of VSD (optional)



When ticking **Activation of VSD** in connection with LMV2/LMV3, the control of VSDs is permitted. If you selected **Activation of VSD**, there will be no valid standardization of the VSD. Standardization can be started by clicking **Standardization**. After ticking **Activation of VSD**, the following window opens:



To start the process, click **Standardization** (b). If valid standardization is already available, you can start by entering the curvepoints.



If speed standardization has failed, an error message appears.



Click **OK** to confirm. A numerical value delivering more detailed information appears in box **Activation of VSD (b)** under **Result**.



Reference!

The Basic Documentation covering the respective type of LMV2/LMV3 must be observed!

Rectify the error and restart standardizing the VSD.

Note!

After successful standardization, new standardization of the VSD in the mask for the ratio control settings is not possible. This can only be done via the parameter settings (parameter 641).

Procedure:

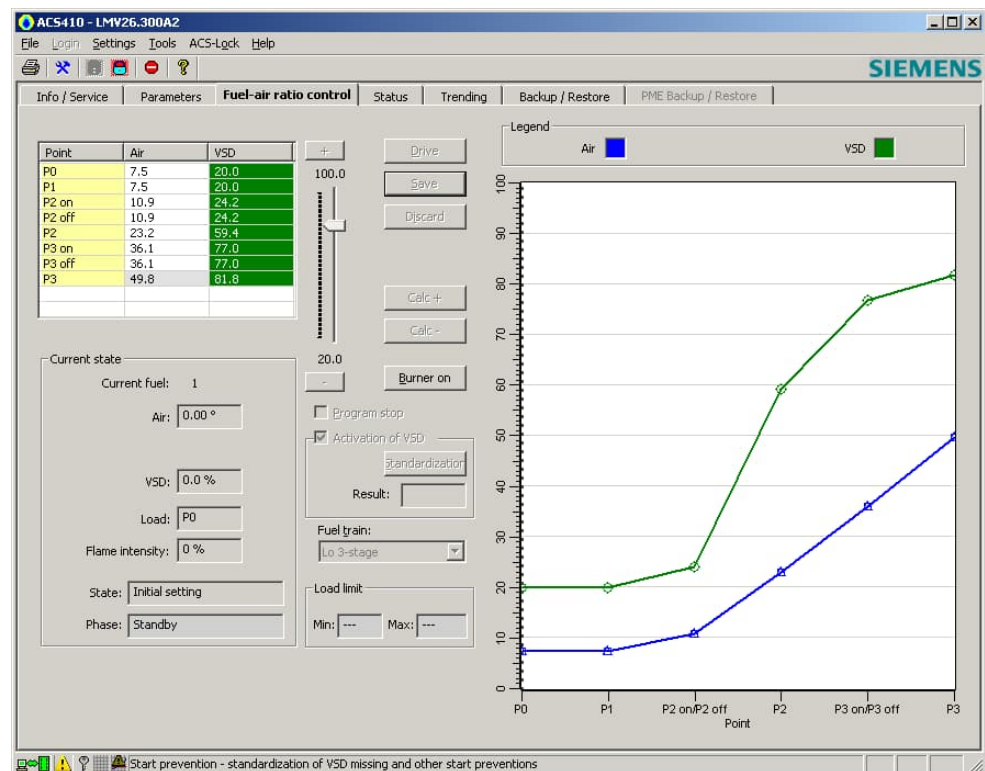


- Go to the mask for the parameters
- Select parameter 641
- Set the parameter to 1 and save it

After storage, new standardization is started.

- Click **Refresh** to check the result of the standardization (0 = standardization was successful, negative values = error during standardization)

The result appears in the **Result** box.



Upon completion of standardization, the curvepoints can be set. The example given below shows the steps to be followed when making the initial settings for fuel train mode *LO 2 stage*.



**Reference!**

The Basic Documentation covering the respective type of LMV2/LMV3 must be observed!

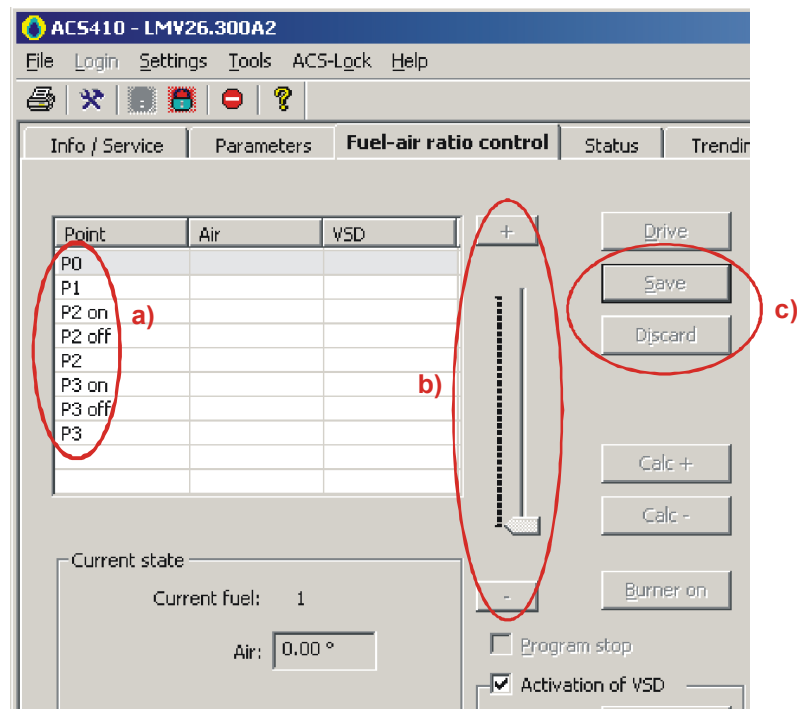
Select the type of **Fuel train** (f) and the required mode, then click **Save** (c).

Table *Function curvepoints*

Setting point	Function
P0	Curvepoint Ignition load position
P1	Curvepoint Low-fire
P2 on	Curvepoint Switch-on point for fuel valve V2
P2	Curvepoint Operating point stage 2
P3 on	Curvepoint Switch-on point for fuel valve V3 (only in 3-stage mode)
P3	Curvepoint Operating point stage 3 (only in 3-stage mode)
P2 off	Curvepoint Switch-off point for fuel valve V2
P3 off	Curvepoint Switch-off point for fuel valve V3 (only in 3-stage mode)

### 13.3.2.2 Cold settings

#### Burner is shut down



In multistage operation, the curvepoints are set using point **P0** as the starting point. After saving the changed curvepoint, ACS410 proposes a value to be used as the next curvepoint.



#### Note!

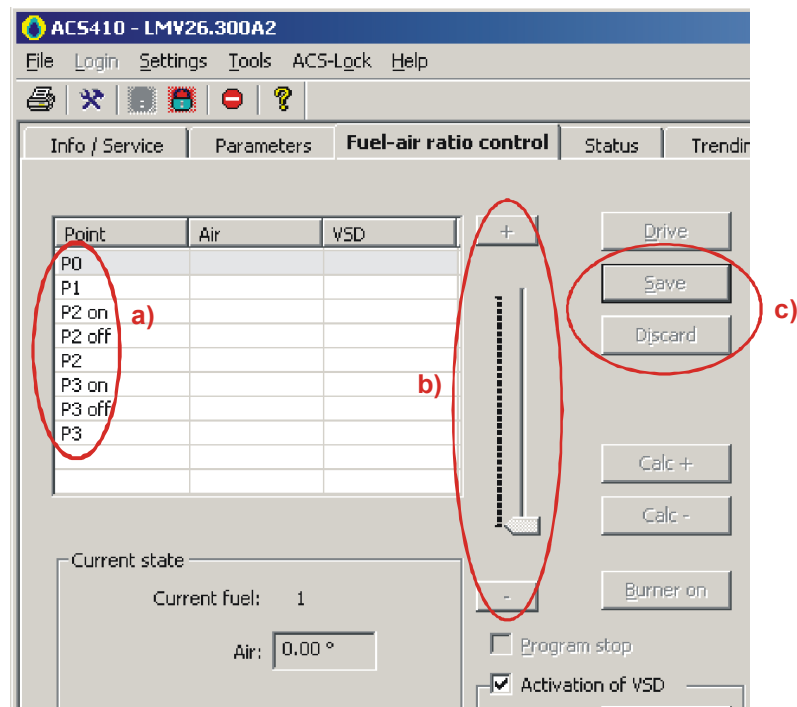
In this operating mode, curvepoints cannot be recalculated via **Calc +** or **Calc -** (d), which means that the buttons cannot be clicked here.

On completion of the cold settings and after a heat request from the boiler controller to the burner, the burner can be put into operation by clicking **Burner on** (e).



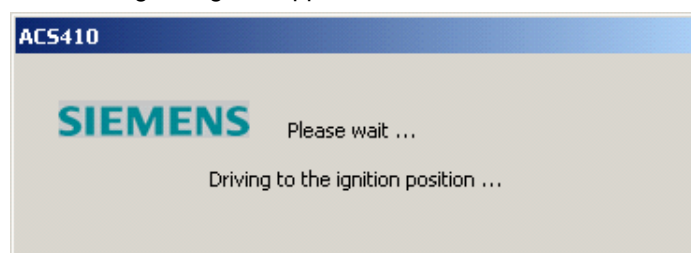
### 13.3.2.3 Warm settings

#### Burner is started up



Enter the minimum setting point **P0** (ignition load) in the table on the left (a). Highlight the respective setting point and change the value as required using the scroll bar on the right, or the **+** or **-** button (b), or the arrow keys of your keyboard. After every setting or change, the setting point must be copied to the burner control by clicking **Save** (c). When clicking **Discard** (c), the changes made last are deleted before saving. When clicking **Burner on** (e) and with the heat request from the boiler controller to the burner, further curve parameter settings are started.

The following dialog box appears:

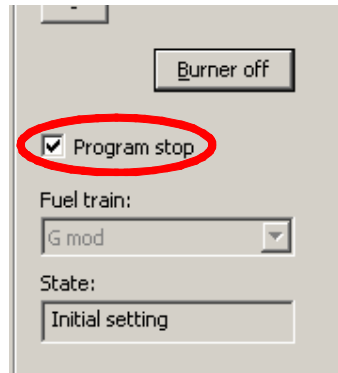


The LMV2/LMV3 travels to the ignition position. To make certain it stops there, the ACS410 automatically sets a program stop.

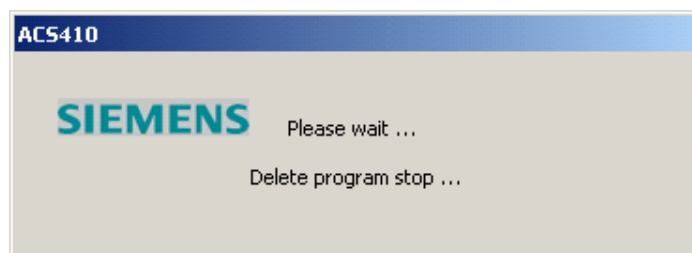


Confirm and close by clicking **OK**.

Remove the tick ☒ for the program stop ☐.



The LMV2/LMV3 proceeds. Program stop is canceled.



The values of **P0...P2** (P3) are automatically copied, proposed, and can be changed. Check the curvepoints, change them if required, and click **Save** (c). All setting points are selected in the order given in table *Function curvepoints* for multistage operation.

## Driving to the curvepoints

In the table (a), highlight the curvepoint to be approached. When clicking **Drive** (c), the LMV2/LMV3 starts driving to the curvepoint. Here, it is possible to check the setting point or to optimize it by making readjustments. The values of a curvepoint can be changed in the table on the left (a). When clicking **Drive** (c), the system travels to the changed curvepoint. When clicking **Discard** (c), the changes are canceled and the system returns to the initial curvepoint. Click **Save** (c) if you wish the LMV2/LMV3 to adopt the changed values.



### Note!

When making the initial settings and during commissioning, every curvepoint must be approached to check and optimize the combustion values.

Repeat this process with all curvepoints until all settings are correct.



### Note!

The ACS410 highlights in yellow the curvepoints which have not yet been approached.

#### 13.3.2.4 Concluding the initial settings for multistage operation



##### Note

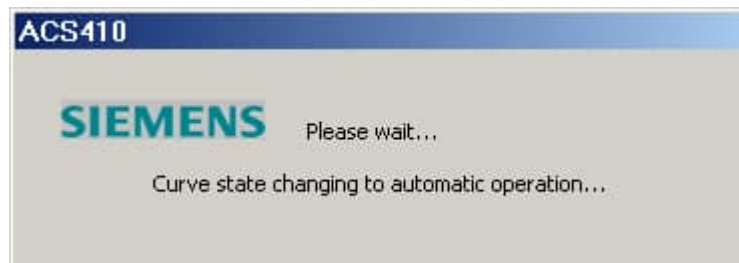
Switch-off points **P2off/P3off** cannot be approached in a stationary manner. For the change to automatic operation, these switch-off points must be approached from above:

- P2off: P2 → P1
- P3off: P3 → P2

After all curvepoints **P1...P2** (2-stage) or **P1...P3** (3-stage) have been approached and checked in initial setting mode, the following message appears:



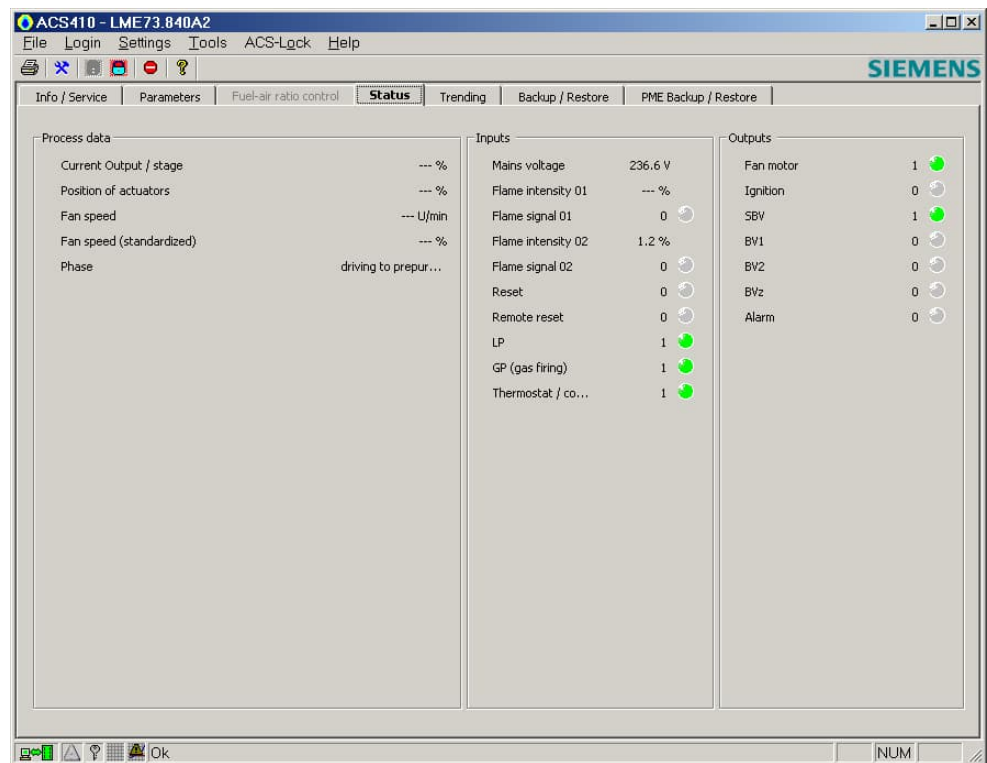
Then, the following message appears:



The LMV2/LMV3 changes from the initial settings to automatic operation. This means that the initial settings are completed.

## 13.4 Status window of burner control

### Example of LME



The **Status** window shows the current state of the available inputs and outputs plus operating data. The displayed values are cyclically refreshed. The refreshment rate (interval) is adjustable (⇒ chapter *Settings – General*).

## 13.5 Data recording (trending)



### Note!

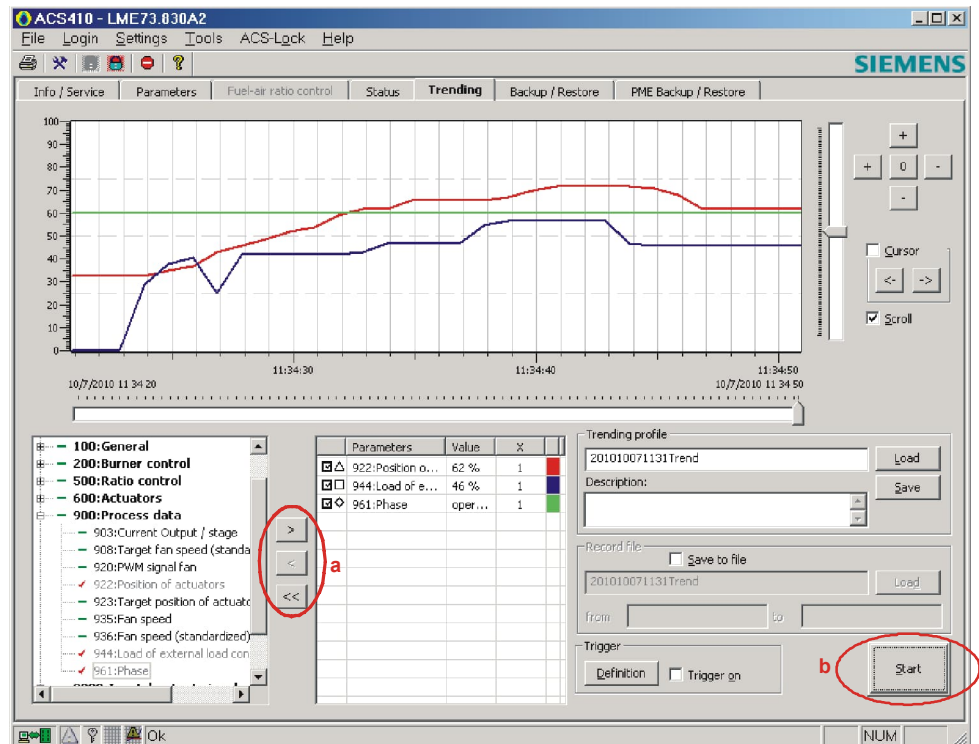
During data recording (trending), data are acquired at an **average** sampling rate of 1 second. The capacity of the PC system may delay the sampling of signals.

During data recording, it is possible to plot the current process data over time (e.g. states of inputs and outputs, actuator positions, program phases, etc.) of the connected burner controls and to save the data in a file.



### Note!

Trending can also be performed over longer periods of time on the plant itself.



### Note!

The (data) recordings saved in a file for a period of time exceeding 24 hours are subdivided into several recording files. One file per day is created.



### Note!

If the ACS410 is started when Modbus mode is activated on a LMV2/LMV3, it is no longer possible to write data via Modbus. Modbus data points can only be read in this state.

### Exception!

If data recording is activated with ACS410 (trending), individual pieces of data for the LMV2/LMV3 can be written via Modbus. If the data recording is stopped or the window is exited, the write access for Modbus to the LMV2/LMV3 is also blocked.



### Warning!

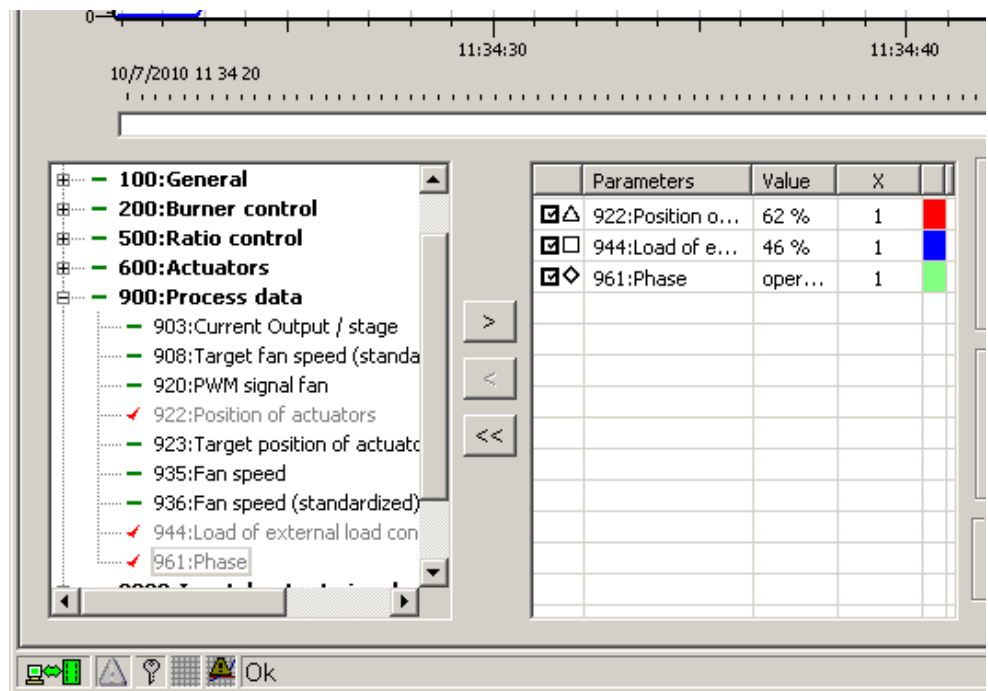
When the ACS410 is ended, the Modbus data of the overriding control system may have to be re-installed (e.g. target load).

### 13.5.1 Parameter selection LME39 / LME7/LME8

In the case of LME39 / LME7/LME8, the display of certain I/Os varies, due to the different program structures in use. In principle, for the display of these I/Os, an extended range of parameter numbers applies. The following table shows the parameters used with the LME39 / LME7/LME8 models.

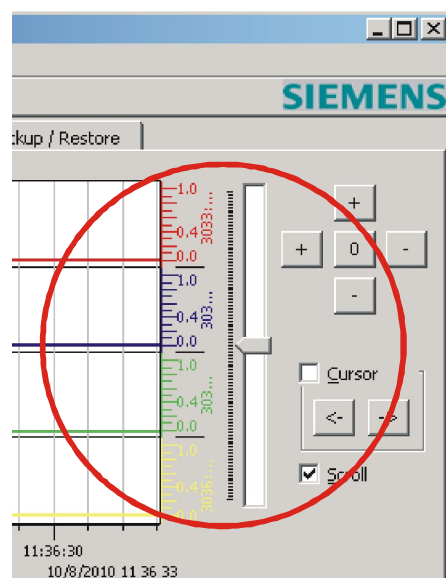
Complete list of available parameters (the parameters displayed depend on the type of device):

Parameter no.	Input/output
3001	Flame signal 01
3002	Flame signal 02
3007	Flame signal 01
3008	Flame signal 02
3033	Fan motor
3034	Ignition
3035	Safety fuel valve SBV
3036	Fuel valve BV1
3037	Fuel valve BV2
3038	Alarm
3039	Ignition fuel valve ZBV
3040	Oil preheater OVW
3041	Fuel valve BV3
3042	Pump
3043	AUX
3044	Test
3082	Safety loop
3083	Air damper position <i>Closed</i>
3084	Flue gas supervision
3085	Enable signal for oil preheater (firing on oil)
3086	Air damper actuator opening
3087	Flue gas damper opening
3088	Reset
3089	Remote reset
3090	Air pressure switch LP
3091	Gas pressure switch GP (firing on gas)
3092	Thermostat/controller (R/T)
3093	Load controller 2nd stage
3094	Fuel oil 0/gas 1
3095	Actuator cam position Close
3096	Actuator cam position KL
3097	Actuator cam position ZL
3098	Actuator cam position BV
3099	Actuator cam position NL
3133	Alarm
3301	Flame signal 01 (analog)
3302	Flame signal 02 (analog)
3303	Mains voltage
3304	Oil preheater temperature
3307	Flame intensity 01 (analog)
3308	Flame intensity 02 (analog)



Example: **Trending** window for LME39.100

Presentation of digital I/Os in the trending picture.



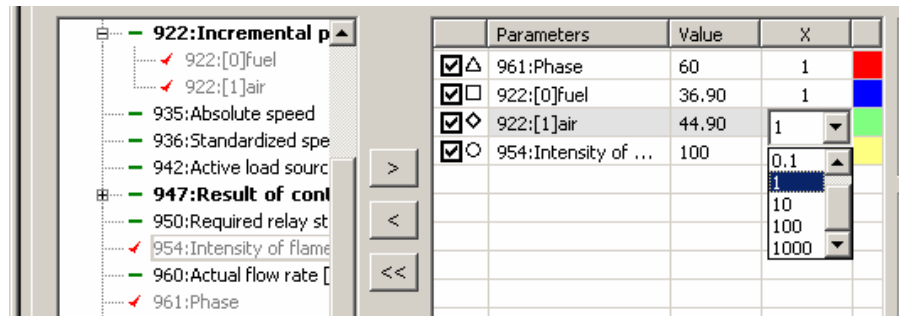
The digital I/Os are arranged above one another in the form of graphs. Each channel is assigned a specific scale in a different color.

## 13.5.2 Selecting the parameters (general)

From the list on the left, select the required parameters that shall be displayed or recorded. Highlight and copy them to the table on the right by double-clicking or by using the arrow button > (a). If you want to remove certain parameters from the table on the right, use arrow button < (a) for individual parameters, or << (a) for all parameters. A maximum of 9 parameters can be selected.

When ticked ☒ in the table on the right, the selected parameters appear in the graph, or will be hidden.

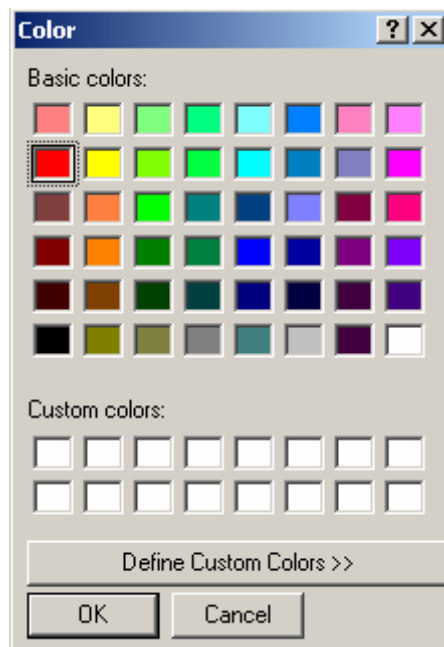
### 13.5.2.1 Changing the presentation scale



In the table on the right, select box **X** at the parameter to be changed. A pull-down menu opens, showing the available choices for the presentation multiplier of the parameter.

### 13.5.2.2 Changing graph colors

From the table on the right, select the color at the parameter to be changed.



You can select any color.

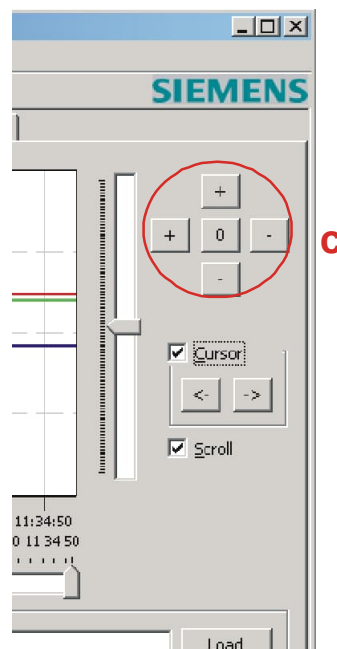
### 13.5.2.3 Starting the graph

Click **Start** (b) to plot the graph. All parameters selected from the table on the right will be shown.



### 13.5.2.4 Displaying the graph

The graph's scale can be changed.



Click the **+** (top) or **-** (bottom) button to increase or decrease the scale of the y-axis. Use the **+** (left) or **-** (right) button to increase or decrease the scale of the x-axis. Click the **0**-button to return to the initial scale.



When ticking ☒ the check box at **Cursor** (e), a vertical double line appears for the cursor's position plus a pop-up window in the graphic display. This pop-up window shows the exact values of the selected parameters. Using the mouse or the **<-** **->** buttons, the cursor's position in the display range can be changed in the horizontal direction. In addition, the values are displayed in a pop-up window appearing at the cursor's location.

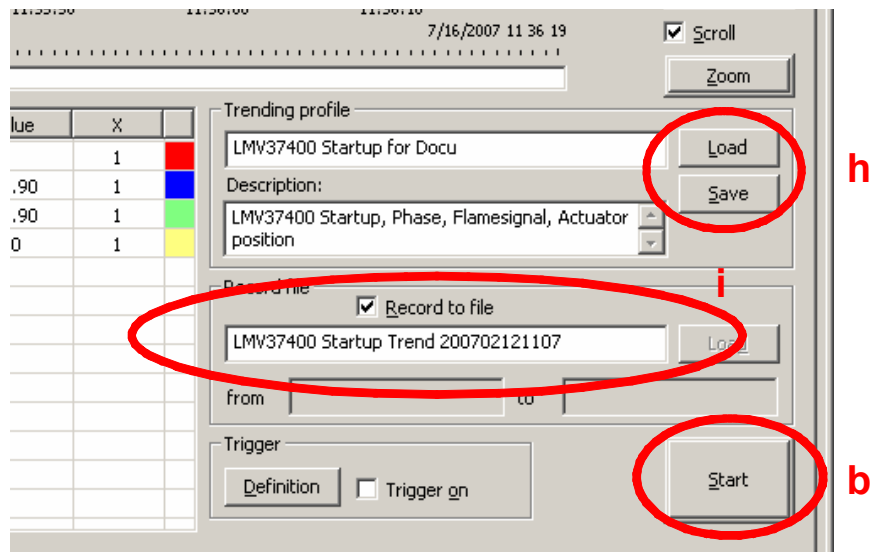
When ticking ☒ the check box at **Scroll** (f), the display runs with current data of the burner control's over the time axis. If the tick is removed, the current display is stopped. If ticked again, the display continues from the respective point. The data for the display are temporarily buffered in the background.

The pointer at the bottom (g) can be used to shift the view position in the direction of x or y.

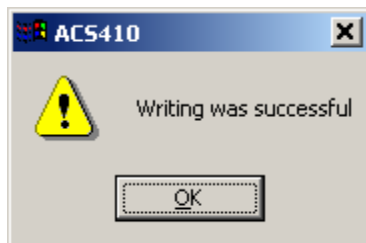
### 13.5.3 Recording data

#### 13.5.3.1 Trending profile

The trending profile is used to file the settings (parameter selection) that shall be shown on the trending display.

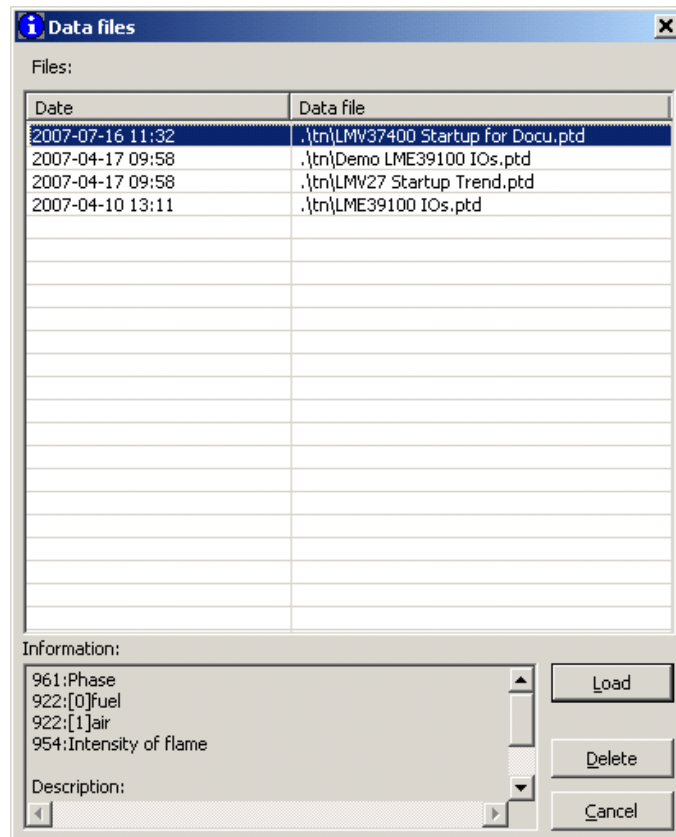


The selected parameters can be saved in the form of a profile file. The trending profile proposes a file name (format of file name: JJJJMMTThhmmss*Trend* (year = 4 digits, month and day = 2 digits each, hour minute second = 2 digits each, followed by *Trend*). This file name can be randomly selected or can also be overwritten. In text box **Description**, any free text can be entered, which will then be saved together with the trending profile. By clicking **Save** (h), the profile is saved under the entered file name with extension \*.ptd. Saving in the ACS410 program file takes place in subfolder *tn*.



Confirm by clicking **OK**.

Use the **Load** button (i) to open the selection window of the saved trending profiles.



The mouse can be used to select a profile. The **Information** window displays the parameters of the trending profile.

- |                 |   |
|-----------------|---|
| - <b>Load</b>   | Copies the profile to the trend settings                  |
| - <b>Delete</b> | Removes the selected profile from the list and deletes it |
| - <b>Cancel</b> | Closes the display and the selection window               |

### 13.5.3.2 Data file

The data file is used to file the process data of the selected parameters. In text box **Record to file** (i), it is possible to save curve data. When ticking ☒ the check box at **Record to file** (i), a file with the curve data is created. A file name will be proposed (format of file name: *YYYYMMDDssmmTrend*). This file name can be randomly selected or can also be overwritten. When clicking **Start** (b), the recording process is started. Clicking a second time stops the recording process and saves the file.

Filing location: In ACS410 program subfolder *tn*.

A recording consists of 3 partial files.

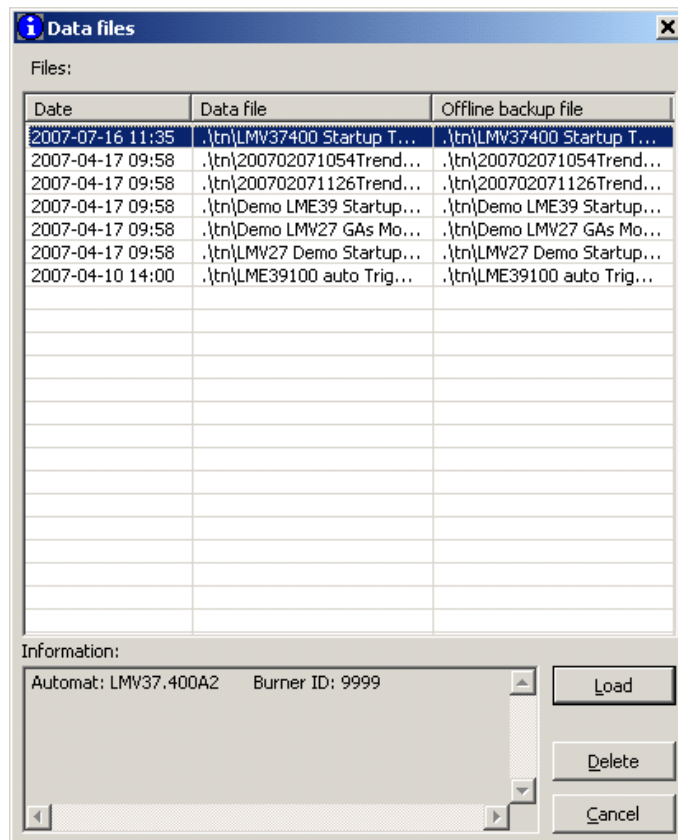
File names:

\*.unl – parameter settings of active parameter configuration

\*.dtd – data file

DeviceASN.unl (e.g. 3LMV37.400A2 0x171.unl)

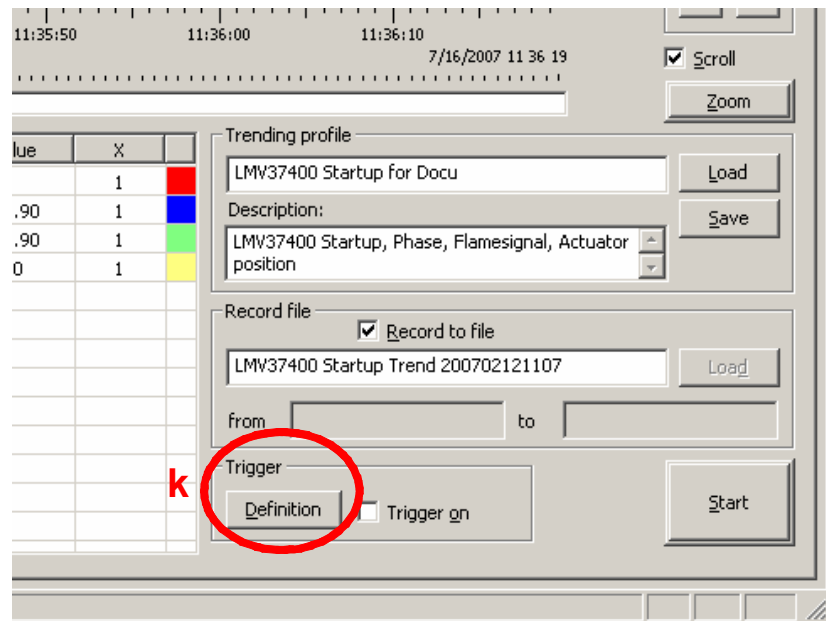
To open the selection window with the archived files, click **Load** (i).



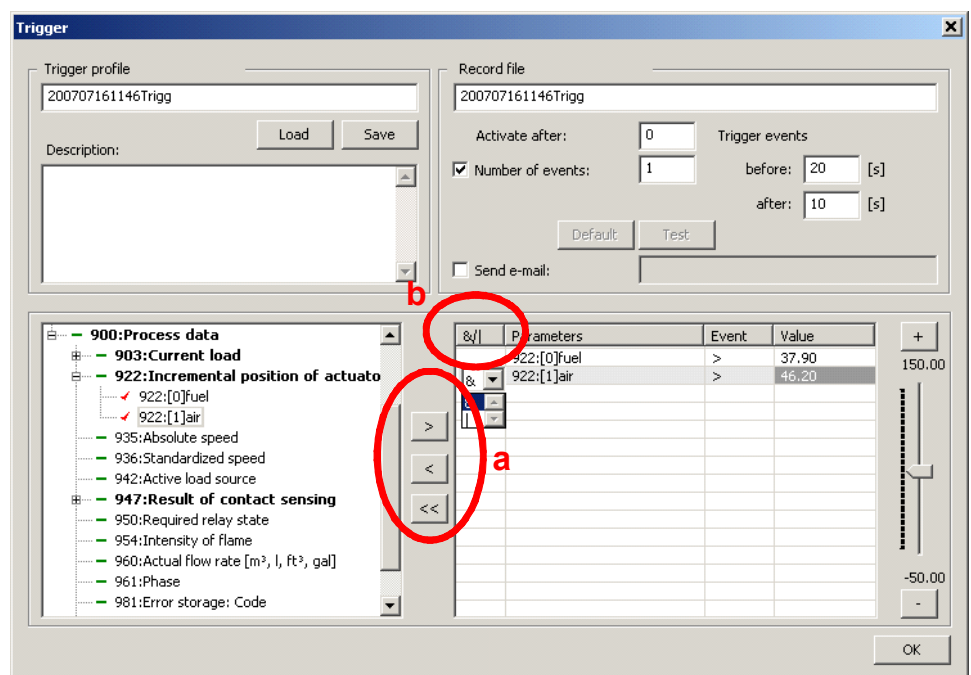
When selecting a data file, all required partial files are loaded, and the **Information** window shows the type of burner control and the associated burner ID.

- **Load** Copies the file to the graph (offline operation)
- **Delete** Removes the selected file from the list and deletes it
- **Cancel** Closes the display and the selection window

### 13.5.4 Creating a trigger event

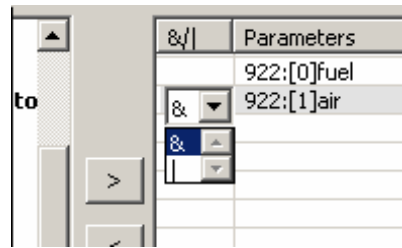


When clicking **Definition** (k), you reach the **Trigger** window. There, you can select one or several interconnected parameters for a trigger event, which triggers data recording and/or an e-mail message.



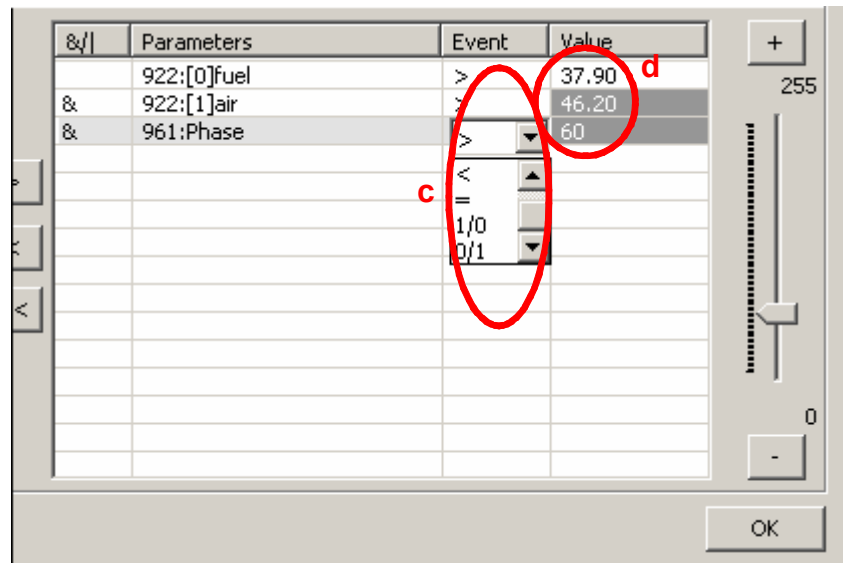
From the list on the left, select the required parameters that shall lead to a trigger event. Highlight the parameters and copy them to the table on the right by double-clicking, or by using the arrow button > (a). If you wish to remove selected parameters from the table on the right, use arrow button < (a) for individual parameters, and << (a) for all parameters. A maximum of 20 parameters can be selected.

Using **& / I** (b), you can select several trigger events and connect them with logic AND or logic OR.



**Note!**

The individual trigger events must always be connected with AND (both criteria must be satisfied) or with OR (one of the 2 criteria must be satisfied). Note that the AND operation is given priority over OR.



Using **Event** (c), various events can be defined:

- Greater than >, smaller than <, or equal to = value
- Level change digital value, rising ramp 0/1, falling ramp 1/0
- Bit masking for parameter query

The **Value** (d) can be changed here. Using the scroll bar, or the + and – buttons on the right, the value can be set to **0...255**, or **0** or **1** (digital values).

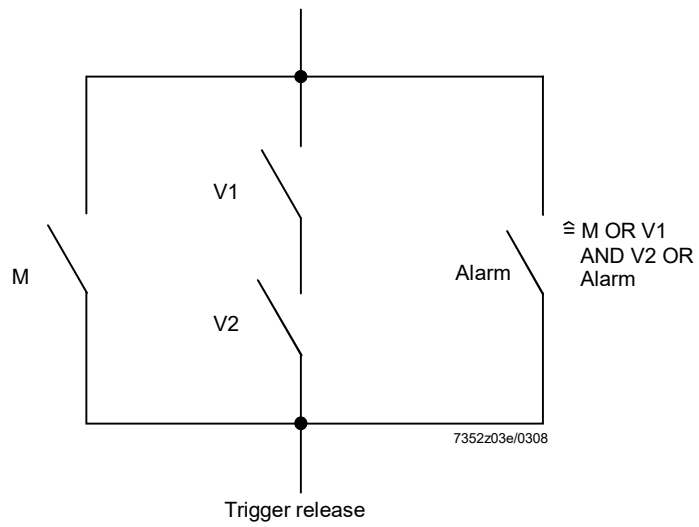
= fan motor (M)

**OR**

(fuel valve V1 **AND** fuel valve V2)

**OR**

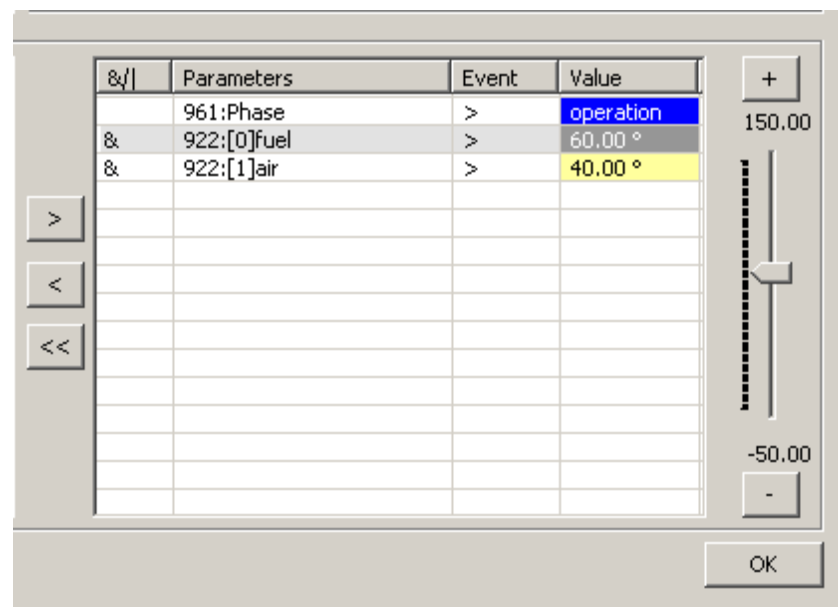
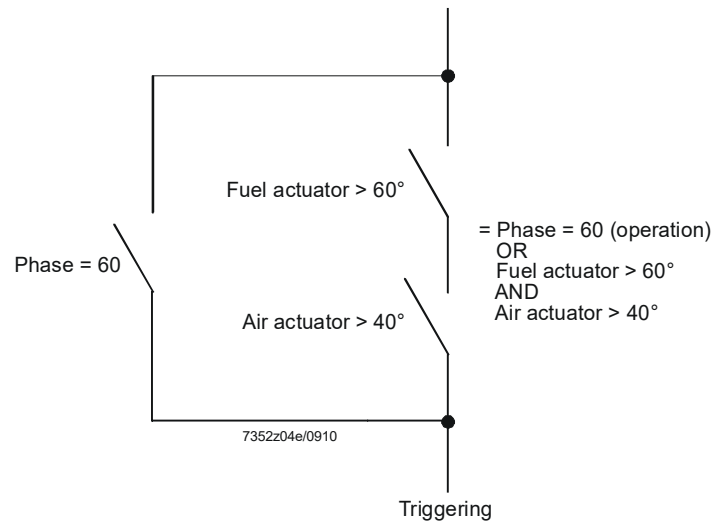
alarm

[illegible]

Phase = 60 (operating position)

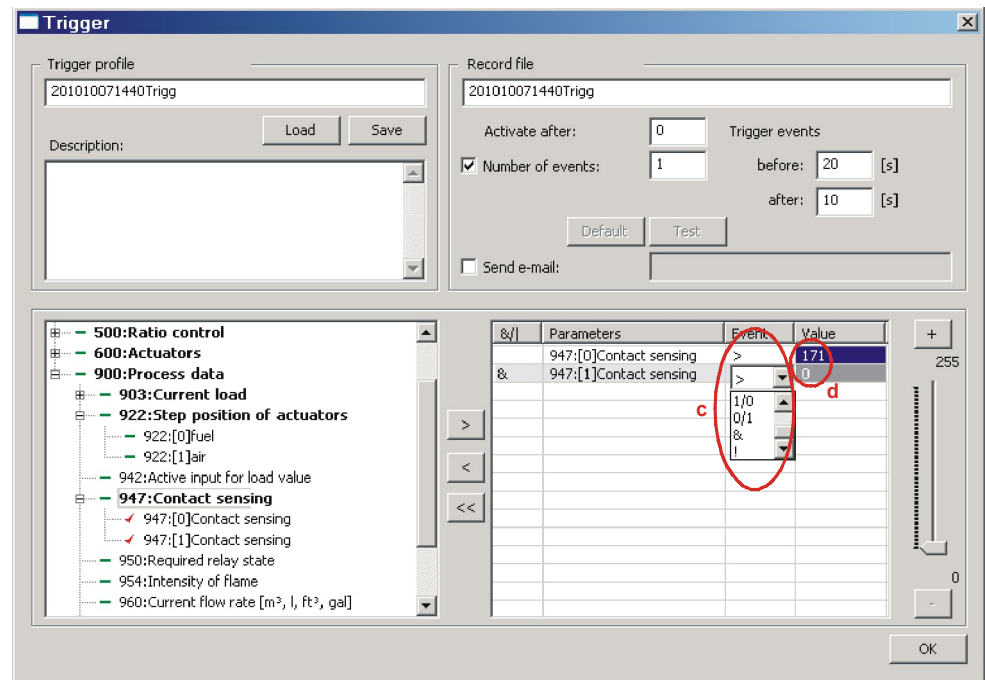
**OR**

(fuel actuator  $>60^\circ$  **and** air actuator  $>40^\circ$ )





### 13.5.4.1 Bit masking with parameters



With the help of **&** or **!**, the state of a single or of several bits of a process or parameter value can be evaluated. **&** is the query for logic **1**, **!** the query for logic **0**.

Example of parameter 947 (LMV2/LMV3)

The states of various inputs of the burner control are read in as logic 0/1 information in the form of words having a width of 8 bit.



#### Warning!

In this case of the logic column, the **&** character assumes the function of a logic **&** connection of 2 or more trigger events; in the event column **&**, the query means logic **1**.

#### Selecting one bit

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Masking value	128	64	32	16	8	4	2	1

A bit can be selected by entering the masking value of the respective bit in the value column.

The trigger shall be released when the input assigned to bit 6 (load controller *C*losed) receives an input signal (logic **1**).

Example:

&	Parameter	Event	Value
	947:[0] Contact sensing	&	64

#### Selecting several bits

Several bits can be selected by entering in the value column the value obtained from the addition of the respective masking values.

Example:

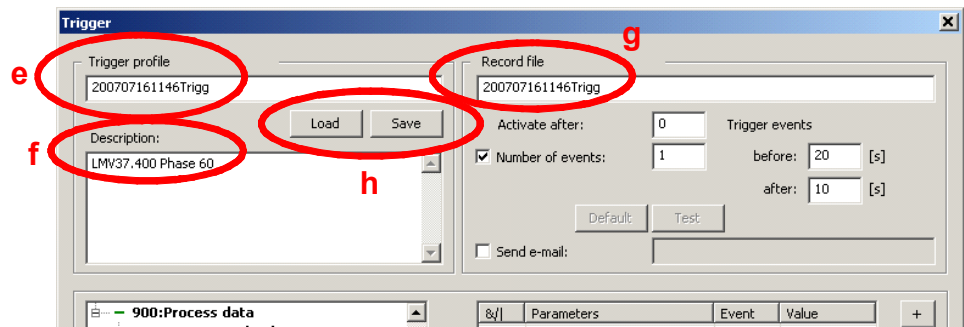
The trigger shall be released when the input assigned to bit 5 (heat request *O*n) and bit 3 (air pressure switch) receives no input signal (logic **0**).

## Settings in the trigger menu

&	Parameter	Event	Value
	947:[0]contact request	!	40

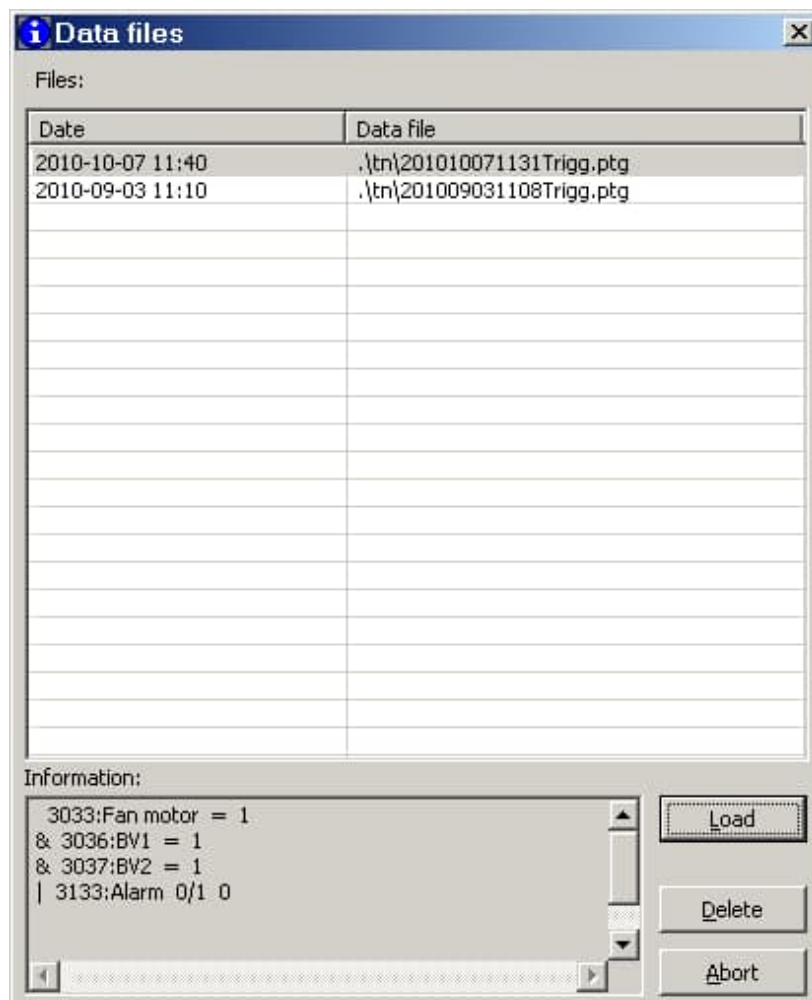
The **value** (d) can be changed here. Using the scroll bar or the **+** and **–** buttons on the right, the value can be set to **0...255**, or **0** or **1** (for digital values).

### 13.5.4.2 Saving trigger actions



**Trigger profile** (e) offers you the choice of saving the trigger events in a file. The system proposes a file name (format of file name: *YYYYMMDDssmmTrend*). This file name can be randomly selected or can also be overwritten. Filing location is ACS410 program subfolder *tn*, file name with extension \*.ptg. Click **Save** (h) to save the settings. In addition, **Description** (f) offers you a text box where you can enter any text which shall be saved together with your trigger settings. This text will make it easier to identify and administer the recordings at a later stage.

The **Load** button (h) opens the selection window to the saved trigger settings.



A trigger file can be selected with the mouse. The **Information** window shows the trigger settings and the associated description text.

- **Load** Copies the settings to the **Trigger** window
- **Delete** Removes the selected file from the list and deletes it
- **Cancel** Closes the display and the selection window

**Record file** (g) offers you the choice of saving the related graphs and of parameterizing various responses to the selected trigger event.

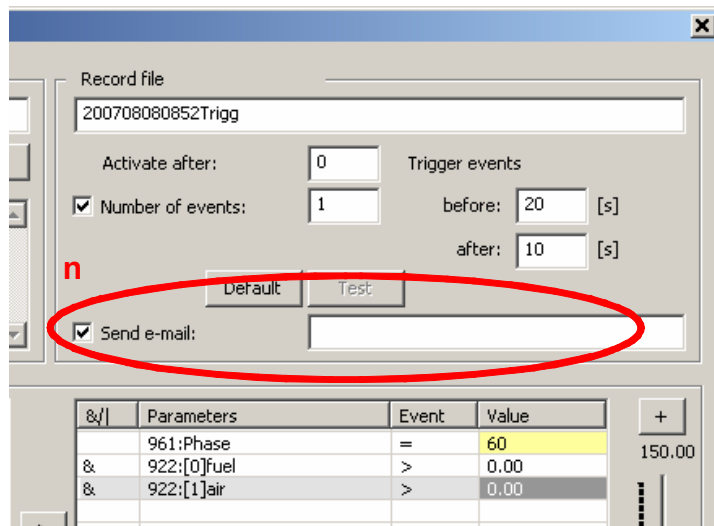
The screenshot shows a 'Record file' dialog box. The 'Record file' text box contains '200707161146Trigg' and is circled in red with the letter 'g' to its left. Below it, the 'Activate after:' text box contains '0' and is circled in red with the letter 'i' to its left. The 'Number of events:' checkbox is checked and the text box contains '1', circled in red with the letter 'k' to its left. To the right, the 'Trigger events' section has 'before: 20 [s]' and 'after: 10 [s]' text boxes, both circled in red with the letter 'm' to their right. At the bottom, there is a 'Send e-mail:' checkbox and a table with columns '&/|', 'Parameters', 'Event', and 'Value'. The table contains one row with '961:Phase', '>', and '60'. A '+' button and the number '255' are also visible.

The system proposes a file name (format of file name: *YYYYMMDDssmmTrigg*). This name can be overwritten by any other name. The graphs of the parameters selected from the **Trending** window are recorded in this file.

In text box **Activate after** (i), you can enter the number of trigger events upon completion of which the selected event shall be triggered.

When ticking ☒ the check box at **Number of events** (k), you can state whether a single or multiple recording shall be started based on the following trigger events. It is also possible here to enter the recording time **before:** or **after:** (m) the trigger event.

## Sending e-mails



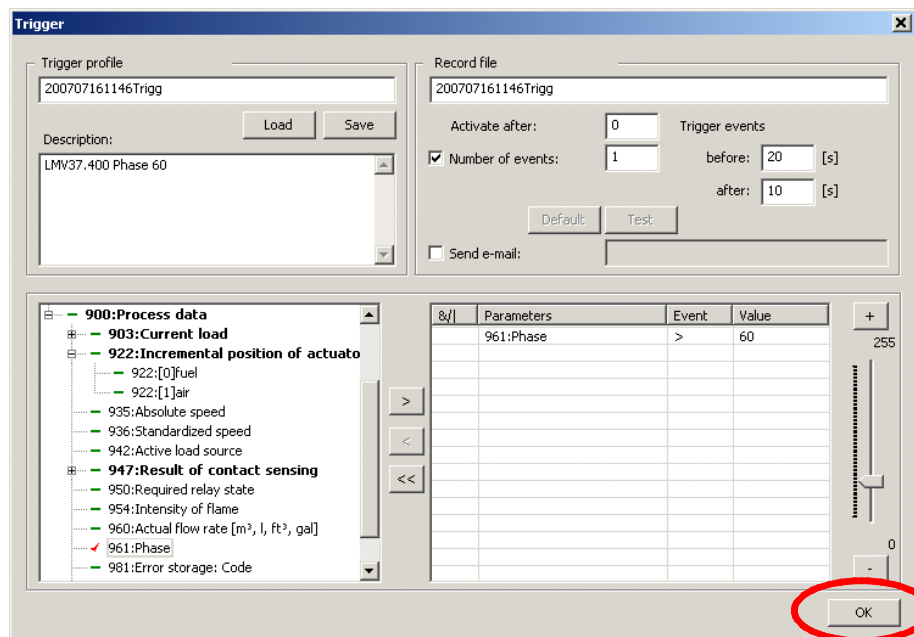
### Prerequisites for **Send e-mail (n)**:

- E-mail settings are made (⇒ chapter *Settings – General*)
- Internet access via a data network, analog modem, GSM, ISDN or DSL modem and a provider which supports *E-mail* functions must be installed on your PC. For support, contact your system administrator
- Check box ☒ at **Send e-mail (n)** ticked

### Note!

Also note that use of this function leads to further connection costs. Check your modem settings (e.g. disconnection during idle operation). Due to the complex transmission path of e-mail messages via the Internet, it is not possible to make certain that e-mail messages forwarded by the ACS410 will actually reach the recipient.

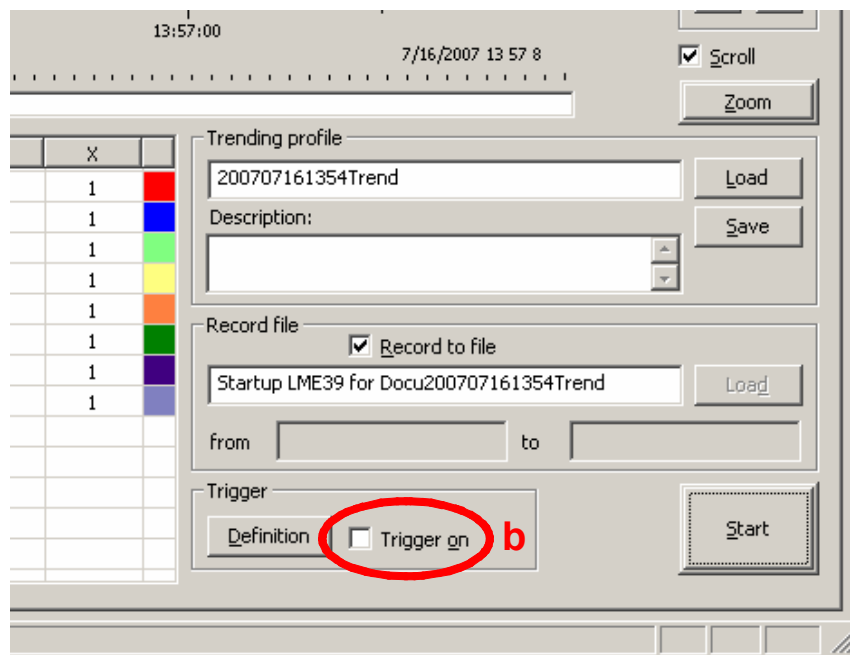
Enter the recipient's e-mail address in the text box to the right of **Send e-mail (n)**. **Test (n)** enables you to check your e-mail connections and to send test e-mail messages.



Confirm the entries made in the **Trigger** window by clicking **OK** (a).

### 13.5.5 Triggering

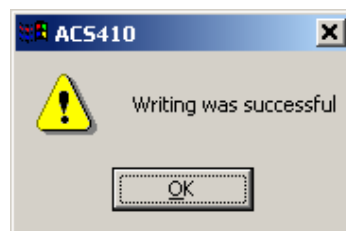
⇒ You reach the **Trending** window again.



Tick ☒ the check box at **Trigger on** (b).

After opening the **Trending** window, the next trigger event starts recording data.

On completion of the preset periods of time (in the case of several trigger events on completion of the last event), the respective file is saved.



Confirm by clicking **OK**.

Filing location is ACS410 program subfolder *tn*.

A trigger data file consists of 3 partial files:

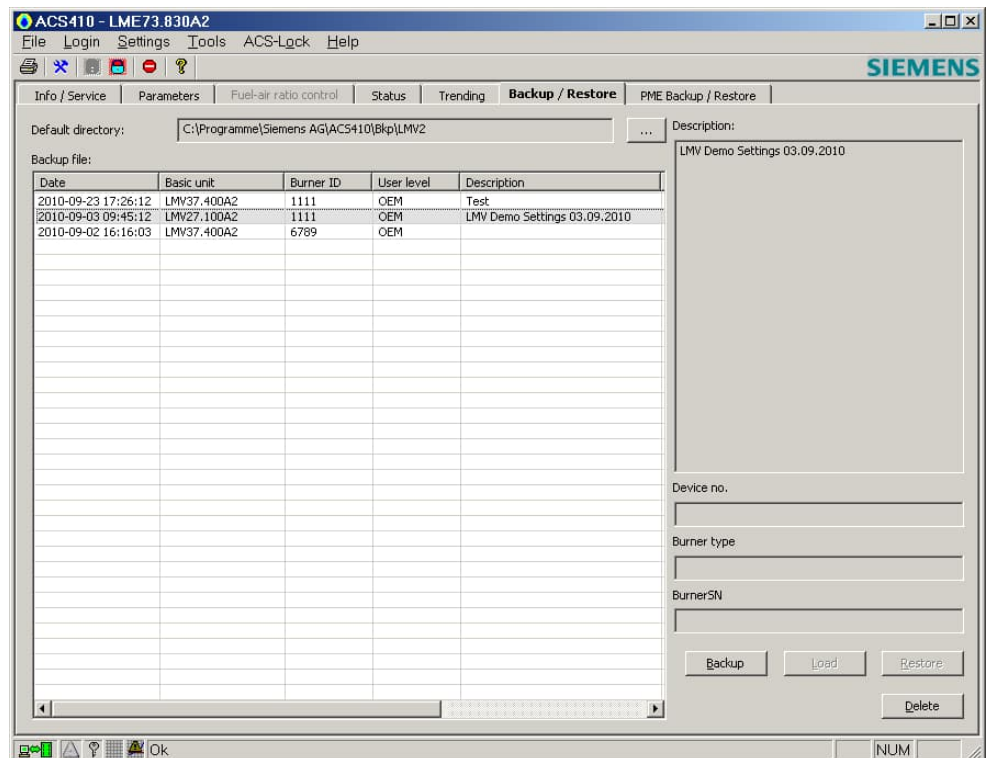
File names:

- \*.ptg – configuration of trigger settings in binary format
  - \*.dtg – contains the trending data after the trigger event
  - \*.unl – contains the parameter settings of the current parameter configuration
- DeviceASN.unt (e.g. 3LMV37.400A2 0x171.unt)

## 13.6 Backup/restore

### 13.6.1 Backup

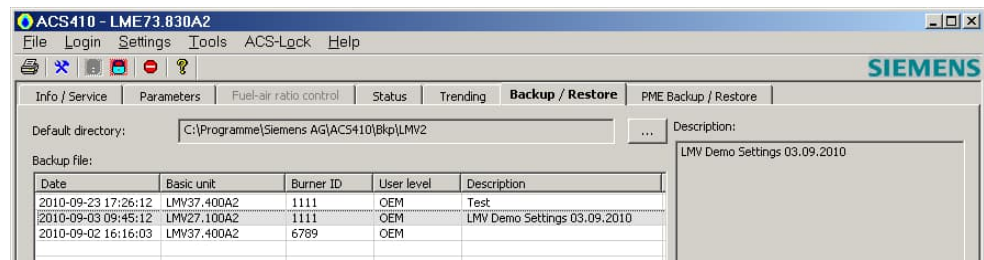
Here, it is possible to set up a backup file of the connected burner control. This means that the burner control's parameters and settings are saved in files.



When clicking **Backup**, the window for entering free description text opens. Click **Delete** if you wish to delete a selected backup file.

Prerequisite for backup is setting the burner's ID via parameter 113.

### 13.6.1.1 Selecting the backup directory



Click  to select the directory where the backup files shall be archived.

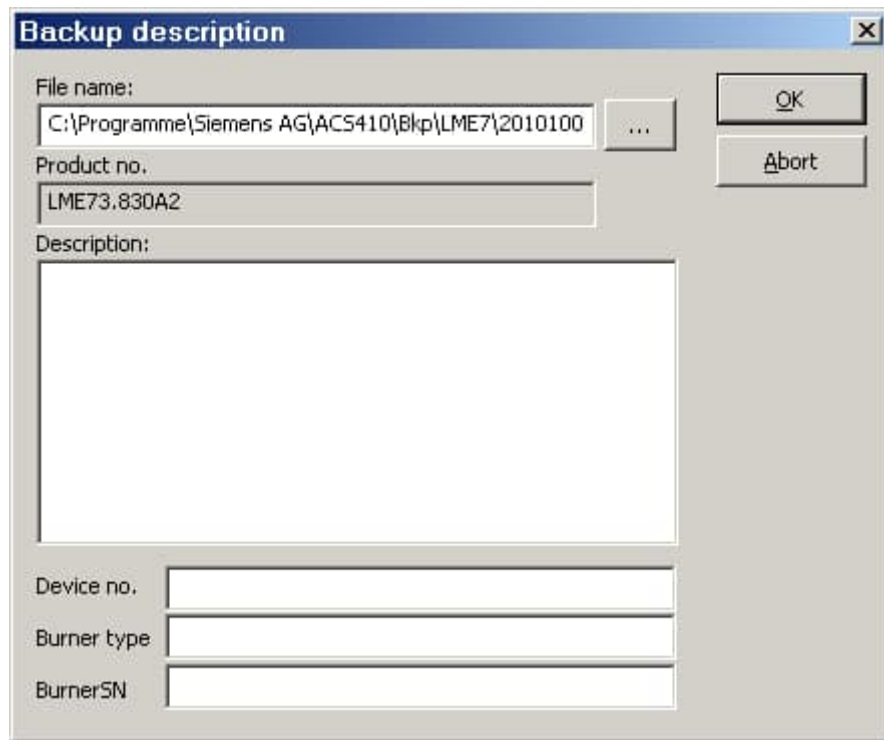
To make the entry, Windows Explorer is opened.



When clicking **Make New Folder**, you can create a directory for saving backup files. By selecting an existing directory and confirming with **OK**, the new directory is opened and the available data files appear in the **Backup / Restore** window for further handling.




## Setting up backup and selecting archiving

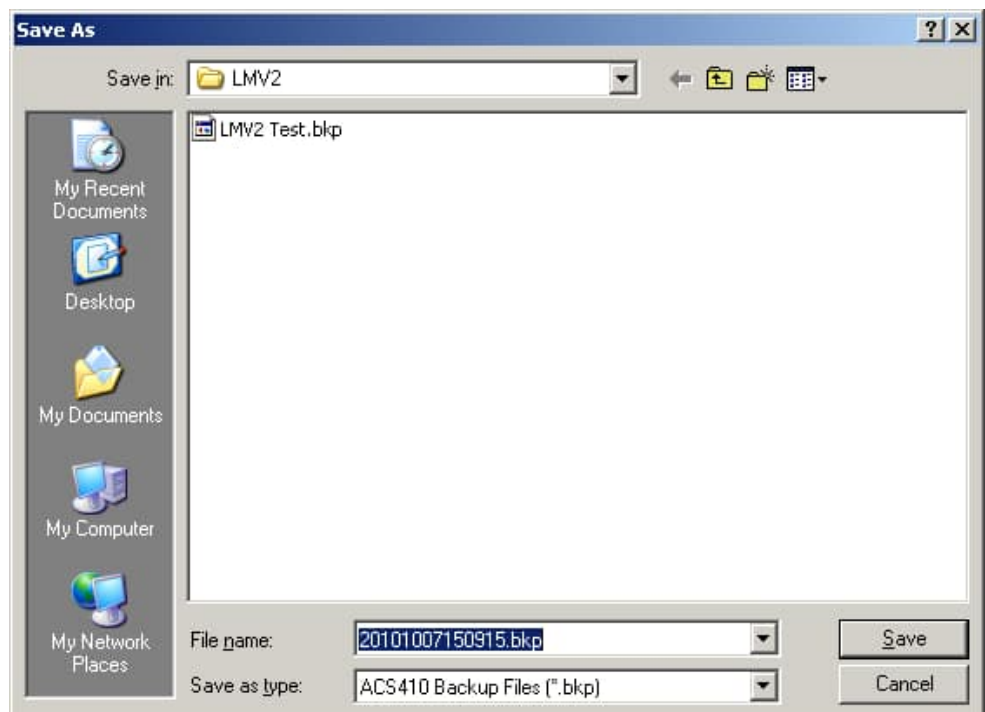


The **Backup description** dialog box contains the following fields and controls:

- File name:** A text box containing "C:\Programme\Siemens AG\ACS410\Bkp\LME7\2010100" and a browse button (...).
- Product no.:** A text box containing "LME73.830A2".
- Description:** A large empty text area for free text entry.
- Device no.:** An empty text box.
- Burner type:** An empty text box.
- BurnerSN:** An empty text box.
- Buttons:** "OK" and "Abort" buttons are located in the top right corner.

Dialog box **Description** can be used to enter free text. Boxes **Device no.**, **Burner type** and **BurnerSN** can be used to enter customer-specific burner description to be saved together with the backup file. To start the backup process, click **OK**.

Click  to open the **Save As** window.

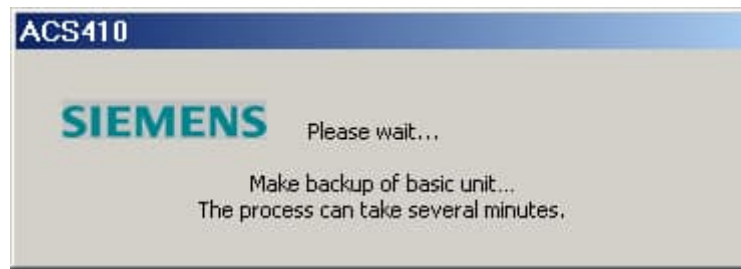


The **Save As** dialog box shows the following details:

- Save in:** A dropdown menu showing "LMV2".
- File list:** A list box containing "LMV2 Test.bkp".
- File name:** A text box containing "20101007150915.bkp".
- Save as type:** A dropdown menu showing "ACS410 Backup Files (\*.bkp)".
- Buttons:** "Save" and "Cancel" buttons are in the bottom right corner.
- Navigation pane:** On the left, there are icons for "My Recent Documents", "Desktop", "My Documents", "My Computer", and "My Network Places".

Here, a new storage directory can be set up or selected. At the same time, the name proposed for the backup file can be adopted or overwritten. To start the backup process, click **Save**.

This input is saved together with the backup file. To start the process, click **Save**.



**Note!**

Creation of a backup may take several minutes, depending on the type of burner control and the selected rate of communication.

The following status message appears.



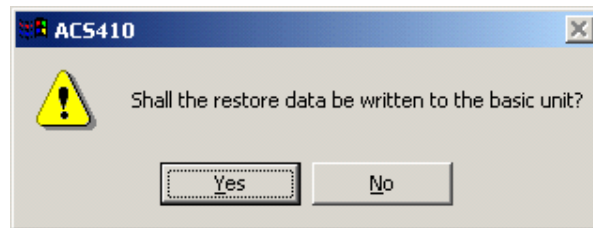
Confirm by clicking **OK**.

## 13.6.2 Restore

The **Restore** button is used to write the stored parameters and settings back to the burner control. Prerequisite is that the burner control is in online operation. Before the restore process is started, a compatibility check is made.

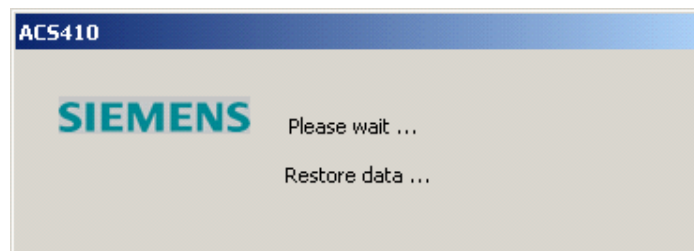
From the **Backup / Restore** window, select the required restore file.

Click **Restore** to open the following window:

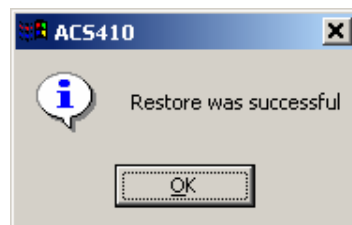


- **Yes** Starts the restore process
- **No** Aborts the restore process

When starting the restore process, the following message appears:



Successful execution of the restore process is reported:



Confirm by clicking the **OK** button.



**Warning!**  
If the LMV2/LMV3 uses fan motor control, the fan speed must be standardized again after the restore process.

## Restrictions with restore

- **Incompatible parameter sets**

The current software version of the burner control and the version used for making the backup are incompatible.

The software version used for making the backup can be read out from the LMV2/LMV3 data set (parameter 107). For that purpose, the backup file must be opened in offline mode.

With the LMV2/LMV3, the following combinations are possible:

Target version of the burner control	Condition for successful backup
V01.30	Backup data set version V01.20 or V01.30
V01.37 V01.38	Backup data set version V01.20 to V01.38
Up V01.40 to V01.70	Backup data set version V01.40 or higher
V01.80	Backup data set version V01.30 or higher
V03.00	Backup data set version V03.00 or higher
V03.40	Backup data set version V03.40 or higher
V03.70	Backup data set version V03.70 or higher
V03.80	Backup data set version V03.80 or higher

- **Different types of devices**

- It is not possible to copy a parameter set to another type of burner control (other product no. (ASN))
- In the case of LME7/LME8 with software version 2.0 or higher (see type field), data can be restored on burner control as supplied

- **Burner ID**

The burner ID of the data set to be restored must accord with the burner ID of the burner control.

If any of the above-mentioned restrictions applies, the respective error message appears. After confirmation of the messages by clicking **OK**, the restore process is aborted.

### 13.6.3 Copying a parameter set

Using backup/restore, the parameter set can be copied to some other unit. This may become necessary when a data set shall be copied to a non-parameterized unit.



**Warning!**

**If the ACS410 is not used, all parameter settings are to be verified via an AZL2, and safe functioning of the plant is to be checked!**

If compatibility is ensured, data can be restored on a non-parameterized burner control as supplied. Burner control as supplied applies if the burner's ID (parameter 113) is invalid,

LME39: **burnEr ID**

LME7/LME8:---- ----

LMV2/LMV3: **2147483647** or --- on the **Parameters** menu

The restore process also copies the burner ID of the data set to the burner control.

## 14 PME backup/restore



### Note

This function is for use with LME7/LME8 only. It cannot be activated with any other type of burner control.

[illegible]

### 14.1 Explanation of text

Product no. (ASN) of basic unit:

ASN matching the PME program module after the successful restore process. ASN of the current configuration

Software version basic unit:

Current PME software version of the burner control

Ident. No. of stamped PME:

Unique PME ID of the PME program module

Description:

Here, free text or customer-specific burner descriptions for the respective process can be entered in the log file



### Warning!

**During a backup or restore process, the connected burner control initiates safety shutdown! If there is a request for heat after backup, the burner is started up. After the restore process, the burner control must be reset and the settings checked!**

State of basic unit:

Shows the respective state between  
LME7/LME8 and PME program module


The restore, backup and OEM backup process can be performed, depending on the burner control's state.

## 14.2 Possible status messages

Status message	Meaning	Action
LME requires no PME module	LME7/LME8 with internal program sequence. Use of PME program module not possible	Do not use a PME program module
LME functions according to the user program for the current PME module	PME program has already been restored on the LME7/LME8. LME7/LME8 and PME program module can be used	Restore and backup possible
LME functions according to the user program for the current OEM PME module	OEM PME program has already been restored on the LME7/LME8. LME7/LME8 and PME program module can be used	Restore/backup/OEM backup possible
LME with unknown PME module	PME program has not yet been restored on the LME7/LME8. LME7/LME8 does not start operation	Start restore process! Reset LME7/LME8 and check settings and combustion process
LME with configuration as supplied, with unknown OEM PME module. An OEM PME restore process has still not been initiated for the LME.	The OEM PME program has not yet been loaded to the LME7/LME8. LME7/LME8 does not start operation.	Start restore process! Reset LME7/LME8 and check settings and combustion process
LME with unknown OEM PME module	OEM PME program has not yet been restored on the LME7/LME8. LME7/LME8 does not start operation!	Start restore process! Reset LME7/LME8 and check settings and combustion process
LME with OEM PME module, configuration as supplied	OEM PME program module is plugged in. OEM PME program module still without program!	Start OEM backup process! Assign specific OEM PME product type (ASN)! Mark PME program module as specified by the OEM. Finally, start new PME restore process
LME with configuration as supplied, with OEM PME module, with configuration as supplied	Neither LME7/LME8 nor OEM PME program module have an operable program	Restore/backup/OEM backup not possible. OEM PME program module must be set or LME7/LME8 must be checked beforehand
LME requires no PME module, PME module is plugged in	LME7/LME8 with internal program sequence. Use of PME program module not possible	Remove PME program module
LME with missing PME module	LME7/LME8 without program	Plug in PME program module
Restore process was successfully completed	PME restore process was successfully completed	Reset LME7/LME8 and check settings and combustion process
Restore process was aborted. Product no. (ASN) incompatible	PME restore process aborted. LME7/LME8 does not start operation	Check product no. (ASN) of LME7/LME8 and of PME program module. Only matching PME program module can be used.
		⇒ <b>Reference!</b> The Basic Documentation covering the respective type of LME7/LME8 must be observed!

Status message	Meaning	Action
Restore process was aborted. Version incompatible	PME restore process was aborted. Software version incompatible. LME7/LME8 does not start operation	Check product no. (ASN) of LME7/LME8 and of PME program module. Only matching PME program module can be used.  ⇒ Reference! The Basic Documentation covering the respective type of LME7/LME8 must be observed!
Restore process was aborted	PME restore process was aborted	Repeat PME restore process
Backup process was successfully completed	PME backup process was successfully completed	---
Backup process was aborted	PME backup process was aborted	Repeat PME backup process
OEM backup process was successfully completed	OEM PME backup process was successfully completed	Mark PME program module as specified by OEM
OEM backup process was aborted. Product no. (ASN) incompatible	OEM PME backup process was aborted. Product no. (ASN) incompatible	Check product no. (ASN) of LME7/LME8 and of PME program module. Only matching PME program module can be used.  ⇒ Reference! The Basic Documentation covering the respective type of LME7/LME8 must be observed!
OEM backup process was aborted	OEM PME backup process was aborted	Repeat OEM PME backup process

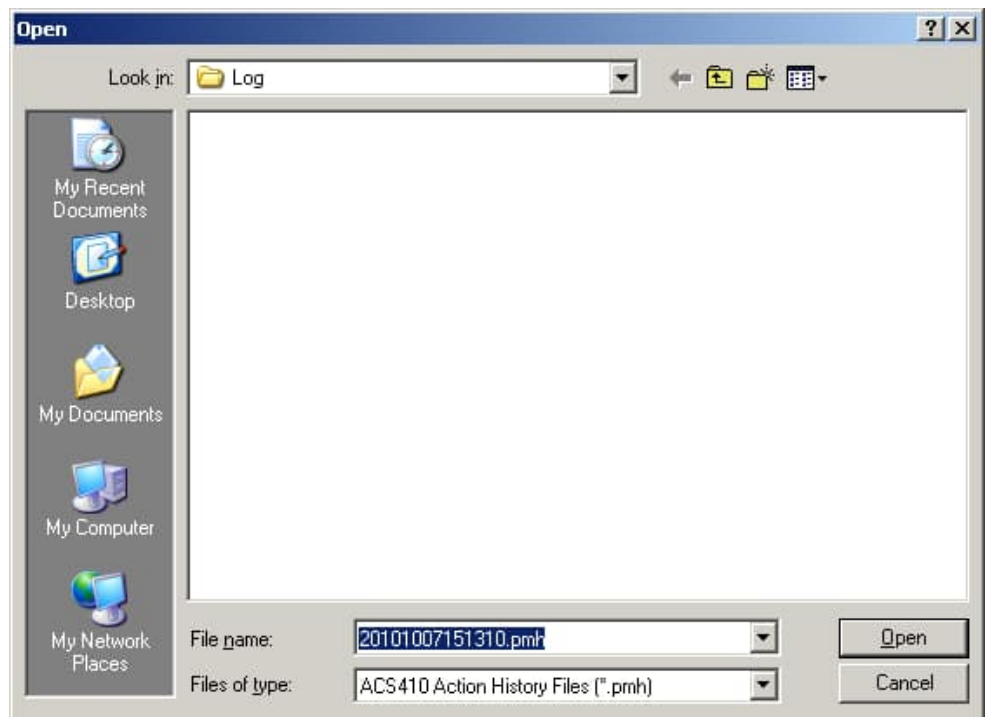
All actions (restore/backup/OEM backup) plus entries and results are archived in the respective log file.

Click  to change the file archiving directory.



Windows Explorer opens.



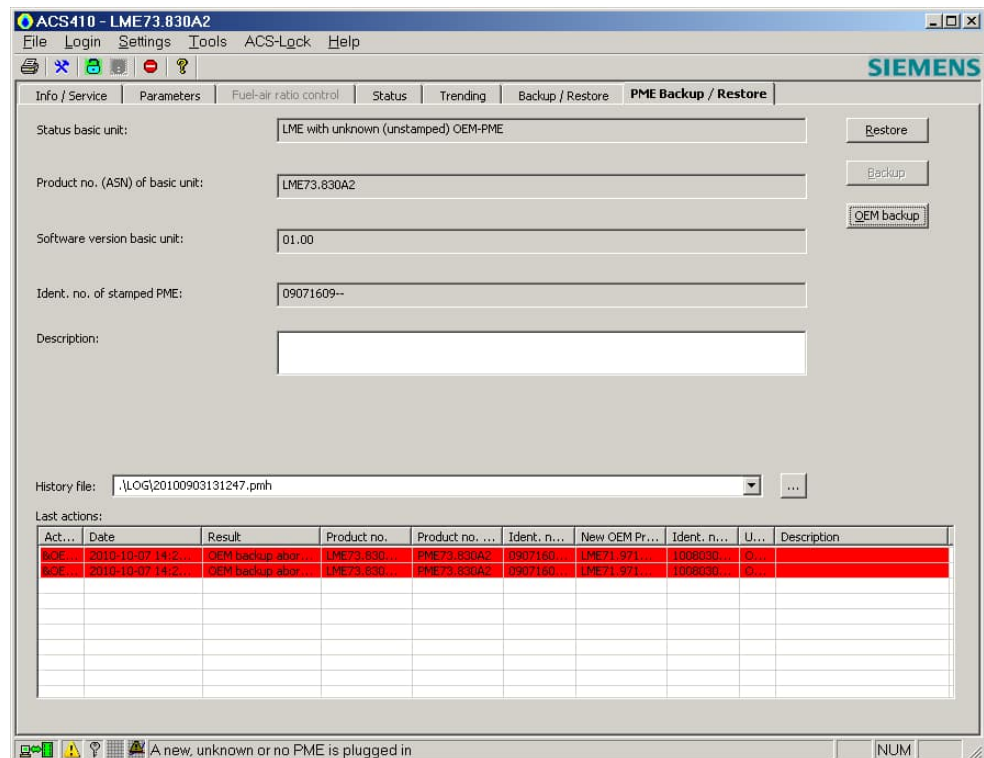


Here, a new file archiving directory can be set up or selected. The name proposed for the log file can be adopted or overwritten.

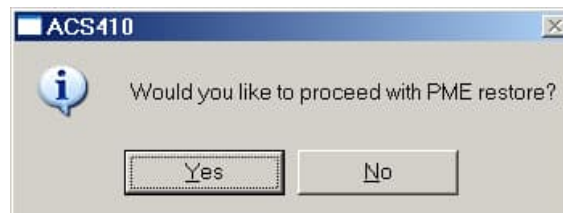
## 14.3 PME program module restore process

During the restore process, the program sequence with all settings is transferred from the PME program module to the internal storage of the LME7/LME8.

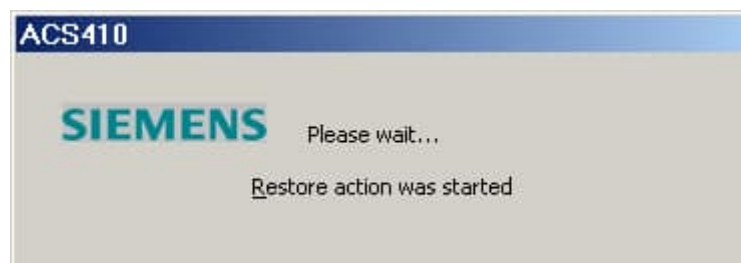
To start the restore process, click **Restore**.



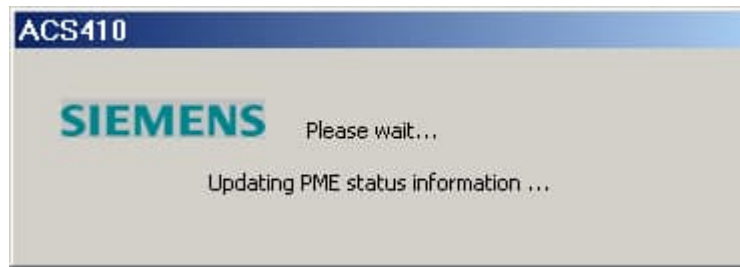
Click **Yes** to confirm.



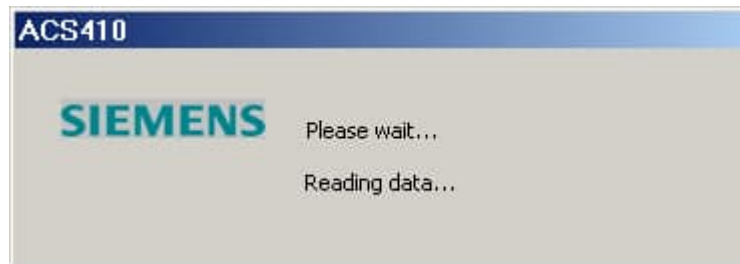
The following message appears:



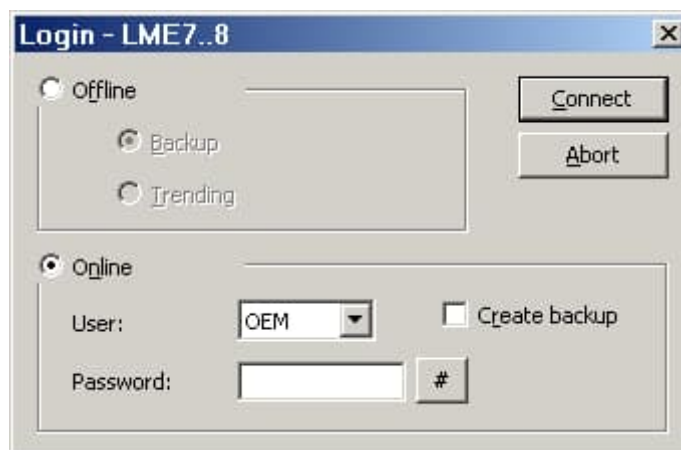
Then, the following message appears:



A new initialization with the LME7/LME8 is made.



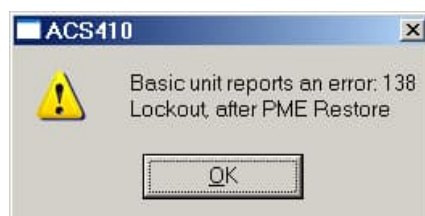
Then, upon successful completion of the restore process, the following **Login** box might appear, depending on the password:



Here, new logging on to the LME7/LME8 is required.

Upon successful completion of the restore process, the LME7/LME8 is locked.

The following message appears:



Confirm by clicking **OK**; then, reset the LME7/LME8 for another function.

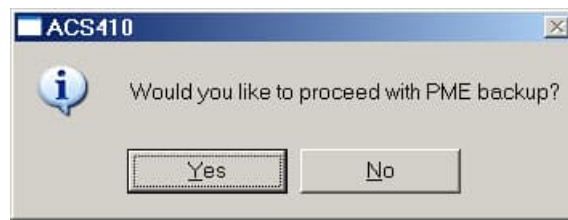


**Note**

After the restore process, the LME7/LME8 is locked (Loc138); the LME7/LME8 must be reset and the settings must be checked.

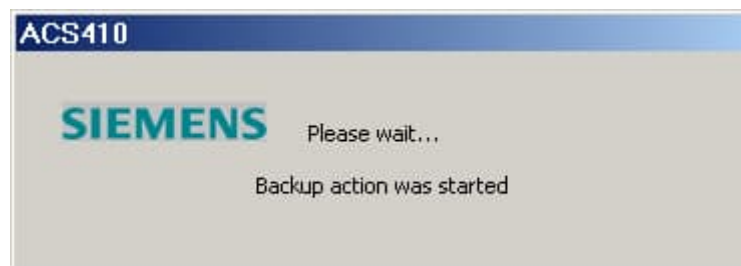
## 14.4 PME program module backup process

To start the process, click **Backup**.



A box opens. Click **Yes** to confirm.

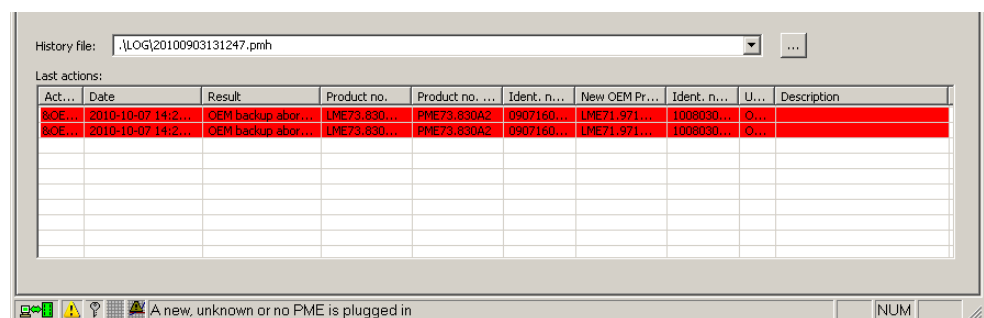
The following message appears:



Then, the following message appears:



The result is shown on the status line and in window **Last actions**. Actions highlighted in red were not successful and must be repeated, if required.



## 14.5 PME program module OEM backup

The *OEM backup* function is for use with LME7/LME8 only!



### Warning!

On the basis of existing program sequences, this function allows the OEM at its own responsibility to create time and setting variants and to store program sequences on special OEM PME program modules. Approval, release and identification of the PME program modules are the responsibility of the OEM or of the person that creates such PME program modules.



### Note

Prerequisite is the use of an OEM PME program module. The LME7/LME8 is in the safety shutdown position and reports error **Err PrC**. A program sequence is started only upon completion of an OEM backup. The OEM PME program module comes with no program sequence but allows the user to adopt or store a program sequence filed in the LME7/LME8. This function is intended for exclusive use by the OEM.

To start the OEM backup process, click **Copy**.

In this box, an OEM-specific product no. (ASN) in the value range 70...99 must be assigned.

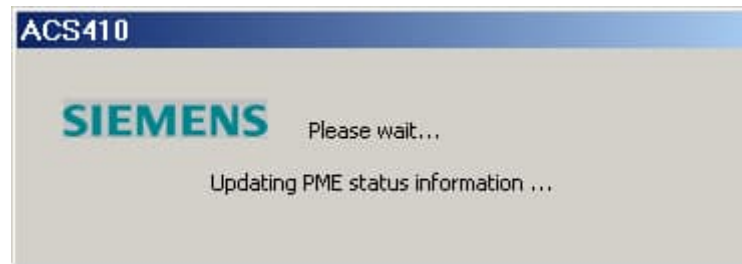
To do this, click on the little white box and assign the respective number.

To start the OEM PME... backup process, click **Copy**.

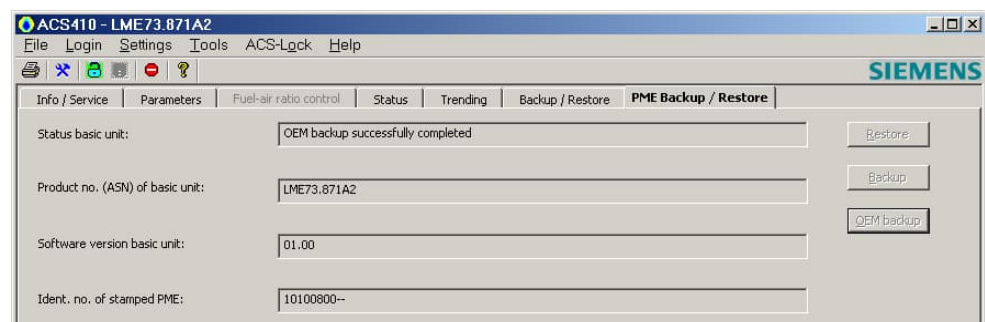
The following message appears:



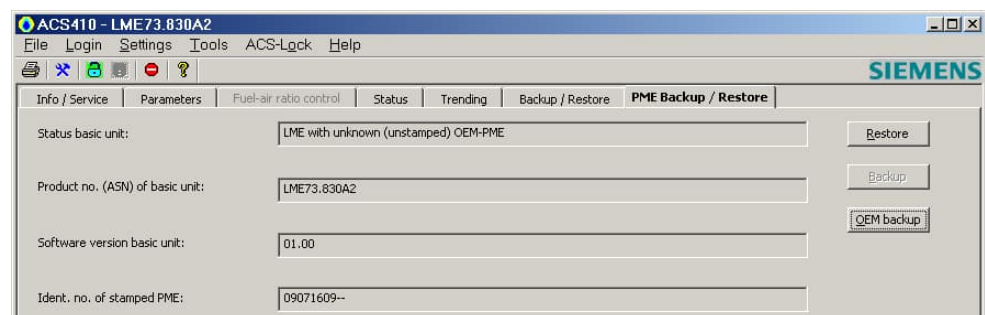
Then, the following message appears:



Upon successful completion, **Status basic unit:** shows the message **OEM backup successfully completed.**



After a short time, the message displayed after **Status basic unit:** changes to **LME with unknown (unstamped) OEM-PME.**



To operate the LME7/LME8, a PME restore is required. (⇒ chapter *PME program module restore*).

# 15 UDS operation

Close the OCI400 communication interface as described in chapter *Connecting to the plant*.

In UDS mode, the UDS-compatible small burner control types LMO and LME can forward info/service, parameter, status, trending and backup/restore data, which can then be displayed via the ACS410.

In addition, it is possible to create a backup of the burner control parameters, to make burner control settings in the **Backup / Restore** window, and to plot a graph in the **Trending** window, either manually or via automatic trigger.

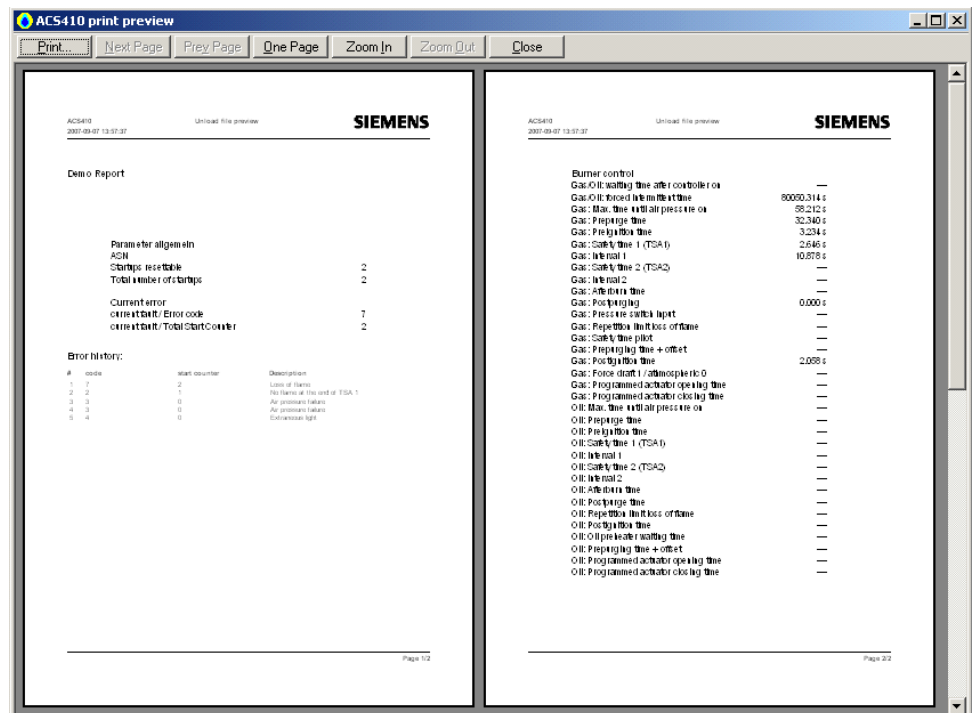


## Note!

In principle, operation is the same as that described in chapter *Working with the ACS410*.

Exception:

It is not possible to change burner control parameters in the **Parameters** window, or to make a restore in the **Backup / Restore** window.



Example: Report offline backup

# 16 List of the most important error messages

## 16.1 Error messages *Error...*



### Note

The list only shows the most important error messages. Other error messages may appear as well!

Error code	Display	Meaning	Recommended measure
Error2141	AbeCom initialization has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2142	AbeCom-ReqData() has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2143	AbeCom: Order number discrepancy!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2144	AbeCom error!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2145	AbeCom-SendData() has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2146	AbeCom: Time has elapsed – no communication with the basic unit	Communication between ACS410 and burner control was cut for more than the timeout period	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2147	Size of long page is ZERO!	Data set is faulty	Contact the supplier of the ACS410
Error2148	UDS: GetParamValue has failed!	UDS reading error	Check to see if the OCI400 is correctly attached to the burner control – check wiring between OCI400 and ACS410
Error2149	UDS: GetParamTree has failed!	UDS reading error	Check to see if the OCI400 is correctly attached to the burner control – check wiring between OCI400 and ACS410
Error2165	Backup not possible. Burner ID is invalid	Thus far, no value has been entered for parameter <i>Burner identification</i>	On the <b>Parameters</b> menu, enter a correct value for parameter <i>Burner ID</i>




Error messages *Error...* (cont'd)

Error code	Display	Meaning	Recommended measure
Error2166	Restore not possible. Burner ID of burner control and that of backup file is different	If burner ID of the burner control and that of the backup file are different, execution of the restore process is not possible	Is the selected restore data set the correct one? On the <b>Parameters</b> menu, check the value given for <i>Burner ID</i>
Error2167	Restore not possible. Software version of burner control and that of backup file is different	The burner control's software version and the required software version saved in the backup file are incompatible	Use the restore file compatible with the burner control. Refer to the ACS410 compatibility table in chapter <i>Backup/restore</i>
Error2168	Data corrupted! (Wrong CRC)	Backup file is faulty	Create a new backup file
Error2172	Basic unit is not connected or selected interface is invalid	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2173	User is not authorized to access this function		Log on to the correct user level
Error2174	Communication with the basic unit has been cut!		Log on again to the login dialog
Error2175	No basic unit connected to the OCI	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Error2184	Curvepoint could not be read!	Read access to one or several points of the ratio control curve has failed	Repeat process
Error2185	Curvepoint could not be read!	Read access to one or several points of the ratio control curve has failed	Repeat process
Error2186	Required function cannot be started, data access currently disabled!		Repeat process
Error2187	Burner ID could not be read!	Parameter <i>Burner identification</i> could not be read	If the error occurred on the <b>Parameters</b> menu, repeat the read access by clicking <b>Refresh</b> . Restart the ACS410
Error2204	File cannot be read. This file contains parameters the logged on user is not authorized to access	The user currently logged on is not authorized to access the parameters saved in the file	Log on to the correct user level
Error2207	SMTP server not specified!	In <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> , no server for sending e-mails is specified	Complete the settings required for e-mails. For more information, contact your provider

Error messages *Error...* (cont'd)

Error code	Display	Meaning	Recommended measure
Error2208	E-mail subject not entered!	No text has been entered on the <i>Subject</i> line of mask <i>Settings</i> → <i>E-mail</i>	Complete the settings required for e-mails (Subject)
Error2209	E-mail address not entered!	In mask <i>Settings</i> → <i>E-mail</i> no e-mail address has been entered on the <i>To:</i> line	Complete the settings required for e-mails or the <b>Trigger</b> menu (under Trending → Trigger → <b>Definition</b> button)
Error2210	Connection to SMTP server has failed:	Connection to the server for sending e-mails could not be established	Check the connection to your e-mail server and the settings made in <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> . Compare the settings made with the information given by your provider
Error2211	SMTP message could not be sent:	E-mail could not be sent	Check the connection to your e-mail server and the settings made in <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> . Compare the settings made with the information given by your provider
Error2212	Trigger list is empty! Trigger cannot be started!	The <b>Trigger</b> menu does not contain a trigger event. Trigger cannot be activated without this entry	Create at least one trigger event in the <b>Trigger</b> window
Error2213	Driving to undefined point not permitted!	Ratio control curve contains one or several undefined curvepoints	Set the ratio control parameters or copy a valid parameter backup to the burner control
Error2214	Unload file (UNL) does not exist	Backup of a parameter set consists of 2 files: *.unl = backup data, and *.bkp = information on backup. File *.unl has not been found	Create a new backup
Error2216	Software version check has failed	burner control not compatible with ACS410	burner control does not support connection of PC tool
Error2217	Product no. (ASN) check has failed	Backup data set and connected burner control have different product nos. (ASN)	Use data set with the same product no. (ASN) as the connected burner control. For product no. of data set, refer to backup/restore in column <b>Basic unit</b> of the data set list
Error2218	Standardization of VSD has failed	Error occurred when standardizing the speed of the VSD	For cause of the error, refer to the display of results in the ratio settings. Clear text diagnostics is offered by the error history on the <b>Info/Service</b> page. On startup, the pointer translates the diagnostic code to clear text
Error2220	Backup not possible. Burner ID invalid	burner control still without valid burner ID	Enter burner ID


Error messages *Error...* (cont'd)

Error code	Display	Meaning	Recommended measure
Error2222	Backup/restore has failed	Error occurred during backup or restore process	Check cable connection. Check to see if burner control operates correctly (e.g. power supply). Repeat the process. Restart the ACS410
Error2223	PME action was not started	Execution of required action was not possible at this point in time	Restart the required action
Error2224	PME restore has failed	Action could not be fully completed	Restart the required action
Error2225	PME backup has failed	Action could not be fully completed	Restart the required action
Error2226	PME OEM backup has failed	Action could not be fully completed	Restart the required action
Error2227	General PME error + supplementary error text	Error occurred during the action	Restart the required action
Error2228	Restore not possible. No compatibility	PME program module and burner control do not match. Product no. (ASN), software version are not compatible	Use a matching PME program module
Error2300	During recalculation of the ratio control curves, the type of fuel was changed. The curve changes cannot unambiguously be assigned to one type of fuel. For this reason, the ratio control curves of both types of fuel must be checked and possibly set again	During the time the curves were recalculated (Calc + / -), the type of fuel was changed. For safety reasons, the ratio control curves of both types of fuel are set invalid, depending on the point in time fuel changeover took place (the set positions are maintained)	 <p><b>Important!</b> The ratio control curves of both types of fuel must be checked and possibly set again. During the time the ratio control curves are set, the type of fuel should not be changed.</p>
Error2301	You are not authorized to change the initial parameter settings	The initial parameter settings have a higher access right for writing	

## 16.2 Error messages in alphabetical order

Error message	Meaning	Recommended measure
AbeCom: Order number discrepancy!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
AbeCom: Time has elapsed – no communication with the basic unit	Communication between ACS410 and burner control was cut for more than the timeout period	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
AbeCom error!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
AbeCom initialization has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
AbeCom-ReqData() has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
AbeCom-SendData() has failed!	Communication between burner control and ACS410 is disturbed	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
ACS version not correct. Use a current version of this program	ACS410 version used is incompatible with the burner control	Update of ACS410 required. Contact the supplier of the ACS410
Backup not permitted for the logged on user	Backup on the current user level not possible	Log in on the correct user level
Backup not possible. Burner ID is invalid	Thus far, no value has been entered for parameter <i>Burner identification</i>	On the <b>Parameters</b> menu, enter a correct value for parameter <i>Burner identification</i>
Backup not possible. Burner ID invalid	burner control still without valid burner ID	Enter burner ID
Backup/restore has failed	Error occurred during backup or restore process	Check cable connection. Check to see if burner control operates correctly (e.g. power supply). Repeat the process. Restart the ACS410

Error messages in alphabetical order (cont'd)

Error message	Meaning	Recommended measure
Basic unit not connected	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Basic unit is not connected or selected interface is invalid	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Burner ID could not be read!	Parameter <i>Burner identification</i> could not be read	If the error occurred on the <b>Parameters</b> menu, repeat the read access by clicking <b>Refresh</b> . Restart the ACS410
Burner ID invalid. Valid value required	Thus far, no value has been entered for parameter <i>Burner identification</i>	On the <b>Parameters</b> menu, enter a correct value for parameter <i>Burner identification</i>
Communication with the basic unit has been cut!		Log on again to the login dialog
Connection to SMTP server has failed:	Connection to the server for sending e-mails could not be established	Check the connection to your e-mail server and the settings made in <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> . Compare the settings made with the information given by your provider
Curvepoint could not be read!	Read access to one or several points of the ratio control curve has failed	Repeat the process
Data corrupted! (Wrong CRC)	Backup file is faulty	Create a new backup file
Driving to undefined point not permitted!	Ratio control curve contains one or several undefined curvepoints	Set the ratio control parameters or copy a valid parameter backup to the burner control
During recalculation of the ratio control curves, the type of fuel was changed. The curve changes cannot unambiguously be assigned to one type of fuel. For this reason, the ratio control curves of both types of fuel must be checked and possibly set again	During the time the curves were recalculated (Calc + / -), the type of fuel was changed. For safety reasons, the ratio control curves of both types of fuel are set invalid, depending on the point in time fuel changeover took place (the set positions are maintained)	 <b>Important!</b> <b>The ratio control curves of both types of fuel must be checked and possibly newly set. During the time the ratio control curves are set, the type of fuel should</b>
E-mail address not entered!	In mask <i>Settings</i> → <i>E-mail</i> no e-mail address has been entered on the <i>To:</i> line	Complete the settings required for e-mails or the <b>Trigger</b> menu (under Trending → Trigger → <b>Definition</b> button)
E-mail subject not entered!	No text has been entered on the <i>Subject</i> line of mask <i>Settings</i> → <i>E-mail</i>	Complete the settings required for e-mails (Subject)

Error messages in alphabetical order (cont'd)

Error message	Meaning	Recommended measure
Error when accessing data!	Error occurred during data handling by the ACS410	If this error message appears while changing a parameter, the change is not necessarily made on the burner control. For this reason, check the correct setting on the burner control (repeat the process with the help of the ACS410 or connect the AZL2). If this error message is displayed repeatedly, reinstall the ACS410
File cannot be read. This file contains parameters the logged on user is not authorized to access	The user currently logged on is not authorized to access the parameters saved in the file	Log on to the correct user level
General PME... error + supplementary error text	Error occurred during the action	Restart the required action
Hard disk is full. Logging and trending cannot be saved		Provide additional storage space on the hard disk
Language file faulty	File for ACS410 display text is faulty. ACS410 cannot be started.	Reinstall the program or contact the supplier of the ACS410
Language file faulty. Contact the ACS410 supplier	File for ACS410 display text is faulty. ACS410 cannot be started.	Reinstall the program or contact the supplier of the ACS410
No authorization for this parameter	Change of parameter on the current user level not possible	Log in on the correct user level
No basic unit connected to the OCI	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
No basic unit found. Check the connection and try again	ACS410 cannot receive data from the burner control	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
OCI not enabled	Use of a wrong type of OCI410 or technical component problem	Replace the OCI410. Always use approved types of OCI410 as per type summary in chapter <i>Data exchange via OCI410</i>
OCI not found! Check the OCI410	ACS410 cannot receive data from the OCI410	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
PME... action was not started	Execution of required action was not possible at this point in time	Restart the required action
PME... backup has failed	Action could not be fully completed	Restart the required action

Error messages in alphabetical order (cont'd)

Error message	Meaning	Recommended measure
PME OEM backup has failed	Action could not be fully completed	Restart the required action
PME restore has failed	Action could not be fully completed	Restart the required action
Product no. (ASN) check has failed	Backup data set and connected burner control have different product nos. (ASN)	Use data set with the same product no. (ASN) as the connected burner control. For product no. of data set, refer to backup/restore in column <i>Basic unit</i> of the data set list
Required function cannot be started, data access currently disabled!		Repeat the process
Required position could not be approached!	Error occurred during operation of actuators	Repeat the process
Resetting cannot be started. Another operation requires exclusive access to the device	Before a reset can be made, a started function must be executed first	Repeat the reset process
Resetting sequence not fully completed	Execution of reset was not possible	Repeat the reset process
Restore not possible. Burner ID of burner control and that of backup file is different	If burner ID of the burner control and that of the backup file are different, execution of the restore process is not possible	Is the selected restore data set the correct one? On the <b>Parameters</b> menu, check the value given for <b>Burner ID</b>
Restore not possible. Software version of burner control and that of backup file is different	The burner control's software version and the required software version saved in the backup file are incompatible	Use the restore file compatible with the burner control. Refer to the ACS410 compatibility table in chapter <i>Backup/restore</i>
Restore not possible. No compatibility	PME program module and burner control do not match. Product no. (ASN), software version are not compatible	Use a matching PME program module
Serial interface (e.g. COM1) cannot be initialized. Check cable connection or port number and try again	Serial interface cannot be initialized	Check wiring between burner control and OCI410 interface. Restart the ACS410. Check interface settings of the ACS410 (⇒ chapter <i>Settings</i> )
Size of long page is ZERO!	Data set is faulty	Contact the supplier of the ACS410
SMTP message could not be sent:	E-mail could not be sent	Check the connection to your e-mail server and the settings made in <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> . Compare the settings made with the information given by your provider
SMTP server not specified!	In <i>Settings</i> → <i>E-mail</i> , line <i>E-mail server – name</i> , no server for sending e-mails is specified	Complete the settings required for e-mails. For more information, contact your provider
Software version check has failed	Burner control not compatible with ACS410	Burner control does not support connection of PC tool

Error messages in alphabetical order (cont'd)

Error message	Meaning	Recommended measure
Standardization of VSD has failed	Error occurred when standardizing the speed of the VSD	For cause of the error, refer to the display of results in the ratio settings. Clear text diagnostics is offered by the error history on the <b>Info/Service</b> page. On startup, the pointer translates the diagnostic code to clear text
Trigger could not be started. Number of selected parameters is limited to a total of:	Total number of trigger events is limited to 9 trigger points	Reduce to a maximum of 9 trigger points
Trigger list is empty! Trigger cannot be started!	The <b>Trigger</b> menu does not contain a trigger event. Trigger cannot be activated without this entry	Create at least one trigger event in the <b>Trigger</b> window
UDS: GetParamTree has failed!	UDS reading error	Check to see if the OCI400 is correctly attached to the burner control – check wiring between OCI400 and ACS410
UDS: GetParamValue has failed!	UDS reading error	Check to see if the OCI400 is correctly attached to the burner control – check wiring between OCI400 and ACS410
Unload file (UNL) does not exist	Backup of a parameter set consists of 2 files: *.unl = backup data, and *.bkp = information on backup. File *.unl has not been found	Create a new backup
UnLockSeq delivers undefined output	Execution of reset was not possible	Repeat the resetting process
User is not authorized to access this function		Log on to the correct user level
Version of basic unit is not suited for use with this ACS410 version	ACS410 version used is incompatible with the burner control	Use an older ACS410 version. If functionality of the new ACS410 version is required, replace the burner control
You are not authorized to change the initial parameter settings	The initial parameter settings have a higher access right for writing	Log on again with a higher user access right















**Note!**

If, during the use of ACS410, the display shows errors not contained in the above lists, please contact your supplier.



## 17 Legend of symbols

	Print: Click this button to open the menu for making the printer settings
	Settings: Click this button to open the menu for making the settings
	Lock: When the burner control is in operation, you can click this switch to start the locking sequence
	Unlock: If the burner control has locked out (lockout position), you can click this switch to start the resetting sequence
	Locking the ACS410: Click this button to lock operation via the ACS410. Locking can only be canceled by logging on again
	Help: Click this button to open menu <b>Help topics for operating the ACS410 and documentation</b>
	Status: Indicating an online connection to the burner control
	Error message: Indicating that the burner control has locked out
	Periodic password: Indicating that the password is sent
	Plotting in the <b>Trending</b> window
	Indicating active trigger handling in the <b>Trending</b> window
	Indicating the burner control's current operating state

## 18 Glossary

ASN	Device type
BCI	<b>B</b> urner <b>C</b> ommunication <b>I</b> nterface
DFÜ	Data exchange via the telephone line (Internet) over longer distances
DSL	<b>D</b> igital <b>S</b> ubscriber <b>L</b> ine
FA	Burner control, equivalent to basic unit
GSM	<b>G</b> lobal <b>S</b> ystem for <b>M</b> obile <b>C</b> ommunications
ISDN	<b>I</b> ntegrated <b>S</b> ervices <b>D</b> igital <b>N</b> etwork
LAN	<b>L</b> ocal <b>A</b> rea <b>N</b> etwork
LME...	Microprocessor-based burner controls from Siemens for gas burners of small capacity
LMO...	Advanced microprocessor-based burner controls from Siemens for oil burners
LMV2... LMV3...	Microprocessor-based burner controls from Siemens for gas or oil burners of small to high capacity
MAPI	<b>M</b> essaging <b>A</b> pplication <b>P</b> rogramming <b>I</b> nterface (defined interface used to send e-mails from any Windows software)
OCI400	Optoelectronic interface module for communication with all types of LMO and LMG from Siemens
OCI410...	Interface used between ACS410 and burner control
PME	Program module for LME7/LME8
Trending	Program section used for the display and recording of activities performed by burner controls
UDS	Unidirectional interface)
USB	<b>U</b> niversal <b>S</b> erial <b>B</b> us
VSD	<b>V</b> ariable <b>S</b> peed <b>D</b> rive

# 19 Index

## A

Activating the VSD .....	63
Activation of VSD (optional) .....	76
Additional notes .....	5

## B

Backup .....	103
Bit masking with parameters .....	97
Burner controls that cannot be reset .....	52

## C

Changing graph colors .....	88
Changing the burner .....	60
Changing the presentation scale .....	88
Checking the memory .....	58
Cold settings .....	67, 80
Completing the initial settings .....	72
Concluding the initial settings for multistage operation .....	83
Connecting to the plant .....	26
Data exchange via the OCI400 .....	28
Data exchange via the OCI410 .....	27
Copying a parameter set .....	109
Correct usage .....	5

## D

Data file .....	92
Deleting curves (only with LMV2/LMV3 .....	59
Displaying the graph .....	89
Driving to and changing curvepoints .....	71
Driving to the curvepoints .....	82

## E

END USER LICENSE AGREEMENT .....	10
Error messages Error .....	120
Error messages in alphabetical order .....	124
Explanation of text .....	110

## G

General note .....	14
Glossary .....	130

## I

Initial settings .....	66
Installing/deinstalling the ACS410 .....	15
Installing/deinstalling the software .....	
De-installing the ACS410 .....	23
Installing the ACS410 .....	15
Installing/de-installing the software .....	
Files included in the scope of delivery .....	25
Introduction .....	6

## L

Languages .....	13
Legend of symbols .....	103, 129
List of the most important error messages .....	120
Locking via the PC tool .....	53

## M

Meaning of curvepoints .....	66
------------------------------	----

## O

OCI400 .....	28
OCI410 .....	27

## P

Parameter changes (general) .....	57
PME backup/restore .....	110
PME program module backup process .....	116
PME program module OEM backup .....	117
PME program module restore process .....	114
Possible status messages .....	111
Prerequisites for using ACS410 .....	8
Procurement of ACS410 .....	13
Program start .....	

Logging on to the burner control – online operation .....	29
Offline operation without burner control .....	33
Program start offline .....	
Info / Service window based on the backup files .....	35
Report function/printout (offline) .....	38
Program start offline .....	41
Program start online .....	41
Program window .....	39
Extras .....	48
File .....	39
Help .....	49
Locking the ACS410 .....	49
Login .....	41
Menu bar .....	39
Settings .....	42
Status bar .....	54
Toolbar .....	50

## Q

Qualified personnel .....	5
---------------------------	---

## R

Recording data .....	90
Resetting parameters .....	59
Resetting via the PC tool .....	51
Restore .....	107
Restrictions with restore .....	108

## S

Safety guidelines .....	5
Safety notes .....	8
Saving trigger actions .....	99
Selecting one bit .....	97
Selecting several bits .....	97
Selecting the backup directory .....	104
Selecting the parameters (general) .....	88
Sending e-mails .....	101

Setting up backup and selecting archiving .....	105
Settings in the trigger menu .....	98
Special notes	
ACS410 with Modbus .....	9
Changing the parameters .....	9
Place of installation .....	9
Setting the correct system parameters .....	8
Setting the electronic fuel-air ratio control system ..	8
Shutdown function .....	9
Starting the graph .....	88
Starting the program .....	29
Offline program start	
Offline backup files .....	34
System requirements .....	7
<b>T</b>	
Trending profile .....	90
Trending window offline .....	37
Typographical conventions .....	5

<b>U</b>	
UDS operation .....	119
<b>W</b>	
Warm settings .....	69, 81
Working with ACS410 .....	55
Creating a trigger event .....	93
Data recording (trending) .....	85
Info / Service window .....	55
Parameters window .....	56
Ratio control window LMV2.../LMV3...	
Multistage operation .....	75
Ratio control window LMV2/LMV3	
Modulating operation .....	62
Status window of burner control .....	84
Trending window	
Parameter selection LME39 / LME7/LME8 .....	86
Triggering .....	102

Siemens AG Smart Infrastructure  
Berliner Ring 23  
76437 Rastatt  
Tel. +49 (7222) 784-2396  
[www.siemens.com](http://www.siemens.com)

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