# SIEMENS

# ACS410 Rel.2
# V 4.0

**ACS410
PC software for microprocessor-based
burner controls**

## Installation and Operating Instructions

**For use with software version 4.0 release 2 or higher
Date of issue: September 10, 2019**

# Contents

# 1    Typographical conventions

**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:

| ⚠️ | **Warning** | Indicates that death, personal injury or substantial property damage **can** result if adequate precautions are not taken. |
|---|---|---|

**Additional notes**

The following symbols are used for notes and references:

| ☞ | **Note** | Draws your attention to particularly **important information** on the product, product handling, or to a special part of the documentation. |
|---|---|---|
| ⇨ | **Reference** | Makes reference to **additional information** given in other pieces of technical documentation or chapters. |

**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.

**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

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 September 10, 2019, and covers ACS410 version 4.0 release 2 or higher.

# 3    System requirements

**Operating system:**
- Windows ® XP min SP2
- Windows ® Windows 7
- Windows ® Windows 8.1
- Windows ® Windows 10 Build 1703

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 (Win8, with support for PAE, NX and SSE2) | 1 GHz (x64) or higher (Win8, with support for PAE, NX and SSE2) |
| 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.

## 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

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*).
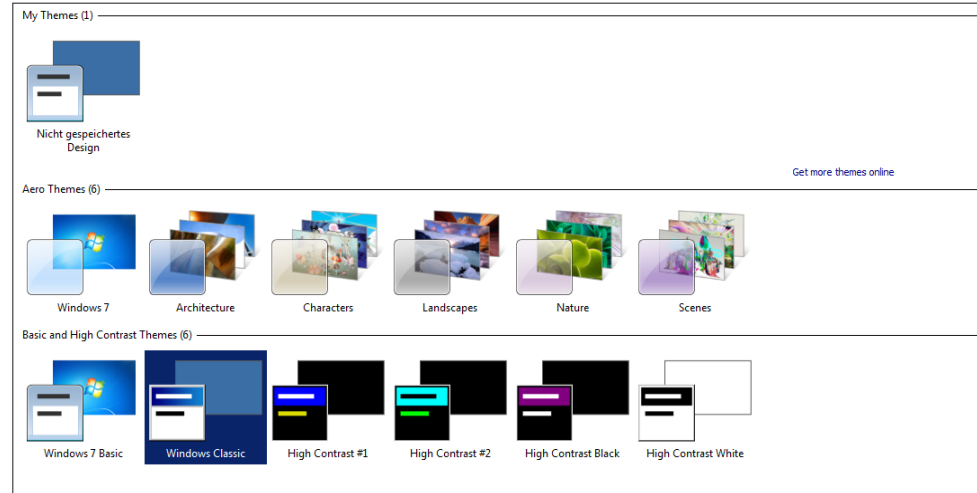
# 8 General note!

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.

PC software for microprocessor-based burner controls
8 General note!

# 9 Installing/deinstalling the ACS410

☞ <mark>Note
To install the software, you need to have administrator rights on your PC.</mark>

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!

**Select Setup Language**

Select the language to use during the installation:

English ▼

OK  Cancel

PC software for microprocessor-based burner controls
9 Installing/deinstalling the ACS410
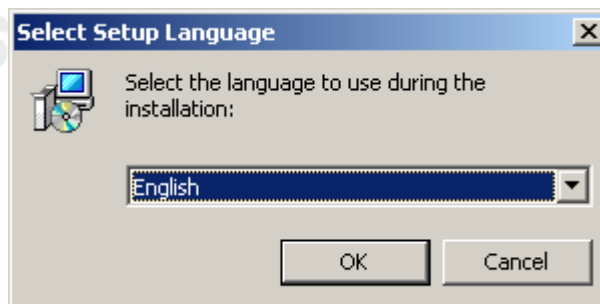
**Installing the ACS410 (cont'd)**

Follow the installation instructions.



Click **Next**.**>**
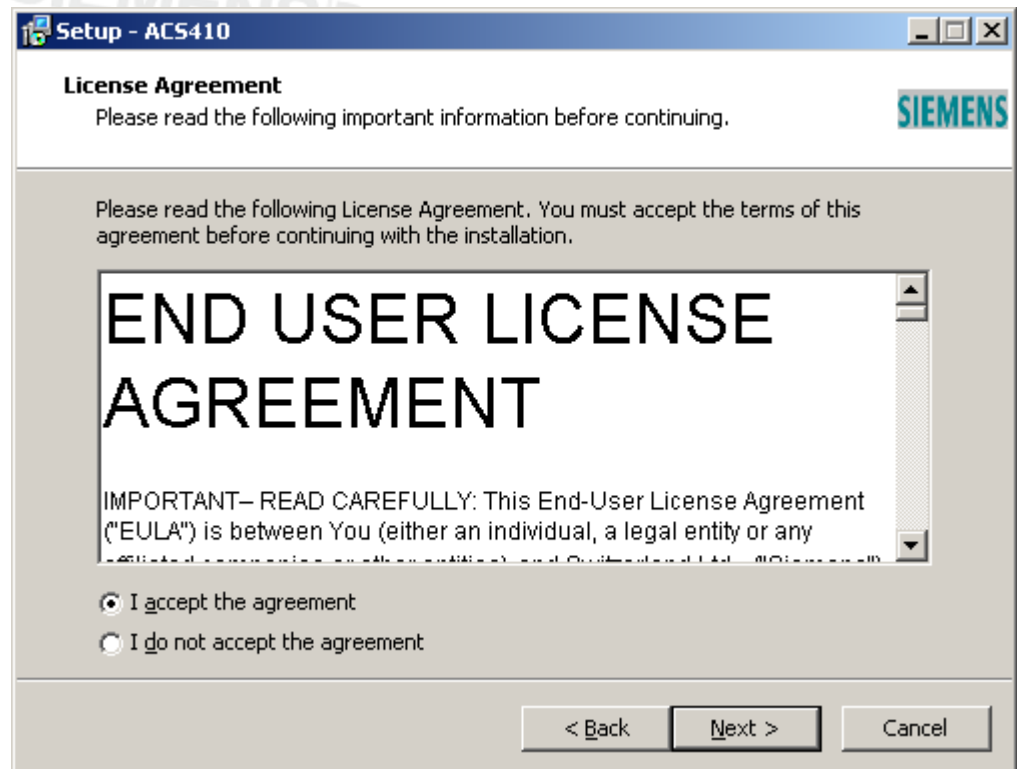


Read the EULA carefully.
The agreement must be accepted before continuing with the installation.
If you reject the agreement, the installation is canceled.

Click **Next**.**>**

16/128

Smart Infrastructure

PC software for microprocessor-based burner controls
9 Installing/deinstalling the ACS410

CC1J7352en
10.09.2019

The setup will install the ACS410 in the following folder.



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

Click on **Next >** to continue.

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9 Installing/deinstalling the ACS410     10.09.2015
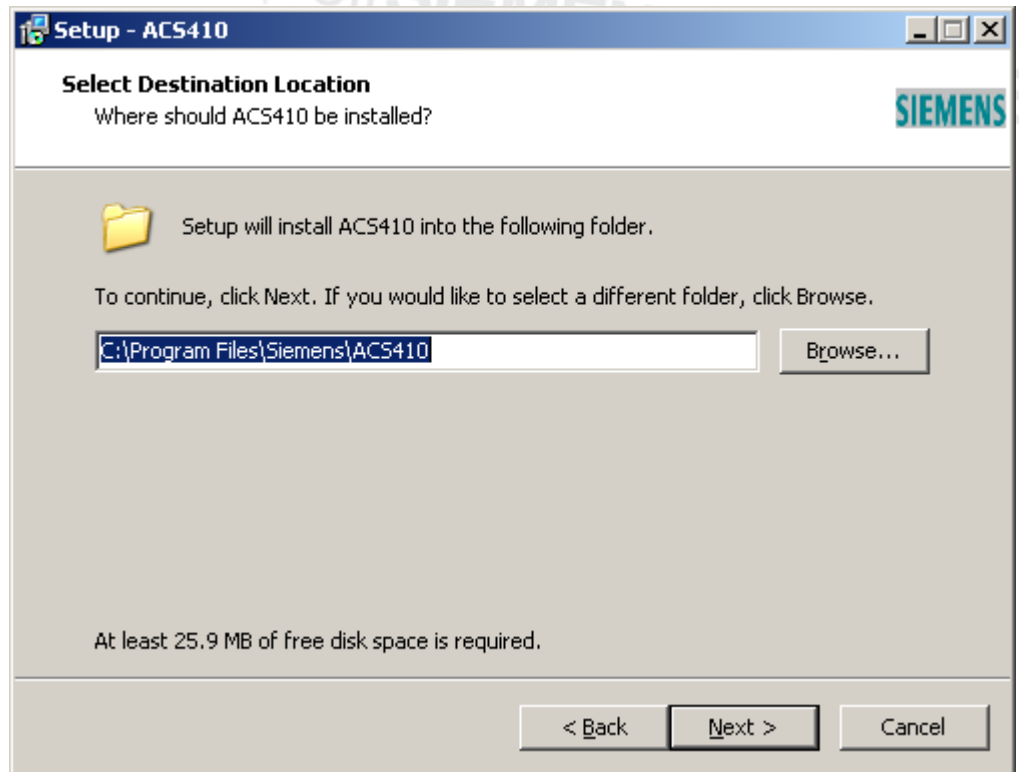
The setup will create the program links in the following start menu folder.
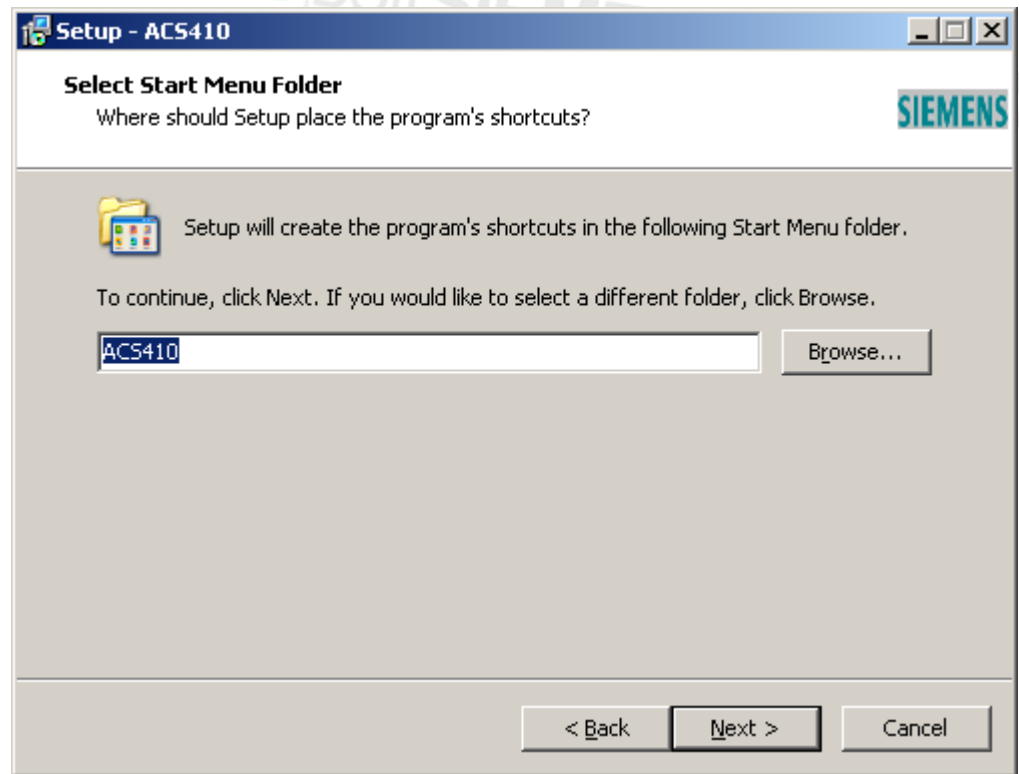


Click on **Browse ...** to select a different folder.

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.
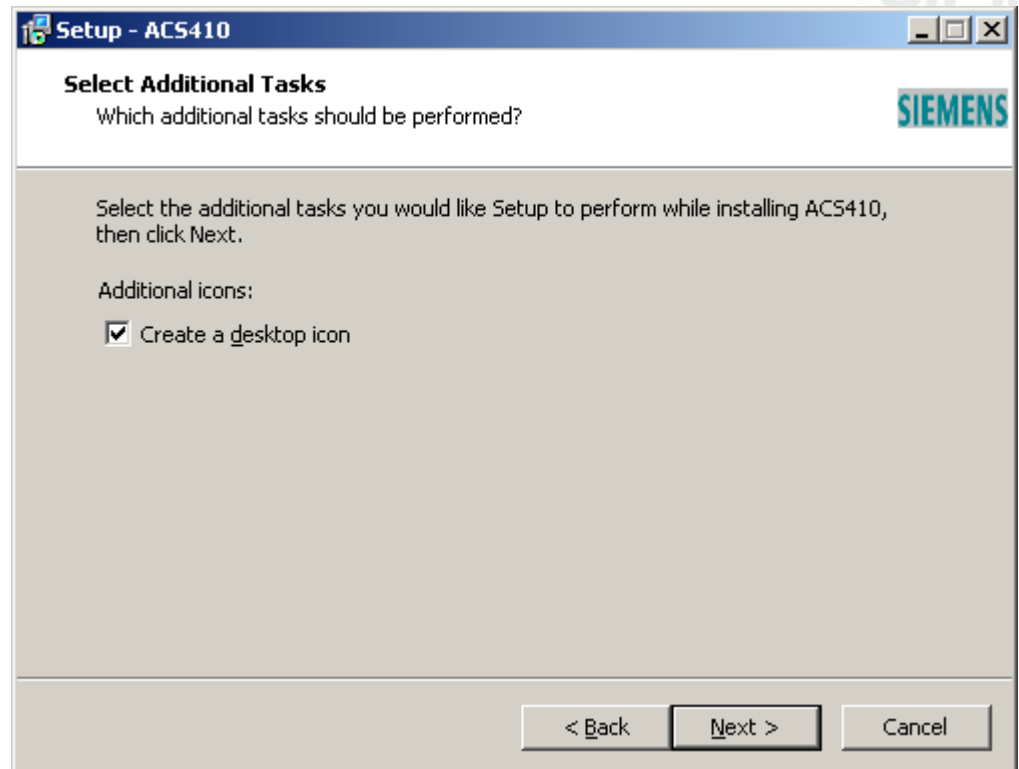


Click on **Next >** to continue.

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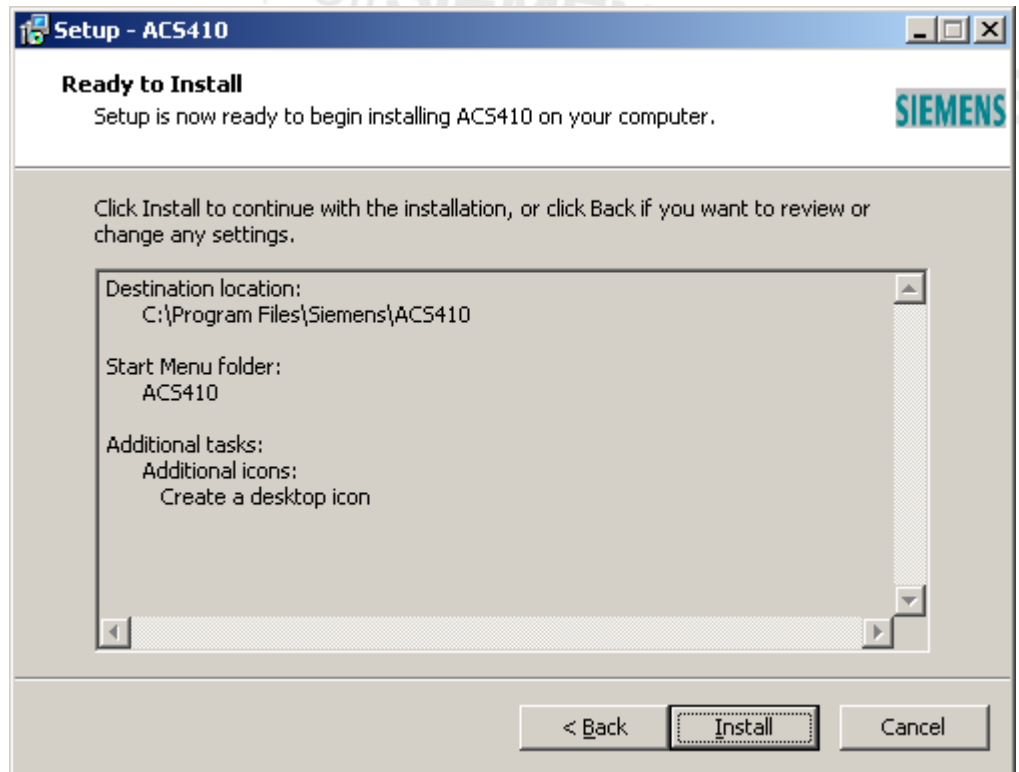


The ACS410 is installed.

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

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                        9 Installing/deinstalling the ACS410                                     10.09.2015
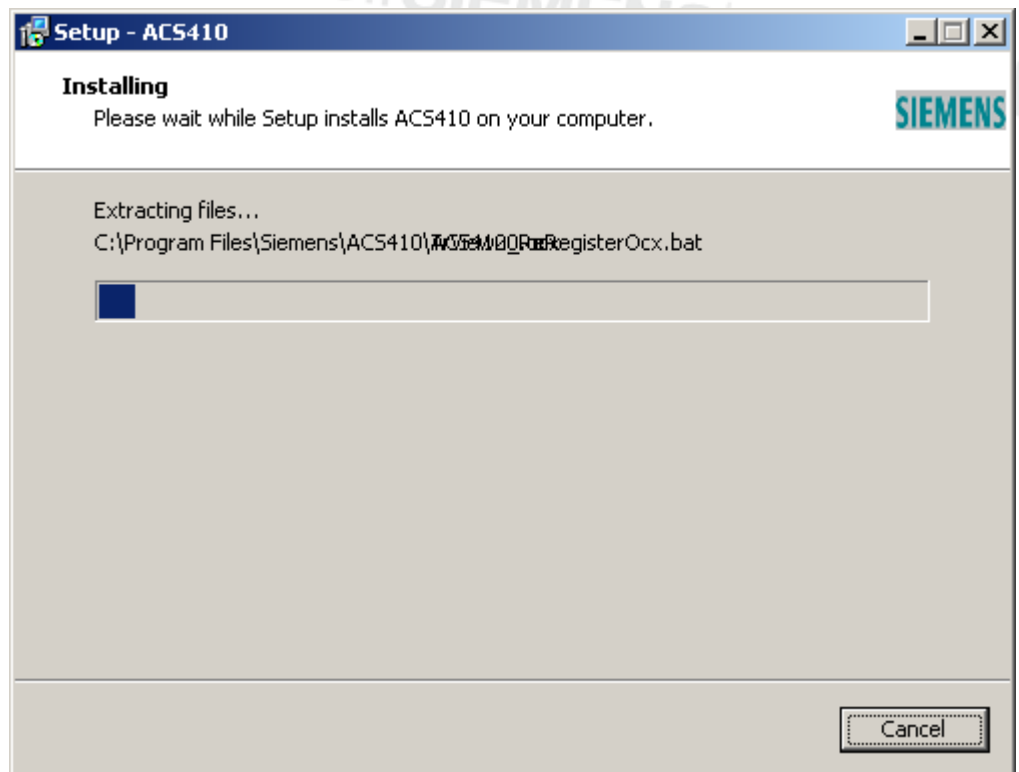
The device driver installation assistant opens.
The device drivers for the interface module OCI410 are installed with this assistant.

**Device Driver Installation Wizard**

## Welcome to the Device Driver Installation Wizard!

This wizard helps you install the software drivers that some computers devices need in order to work.

To continue, click Next.

< Back | Next > | Cancel
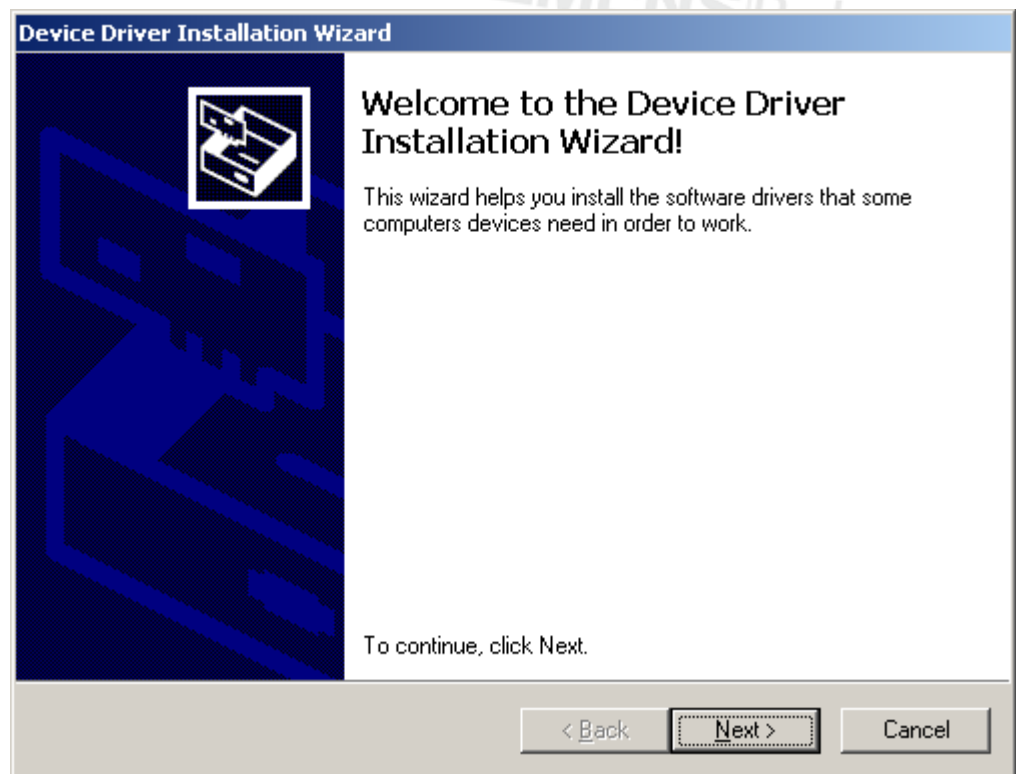
Click on **Next >** to continue.

The device drivers are installed.

**Device Driver Installation Wizard**

### The drivers are now installing...

Please wait while the drivers install. This may take some time to complete.

< Back | Next > | Cancel

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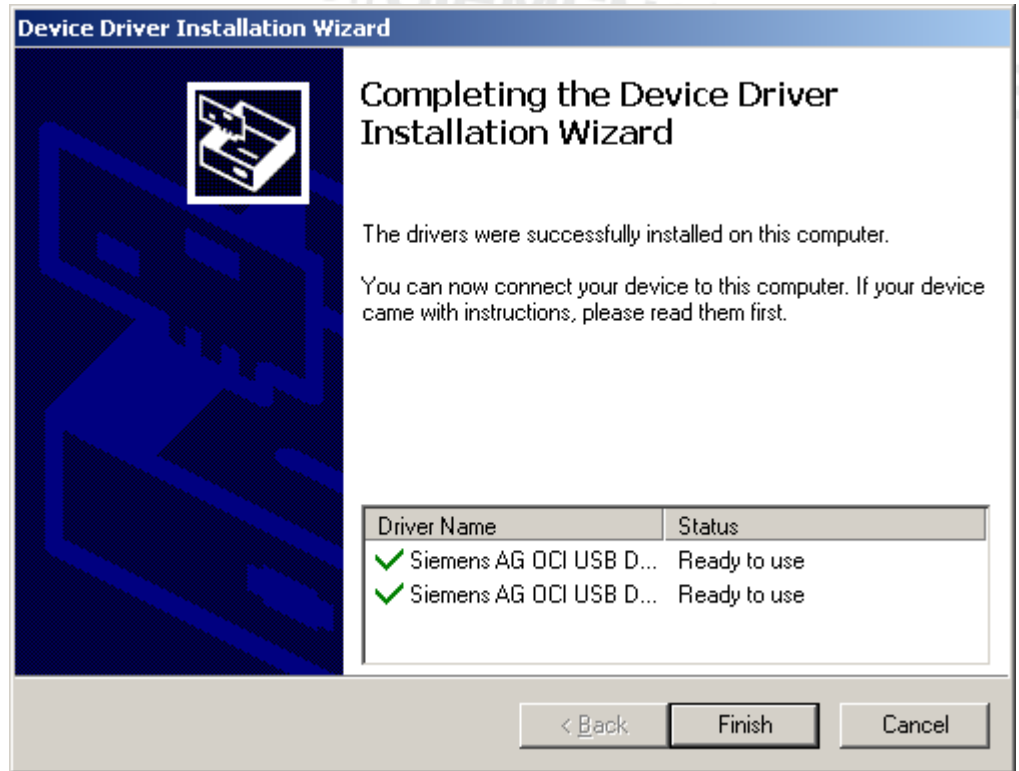




Note!
Connect an OCI410 to the USB port on your computer.

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

21/128

Smart Infrastructure     PC software for microprocessor-based burner controls     CC1J7352en
                         9 Installing/deinstalling the ACS410                     10.09.2015
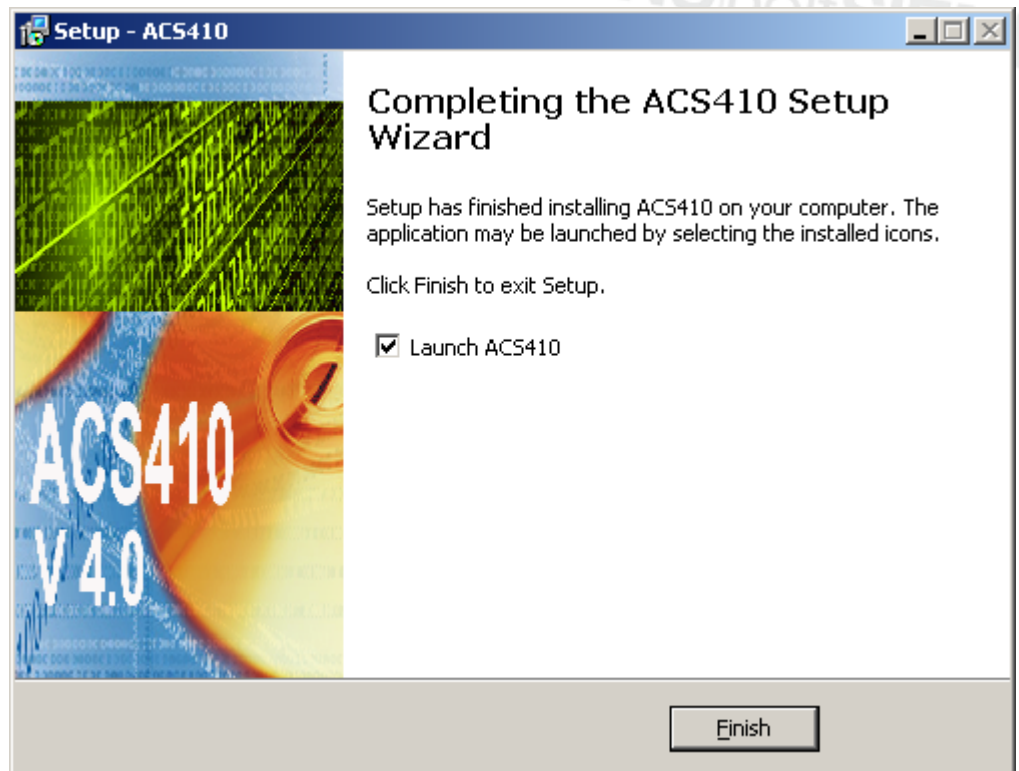
The ACS410 has been successfully installed.
First automatic program start after successful installation, without connected burner control.
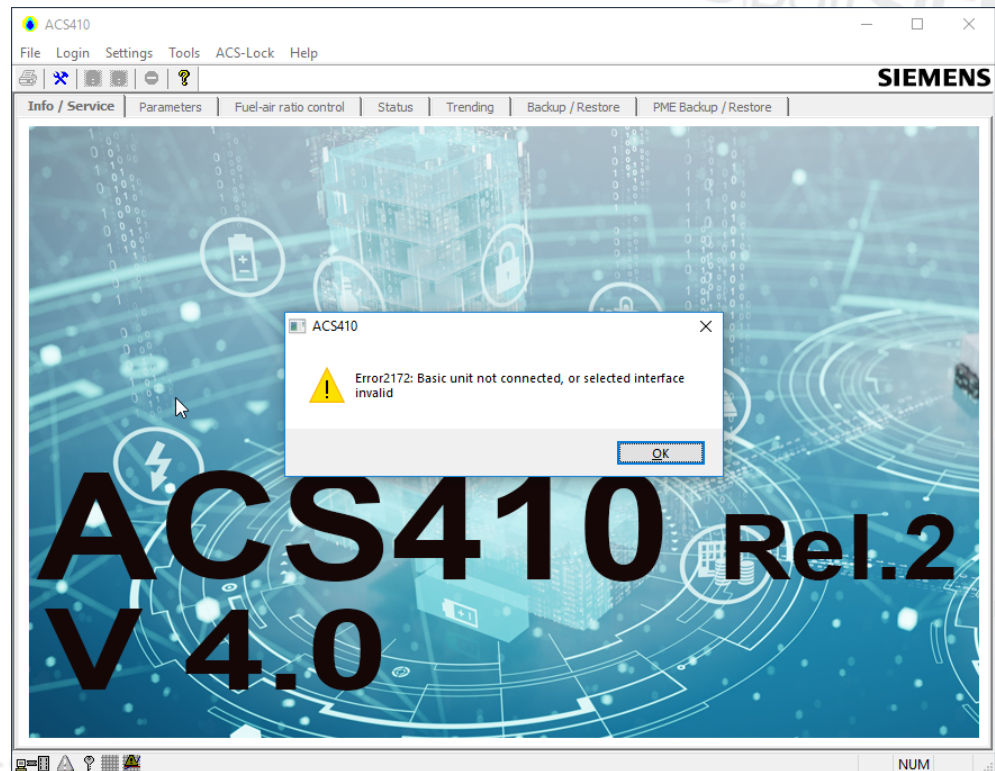


If there is no burner control connected for the initial (automatic) program start, the following error message appears (in English):
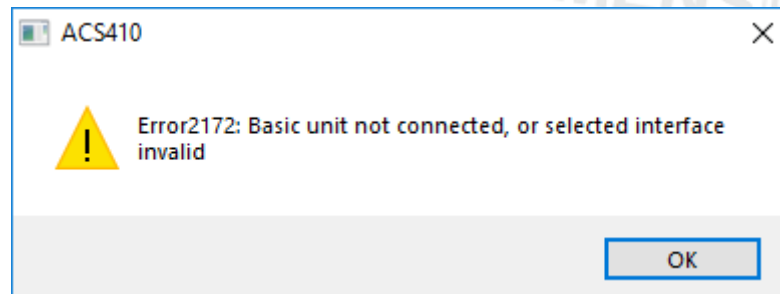


Click on **OK**.

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.
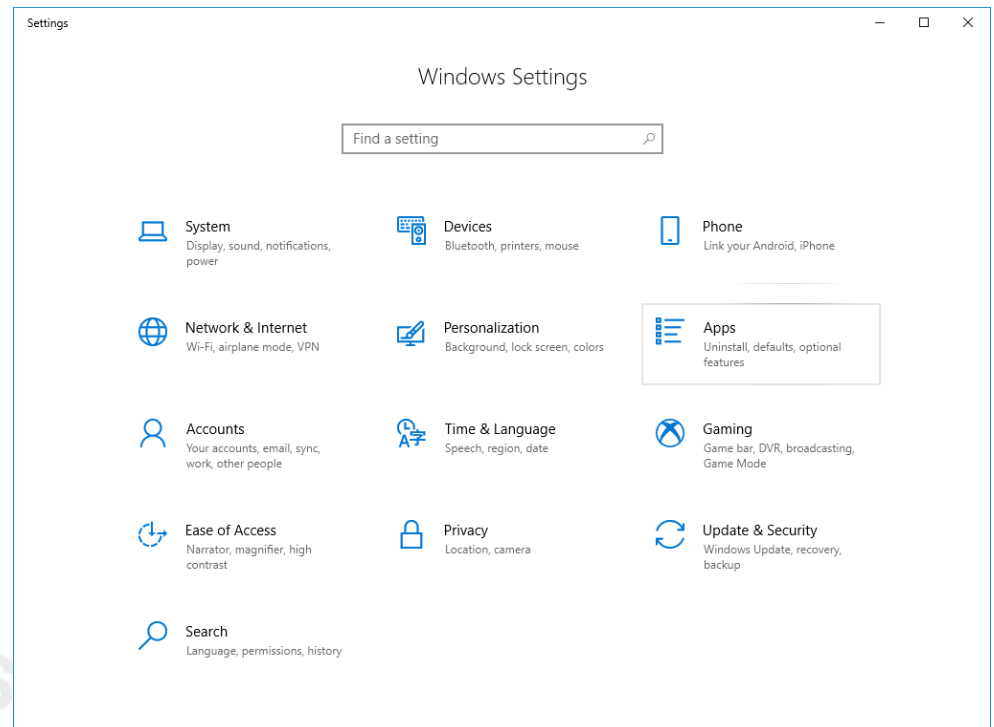


Click to open the menu for uninstalling programs.

Smart Infrastructure                    PC software for microprocessor-based burner controls                    CC1J7352en
                                        9 Installing/deinstalling the ACS410                                    10.09.2015

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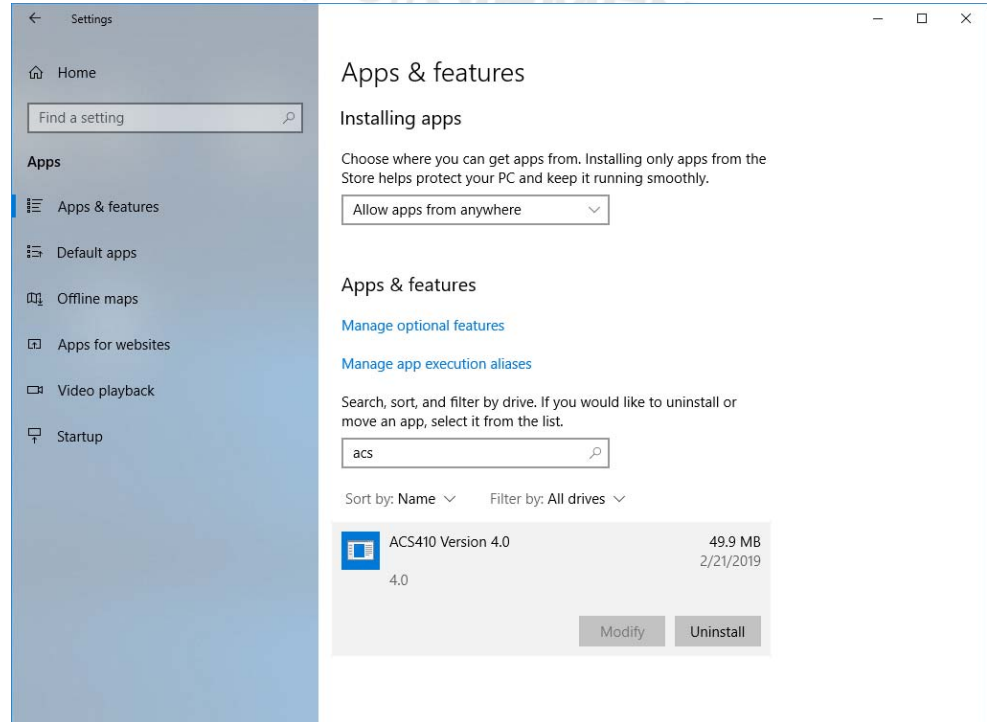


The ACS410 Version 4.0 is removed.

# 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)<br>Functionality is dependent on the type of device:<br>• Reading info/service data<br>• Reading parameters<br>• Reading and printing status data<br>• Recording and saving trending data<br>• Resetting the startup counter and the hours run and fuel meter<br>• Changing the preselected manual output |
| OCI410.30 | SO (heating engineer)<br>Functionality is dependent on the type of device (see IS):<br>• Changing parameters (SO level)<br>In addition:<br>• Setting the ratio control curves of the LMV2/LMV3<br>• Changing burner ID on the burner control<br>• Executing backup and restoring data in the burner control |
| OCI410.31 | OEM (burner or boiler manufacturer)<br>Only with LME39!<br>Functionality is dependent on the type of device (see IS):<br>In addition:<br>• Changing burner ID in the burner control<br>• Changing parameters (OEM level)<br>• Changing passwords on the burner control<br>• Executing backup and restoring data in the burner control |
| OCI410.40 | OEM (burner or boiler manufacturer)<br>Functionality is dependent on the type of device (see IS or SO):<br>In addition:<br>• Changing parameters (OEM level)<br>• Changing passwords on the burner control |

**OCI410**

LMV2... / LMV3... / LME39... / LME7...

OCI410...

ACS410 PC software

RJ11    USB2.0

7352z02e/1010
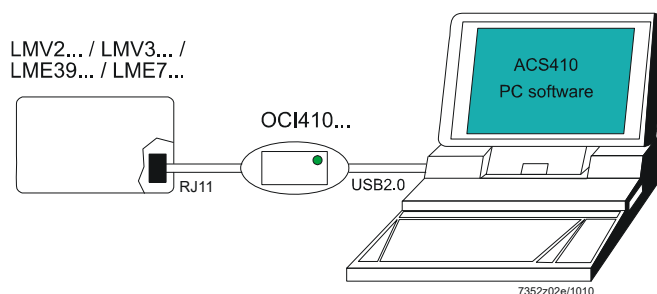
## 10.2 Data exchange via the OCI400 (only with LME / LMO)

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 | IS (installer)<br>Handling data from UDS-compatible devices (LMO1 / LMO2 / LMO4 / LME1 / LME2 / LME3 / LME4 / LME6), such as:<br> - Reading and printing info/service data, parameters, status data (see SO)<br> - Accepting and saving trending data |

**OCI400**

LMO... / LME...

OCI400

ACS410
PC software

RS232

7352z01e/0308
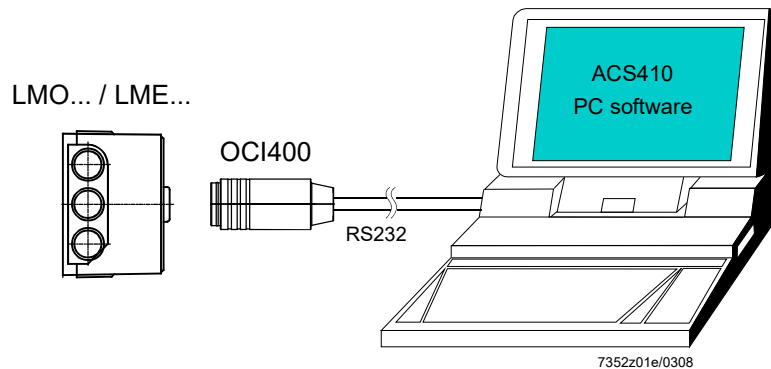
# 11 Starting the program

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**.
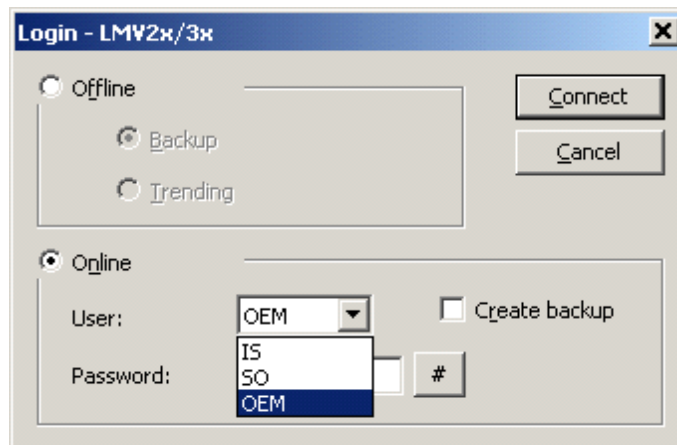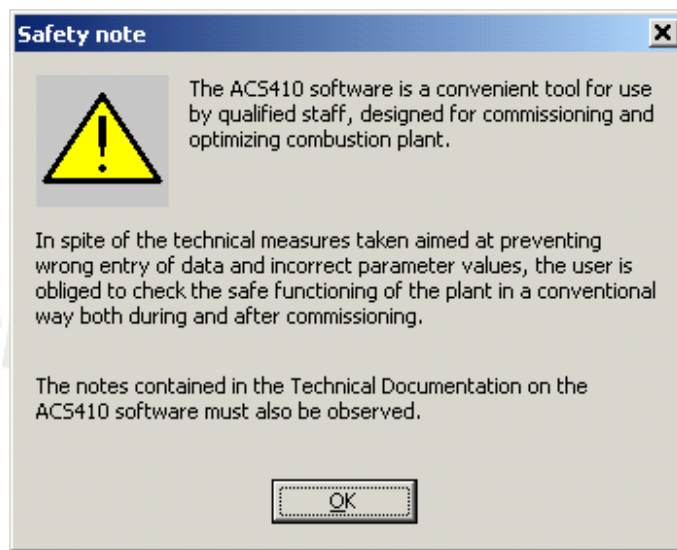




Depending on the user level in accordance with the type of OCI410, select IS (installer), SO (heating engineer), or OEM (burner or boiler manufacturer).
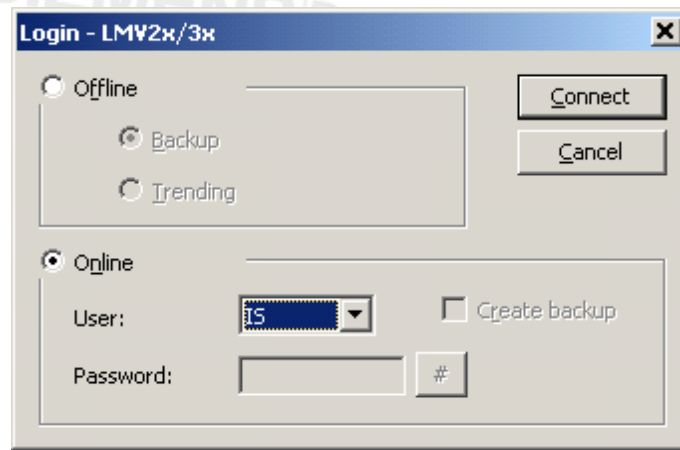
User IS (installer) requires no password. The available operations are limited (⇨ chapter *Connecting to the plant*).
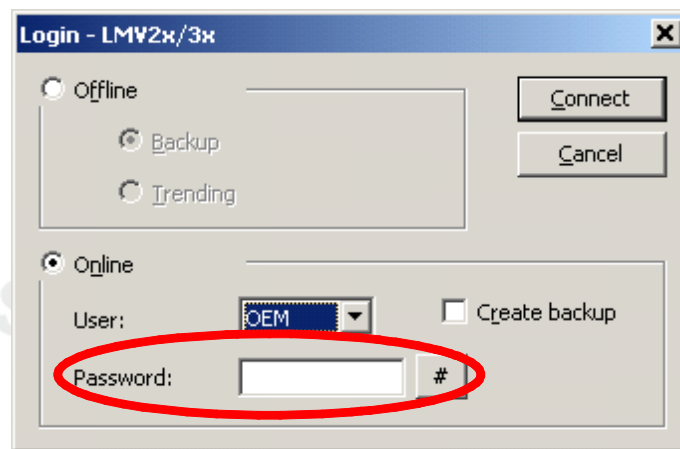


Users SO and OEM require specific passwords.

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

Smart Infrastructure | PC software for microprocessor-based burner controls
11 Starting the program | CC1J7352en
10.09.2019

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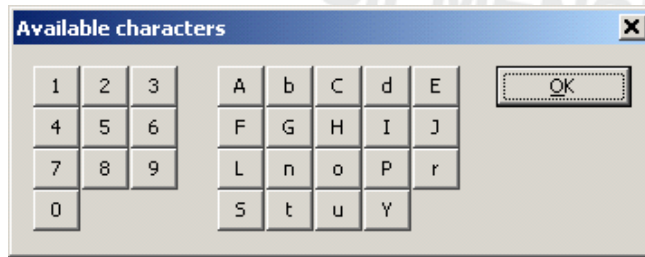


Click on the required numbers and letters to copy them to the password box. After entering the password, close the display by clicking **OK**.

☑    Creating a backup file
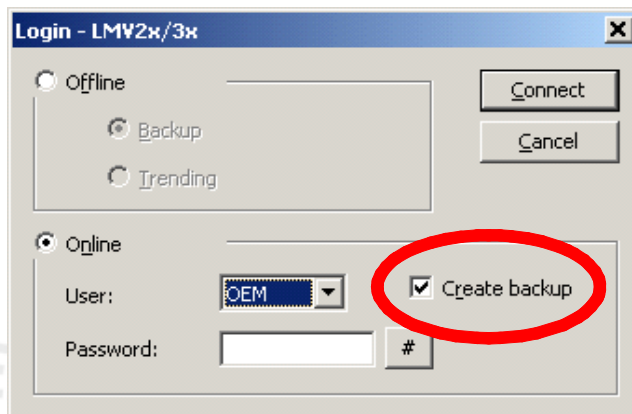


When ticked, a file is created after logging on, where the parameters and the burner control's current operating state are saved. This file can be viewed in offline mode or restored as a restore file in online mode.

☞    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

**ACS410**

ⓘ Error2172: Basic unit is not connected, or the selected interface is invalid

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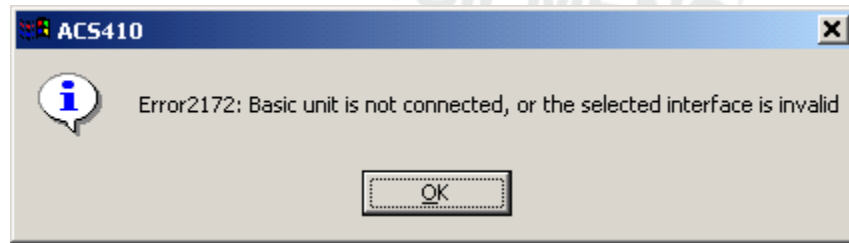
Remedy: Select the COM port where the OCI4xx interface is connected (⇨ chapter *Settings – General*).

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

**ACS410**

⚠ OCI/device versions are incompatible

OK

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

## 11.2  Offline operation without burner control

**Login**

ⓒ Offline
  ⓒ Backup
  ⓒ Trending

ⓒ Online
  User: IS
  Password:

OK
Cancel

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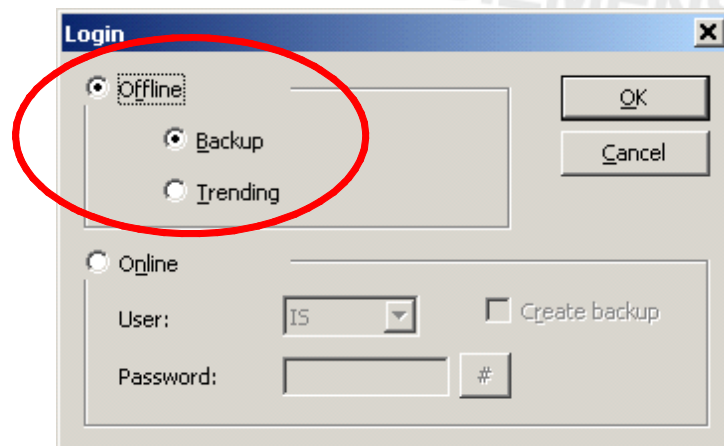
When starting the program offline, it is possible to view backup files and trending files without having a connection to the burner control. Using the trending and backup files, it is also possible to print a status report of the burner control at the time of recording.

Smart Infrastructure
PC software for microprocessor-based burner controls
11 Starting the program
CC1J7352en
10.09.2019

## 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*).
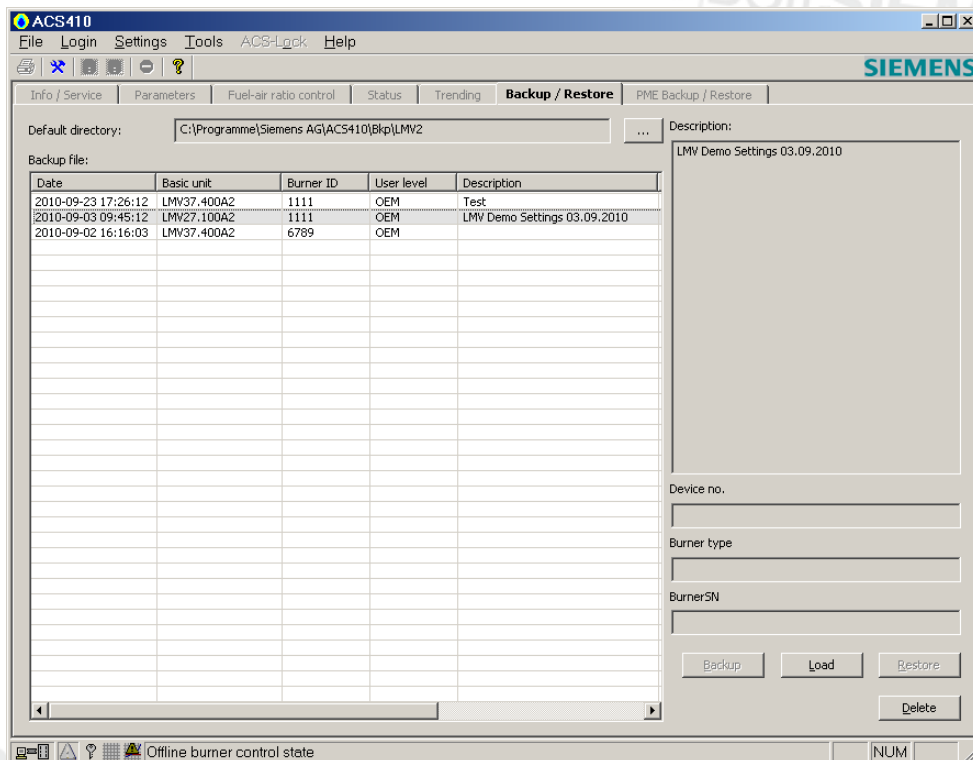


Here, a backup file can be selected. Column **Description** on the right displays the free text that was saved together with the file.

- **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

**ACS410 - LMV27.100A2**

File | Login | Settings | Tools | ACS-Lock | Help

SIEMENS

| Info / Service | Parameters | Fuel-air ratio control | Status | Trending | Backup / Restore | PME Backup / Restore |

**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 |

Offline burner control state    NUM

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.
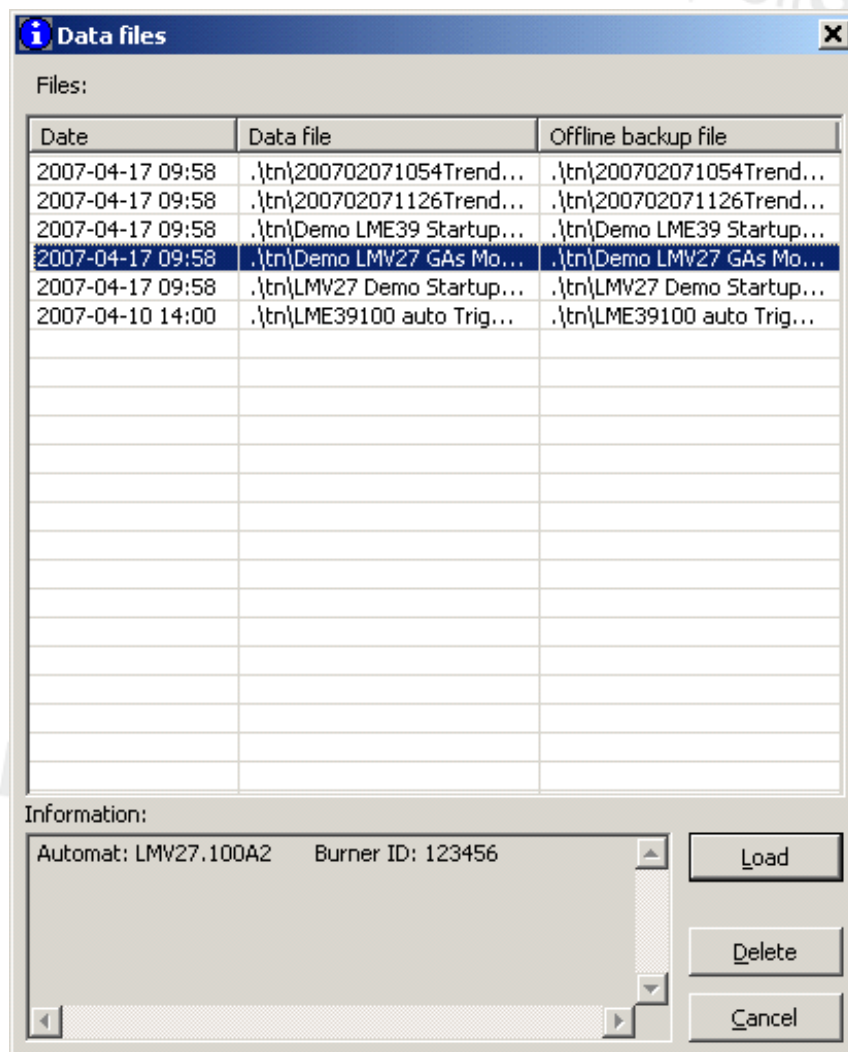


When selecting a file, the **Information** window shows the type of burner control and the relevant burner ID.

|  |  |
|---|---|
| - **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
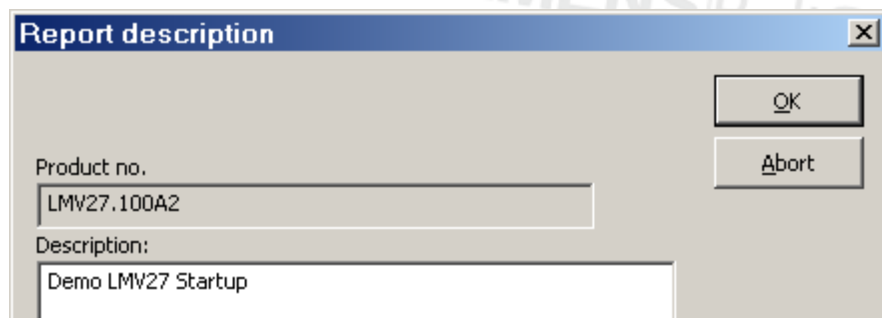
($\Rightarrow$ chapter *Data recording (trending)*))
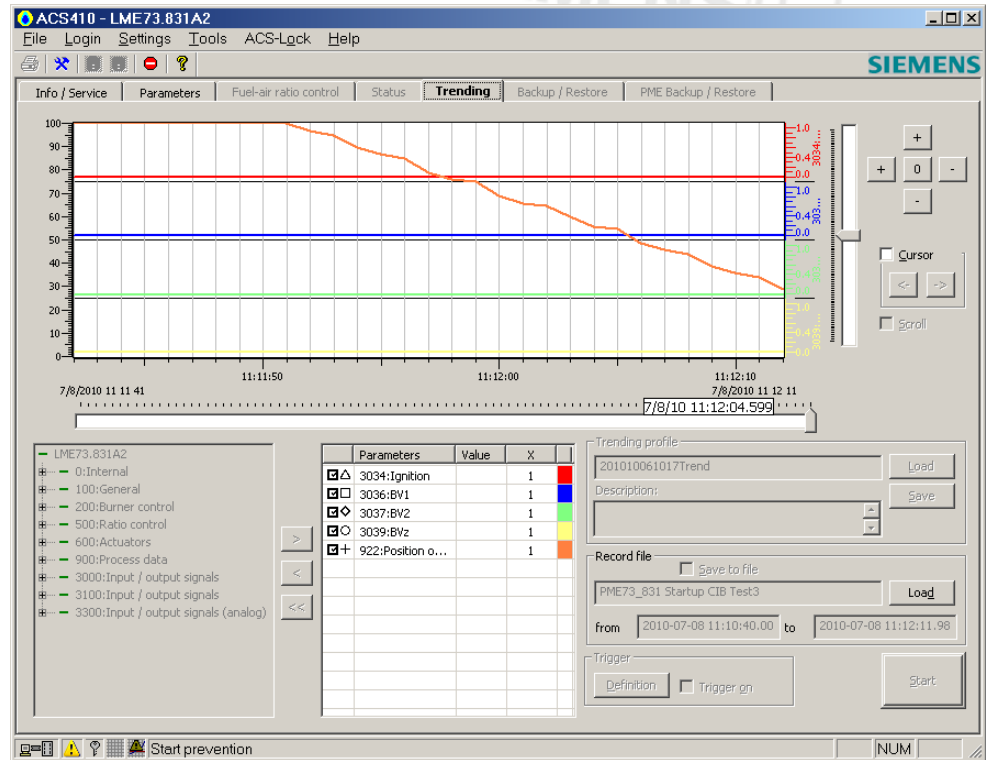


Here, the trend recording can be checked and analyzed.

### 11.2.3 Report function/printout (offline)
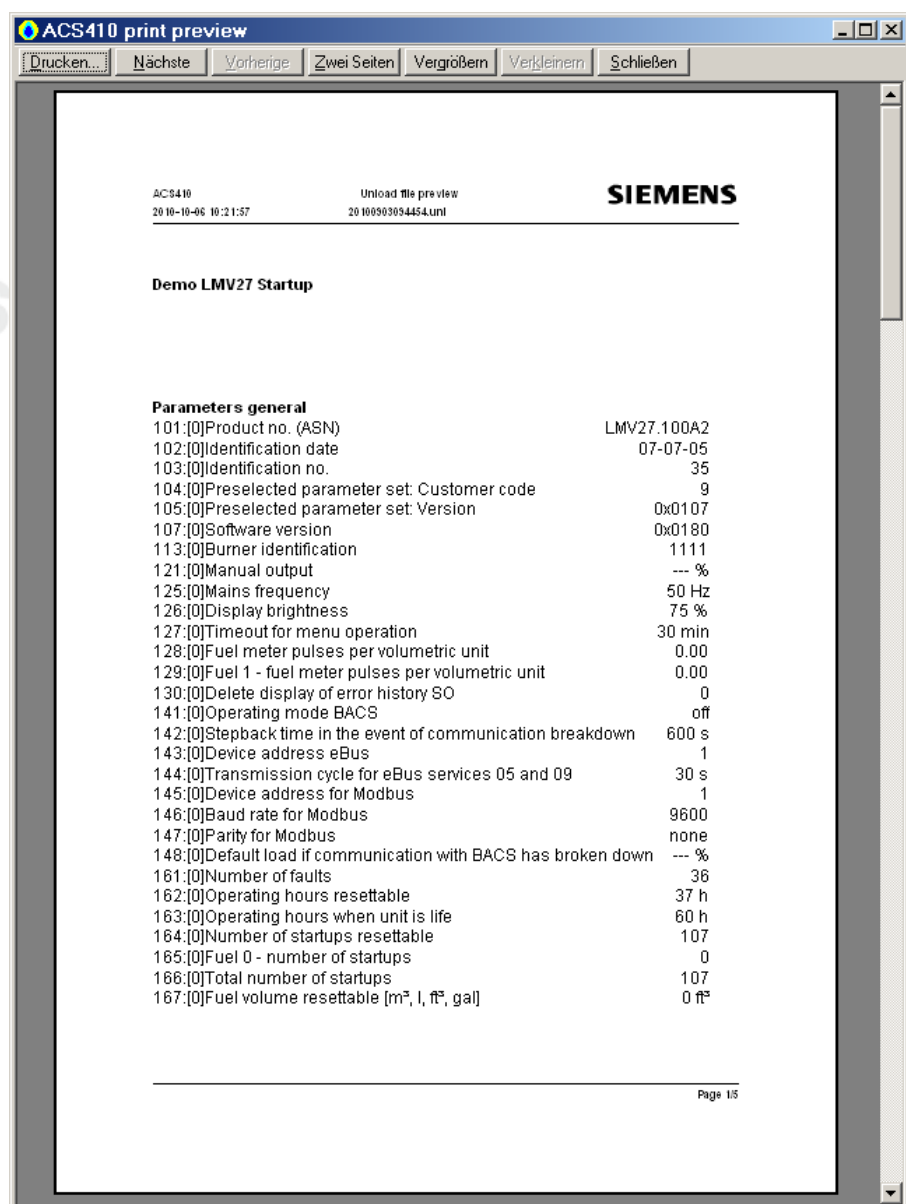
After selecting **Report** from the drop-down menu **File**, the following dialog box appears:



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*).



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
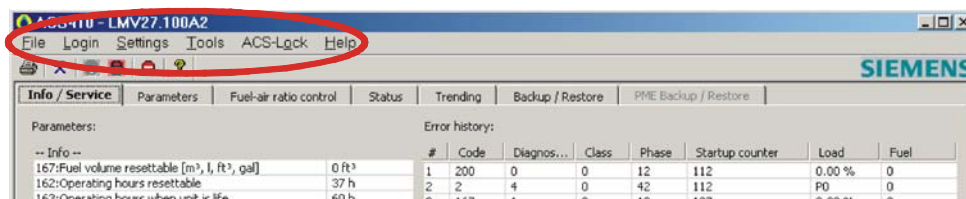


### 12.1.1 File

👉 **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)
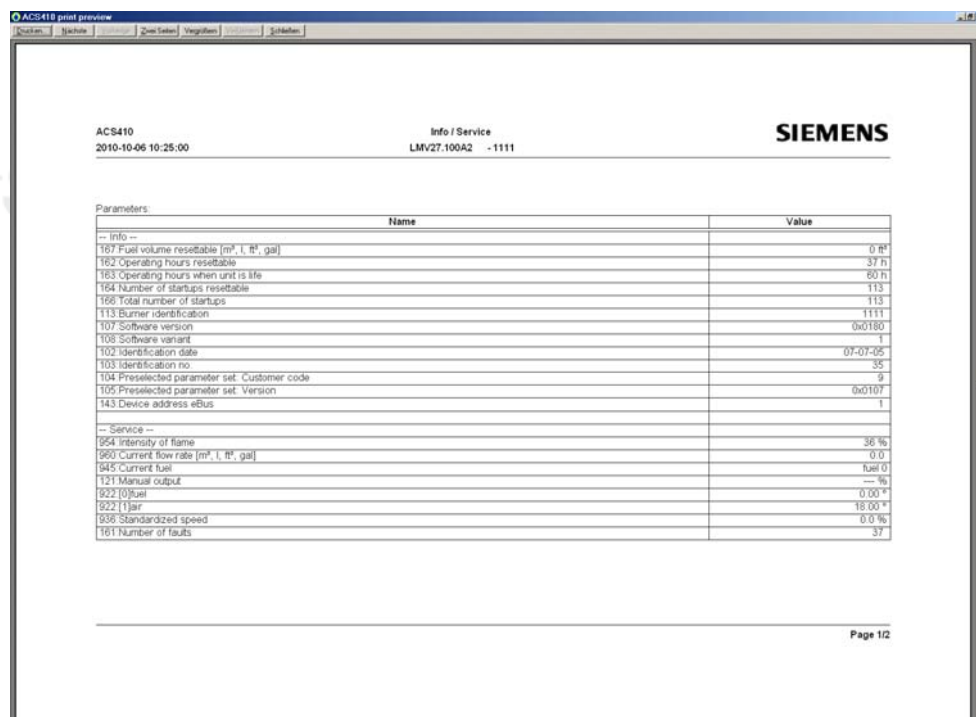


Example of window showing the page view

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

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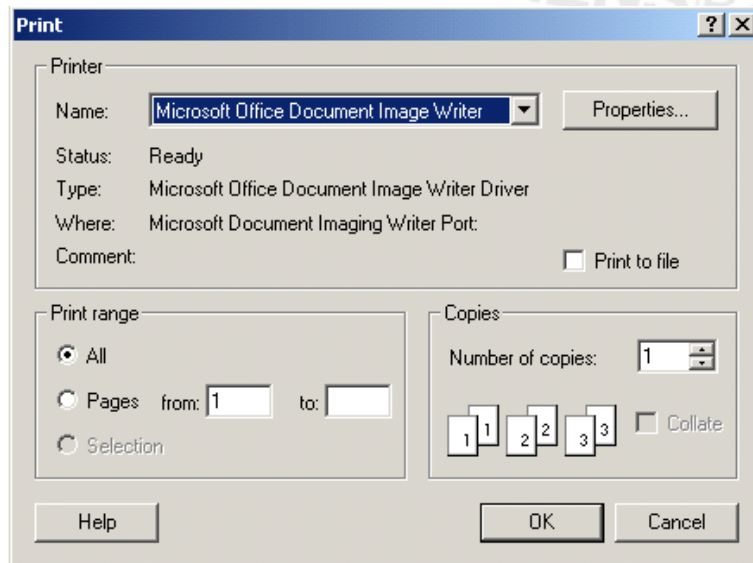


Here, you can change the printer settings and output the current data from the selected program view.

**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.
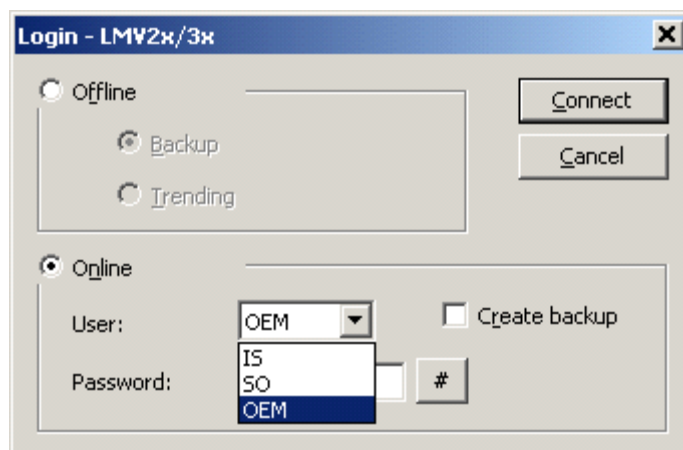


Program start offline To show burner control files that have been saved (backup files) or trend files (trending) and to print status reports (⇨ chapter *Offline operation without burner control*).

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
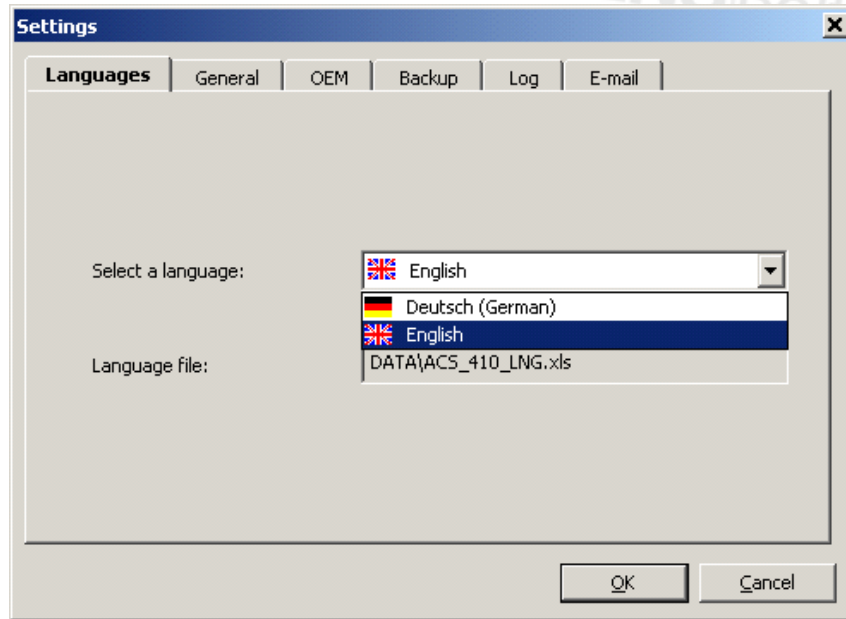


**General**:           - COM ports: Available COM connections
                       - Period: Setting the rate of communication and the interval for refreshing
                         data

**Settings**                                                    ✕

| Languages | **General** | OEM | Backup | Log | E-mail |

COM port:            OCI410 Serial Port (COM4)         ⌄

Period:              fast                               ⌄

                               fast
Period for refreshing tren default                          [ms]
                               slow

Period for refreshing status data:              1000    [ms]

Period for refreshing fuel-air ratio control settings:    3000    [ms]

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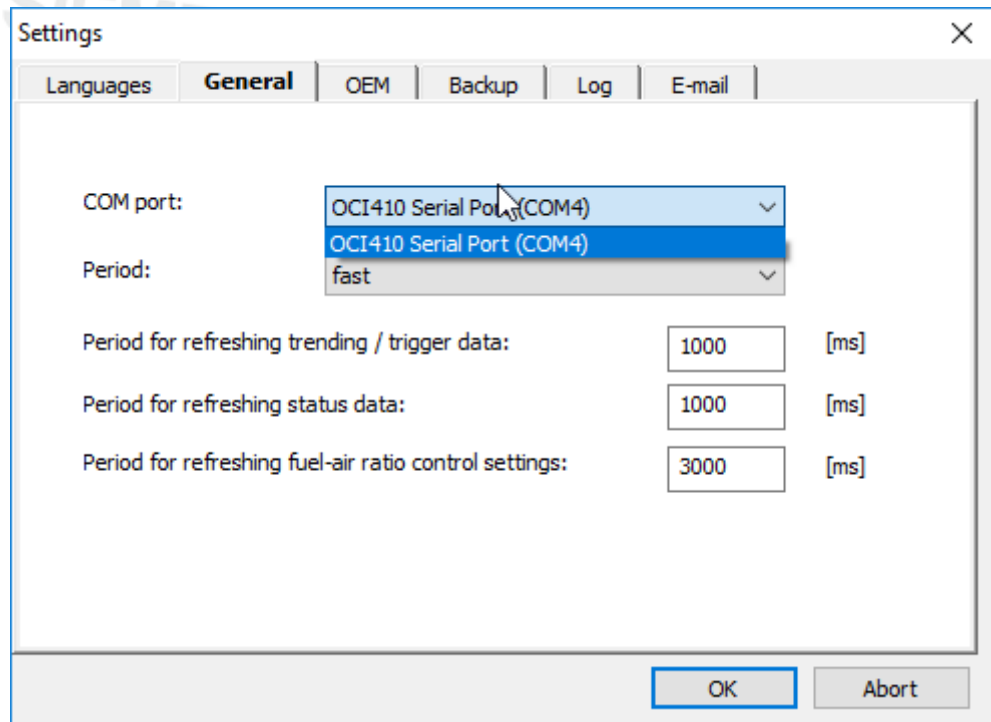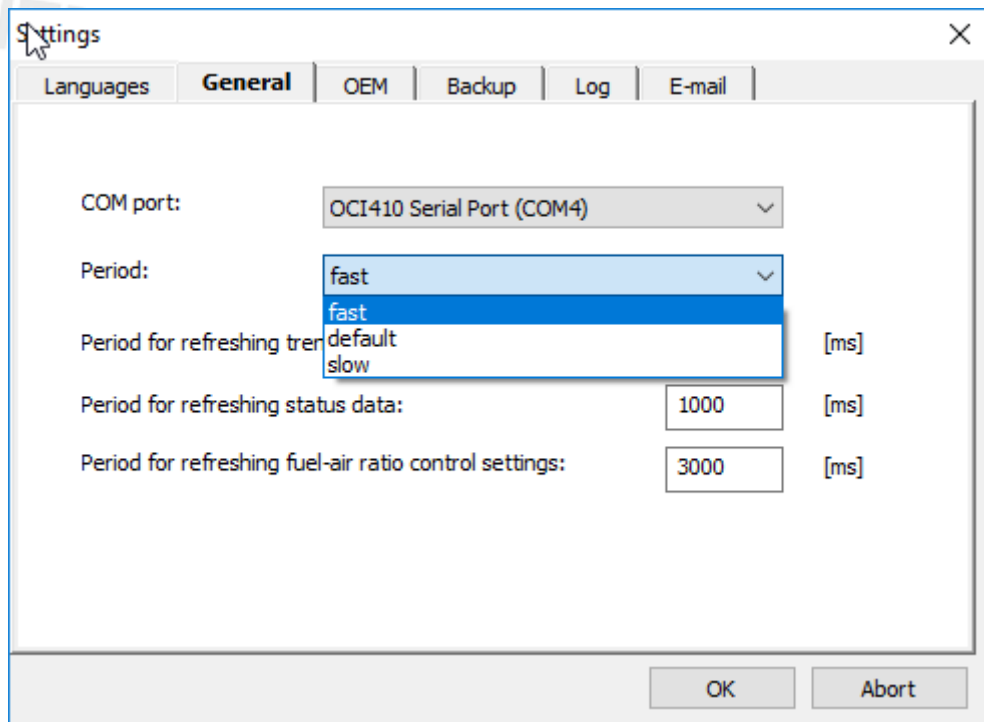
**OEM**: Start picture and program logo in ACS410 can be changed (only by OEM). ACS410 target directory per default is the OEM subfolder. This window can also be used to enter data paths and files other than those of the standard settings.

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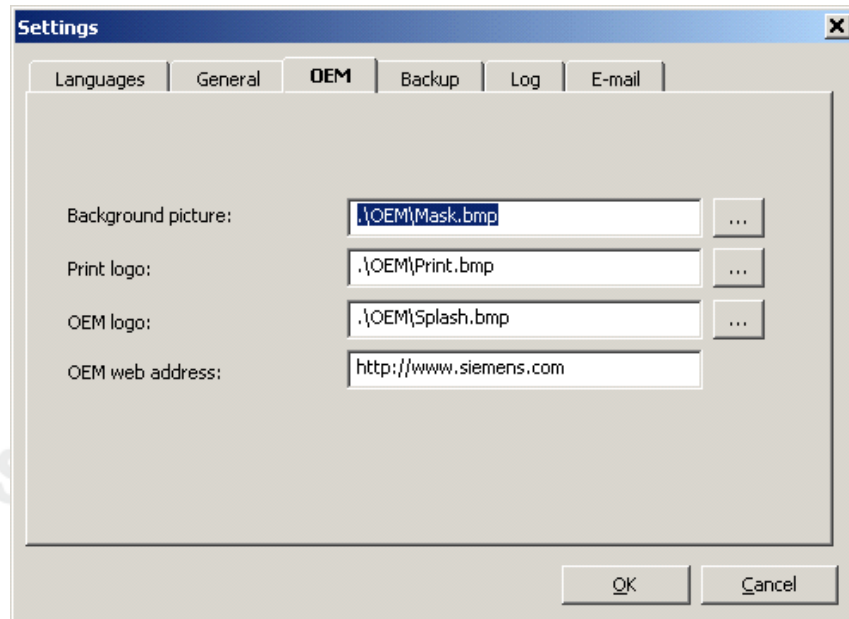
**Backup**: The storage time for the backup files (files with parameters and the current operating state of the burner control) can be entered here

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*).

| Settings | ✕ |
|---|---|

| Languages | General | OEM | **Backup** | Log | E-mail |

File name basis: `.\bkp\.bkp`

Storage time (months): `0`

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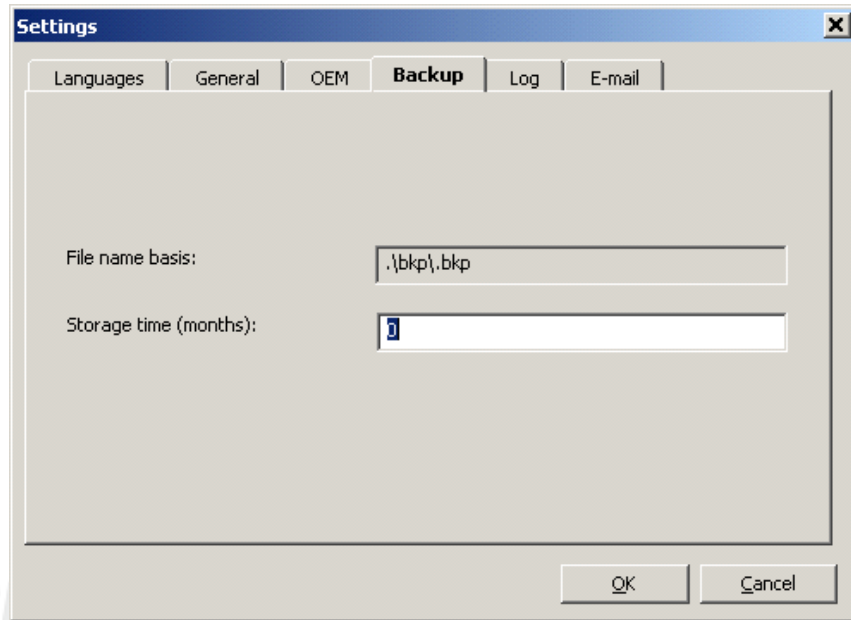
**Log**: The storage time for the log files can be entered here. Operations, actions and program messages exchanged between ACS410 and burner control during the time logging on took place are automatically saved in these files

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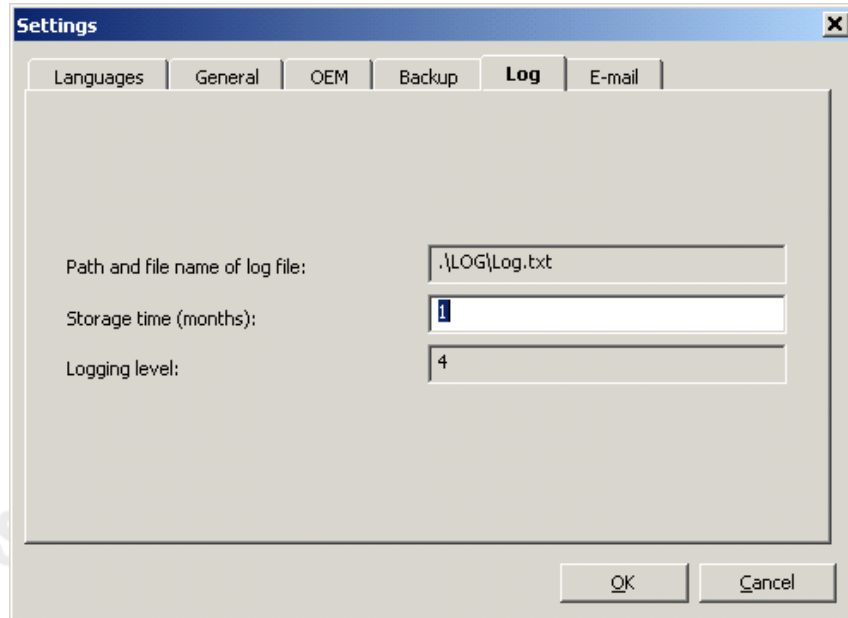
**E-mail**: E-mail settings for sending e-mails from the **Trigger** menu (⇨ chapter *Creating a trigger event*)

- 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)

**Settings** ☒

| Languages | General | OEM | Backup | Log | **E-mail** |

E-mail server
Name: | Port:
mailto.t-online.de | 25

To: Name @provider.com
Subject: Triggering e-mail subject
Text:
Triggering e-mail body text

[ OK ] [ Cancel ]

☞ 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:
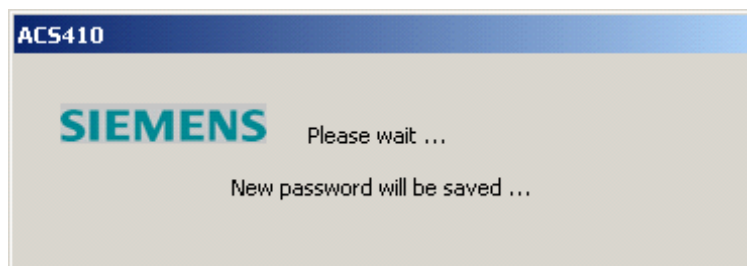


Successful saving of the password is indicated.
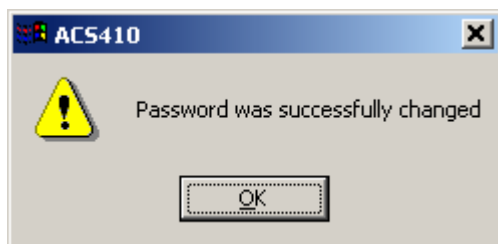


Confirm by clicking **OK**.

## 12.1.5 Help

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

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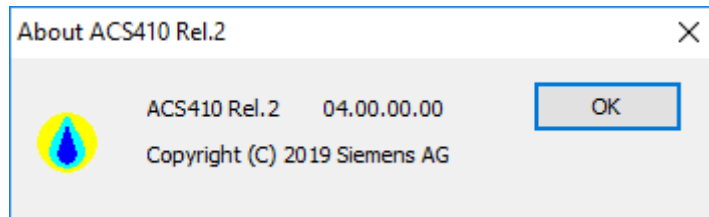


## 12.1.6 Locking the ACS410

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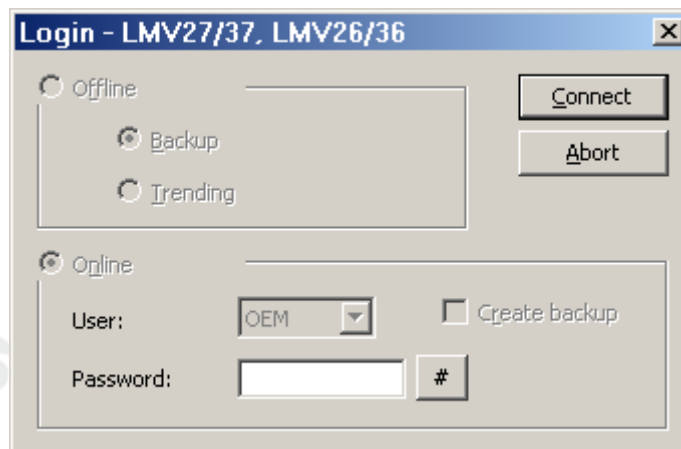


This menu item can be used to lock operation of the ACS410.
Further accesses to the *Program* functions are possible only when logging on again.

## 12.2 Toolbar
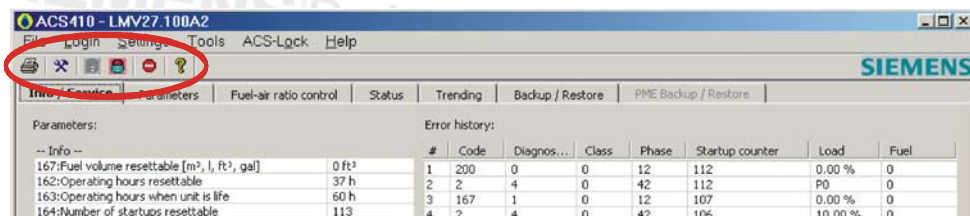


| | | |
|---|---|---|
| 🖨 | Print | Click this button to open the menu for the printer settings |
| ✶ | Settings | Click this button to open the menu for the settings |
| 🔒 | Reset | If the burner control has locked out (lockout position), you can start the reset sequence here |
| | ↓ | |
| | Only one 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:
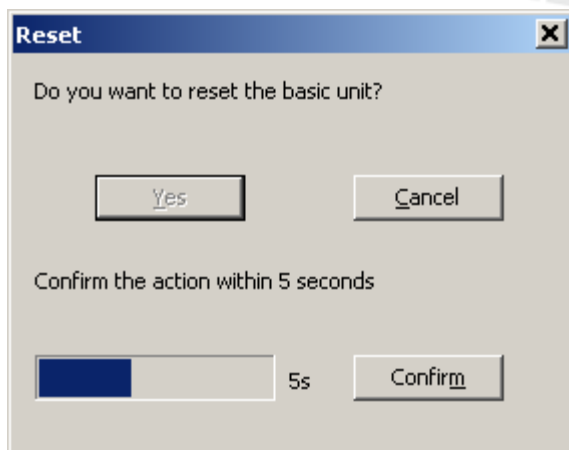


- **Yes**      Starts the reset
- **Confirm**   Confirm here within 5 seconds after clicking **Yes**
- **Cancel**    Closes the dialog box

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:
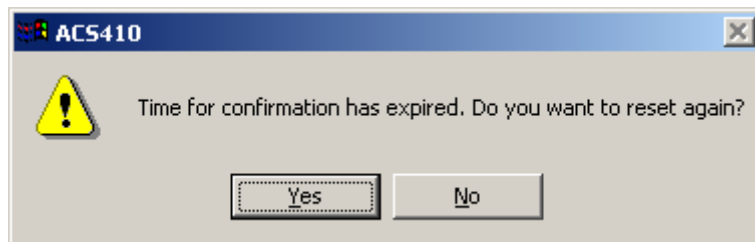


- **Yes**      Repeats the action
- **No**       Aborts the action and closes the dialog box

### 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:
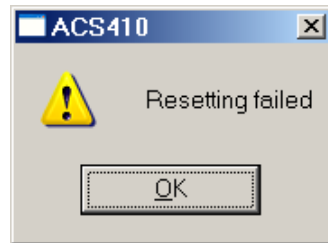


Confirm the message by clicking **OK** and make a reset directly on the burner control.

### 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:

**ACS410**

⚠ Do you want to lock the basic unit?

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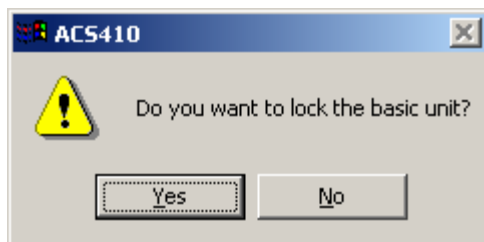
    - **No**        Closes the dialog box
    - **Yes**      Starts lockout, followed by a message box

**ACS410**

**SIEMENS**   Please wait ...

Lock the basic unit ...

If the action was successful, another dialog box appears:

**ACS410**

ⓘ Locking was successful

[ OK ]

Confirm by clicking **OK**.

The following error message from the burner control appears:

**ACS410**

⚠ Basic unit reports an error: 167
Manual locking

[ OK ]
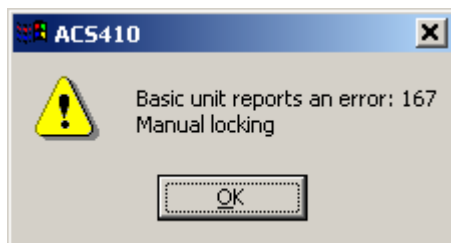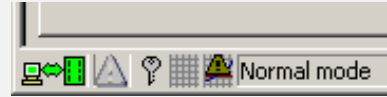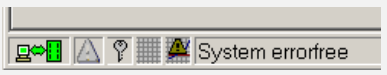
Confirm by clicking **OK**.

| | | |
|---|---|---|
| ❓ | Help | Click this button to open the **Help topics** menu |

## 12.3  Status bar
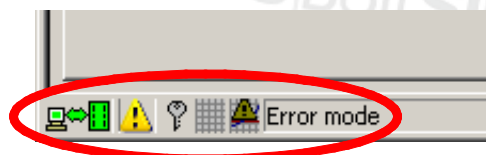


| | | |
|---|---|---|
|  | Connection status | Indicates an online connection to the burner control |
|  | Lockout position | Indicates when the burner control is in the lockout position |
|  | Send password | Indicates when a password is sent |
|  | Trend recording | Indicates when graphs are plotted in the **Trending** window |
|  | Trigger handling | Indicates when trigger handling in the **Trending** 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.
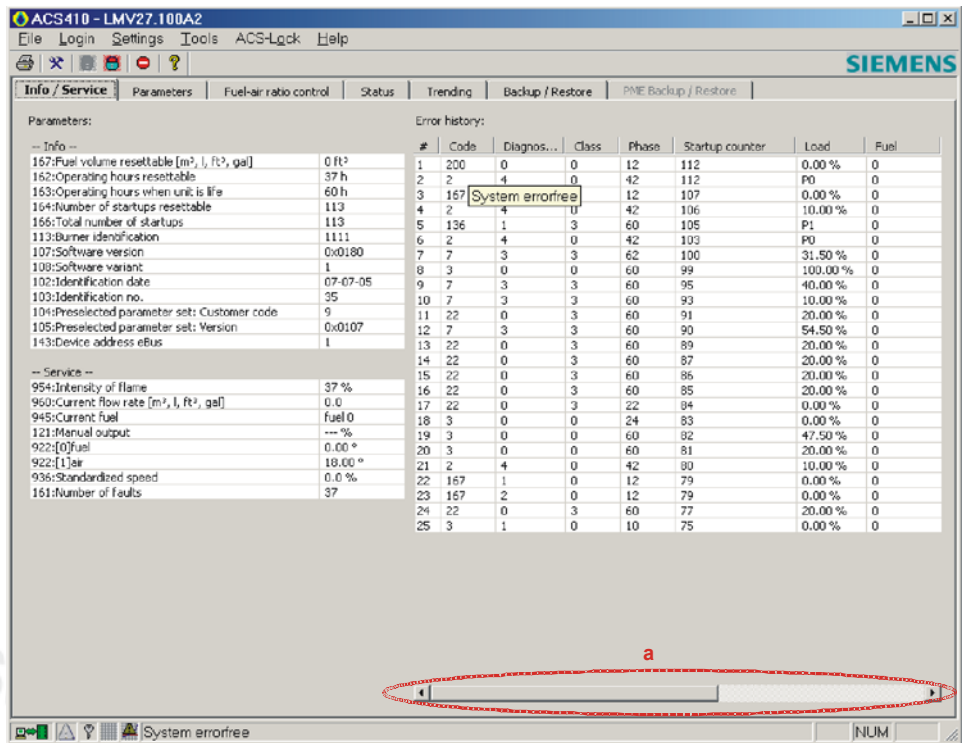


Additional information about the error history or the diagnostic code is displayed by moving the scroll bar (a).

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.
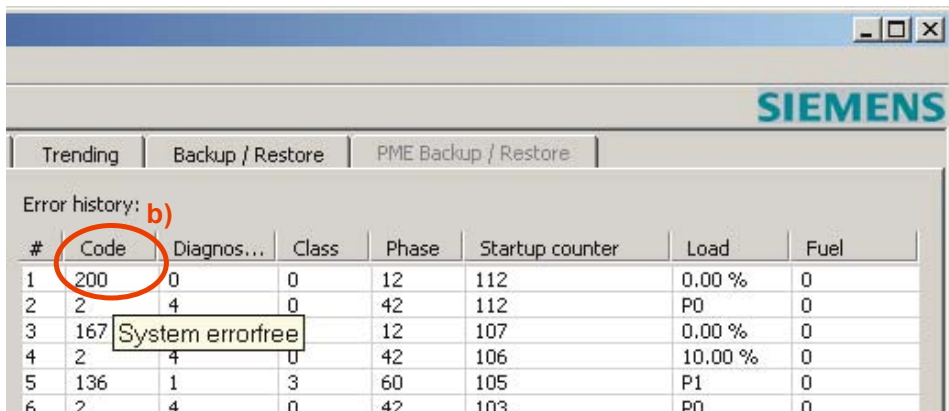


The current operating state of the device is displayed on the first line (b).

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

## 13.2 Parameters window
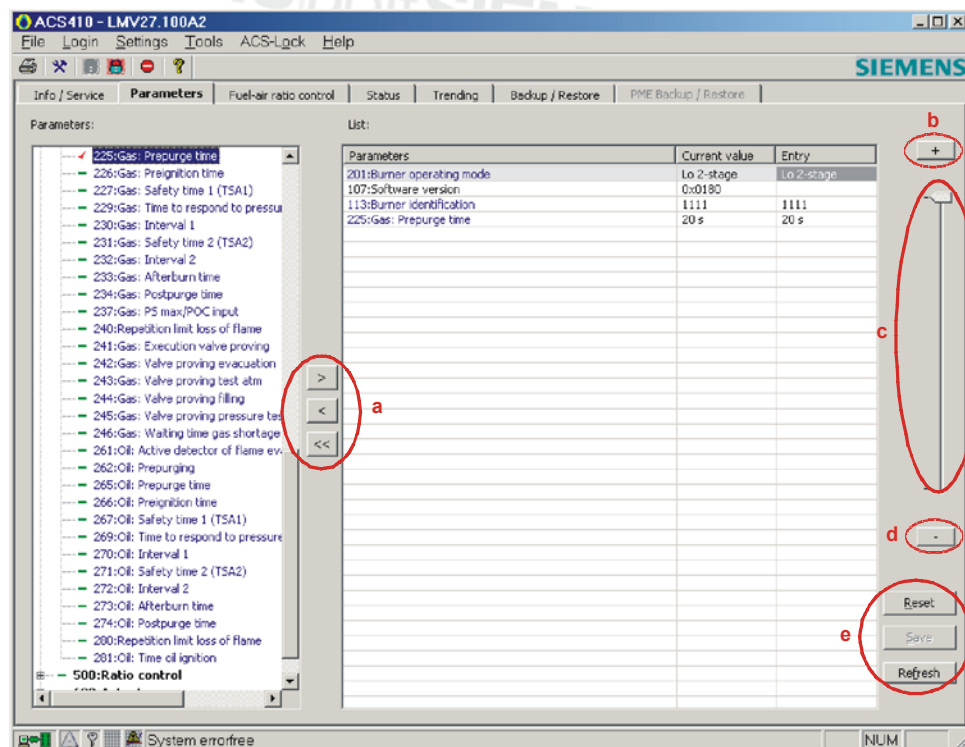
## 13.2.1 Parameter changes (general)

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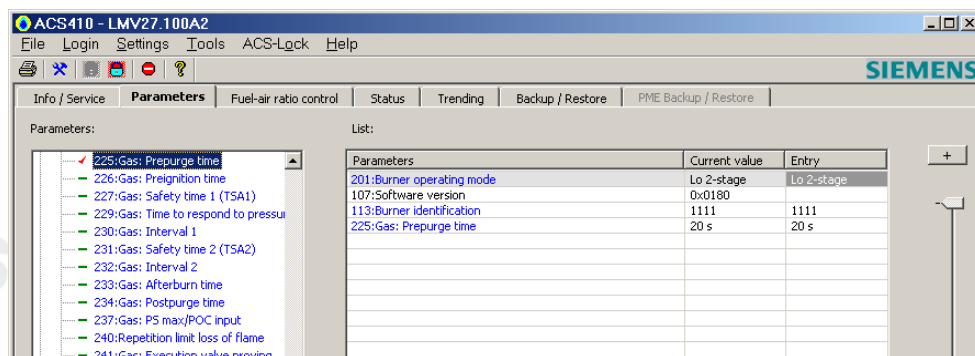
Highlight the individual entry cells in the table on the right under **Parameters** and change the value by moving the slider on the right (c) or by clicking the **+** (b) or **–** button (d).

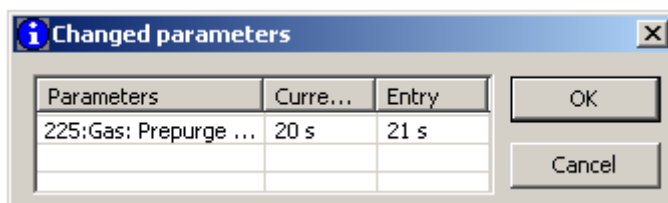First, the changed parameter is displayed, highlighted in blue.

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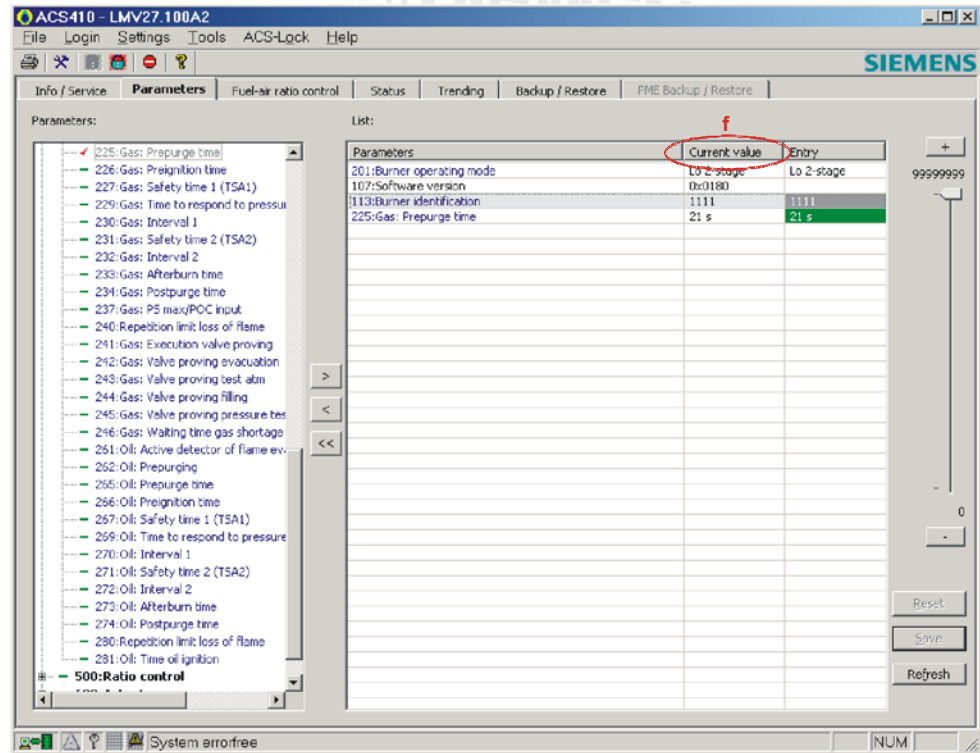


Click **Save** (e) to highlight in yellow the changes in the entry cell; then, the following dialog box appears:



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

55/128

Smart Infrastructure

PC software for microprocessor-based burner controls
13 Working with the ACS410

CC1J7352en
10.09.2015

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.

56/128

Smart Infrastructure      PC software for microprocessor-based burner controls      CC1J7352en
13 Working with the ACS410      10.09.2019

## 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:
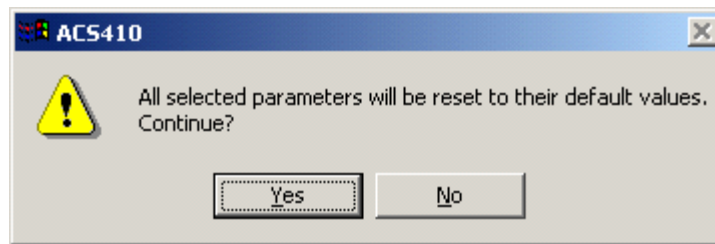


|  |  |
|---|---|
| - **Yes** | Copies **0** or the default value to the text box |
| - **No** | Aborts the entry and closes the dialog box |

### 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

57/128

Smart Infrastructure     PC software for microprocessor-based burner controls     CC1J7352en
13 Working with the ACS410     10.09.2015

### 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:
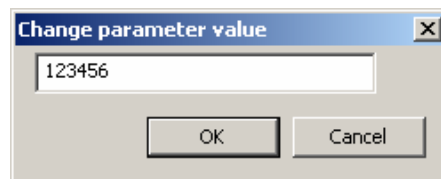


Here, a maximum of 8 digits for the burner's ID can be entered.

|  |  |
|---|---|
| - **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.
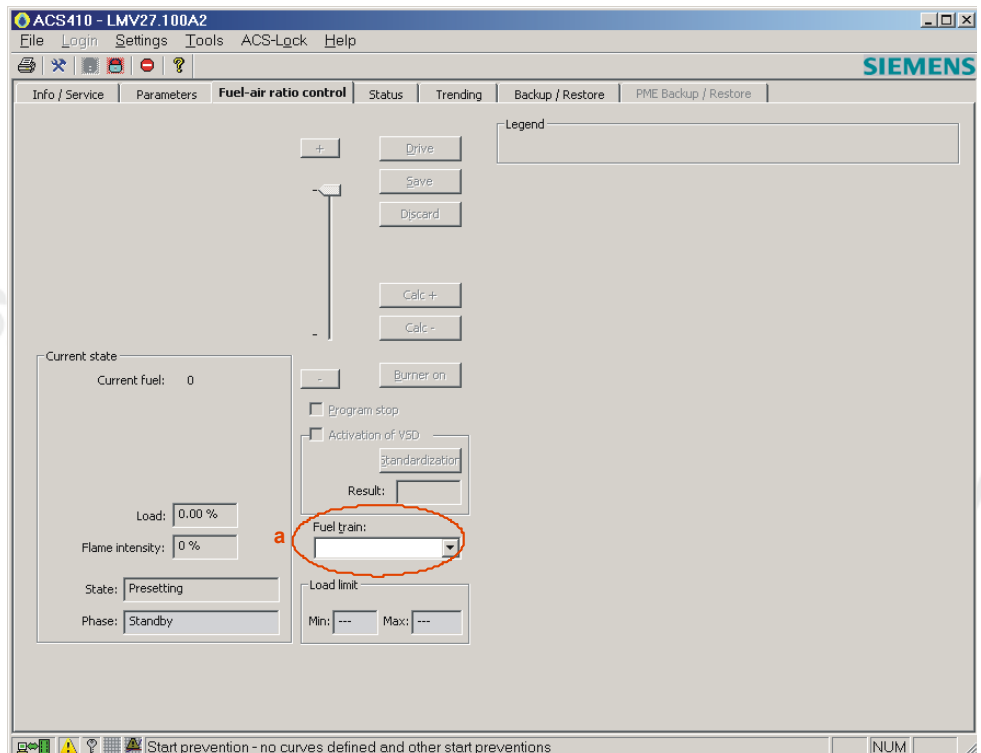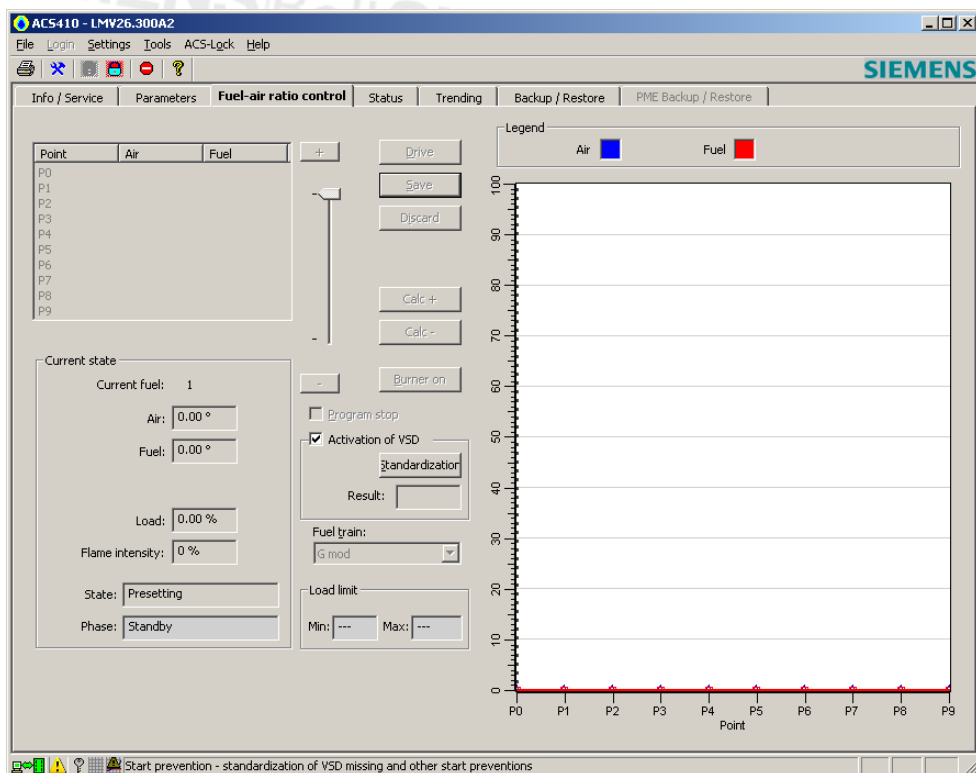


If previously set curvepoints shall be deleted, follow the procedure described in chapter *Resetting parameters – Deleting curves*.
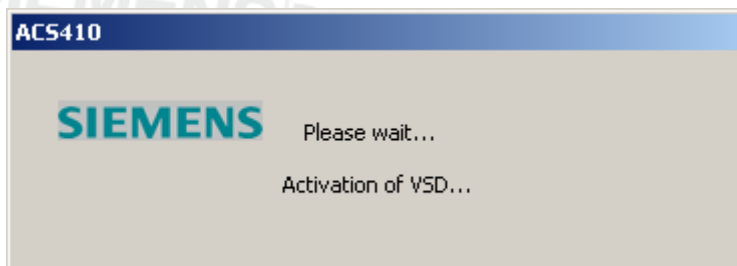
### 13.3.1 Modulating operation

PC software for microprocessor-based burner controls
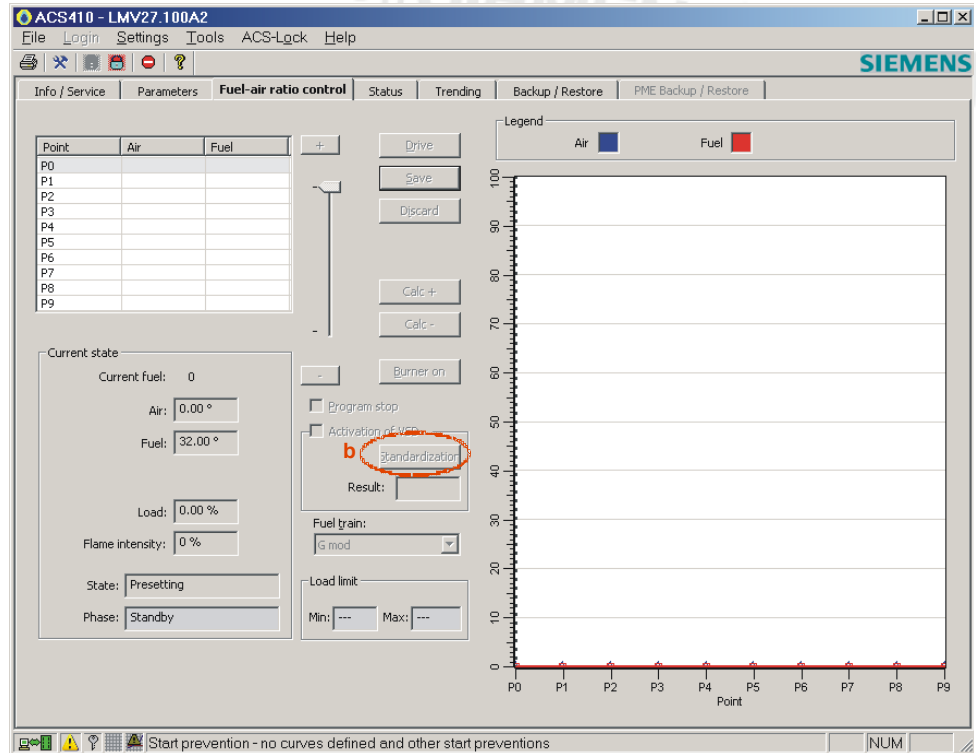13 Working with the ACS410
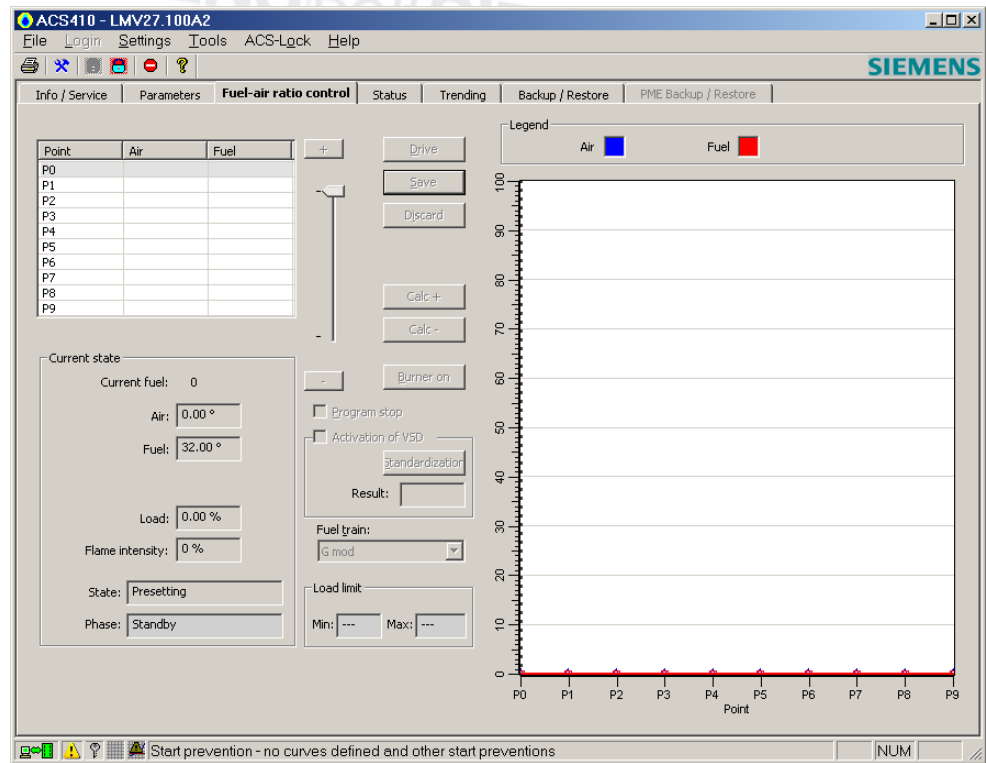
### 13.3.1.1 Activating the VSD (optional)



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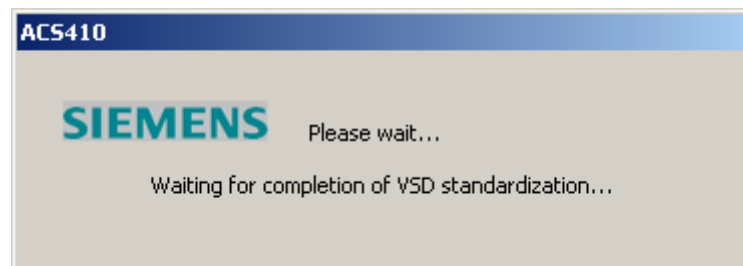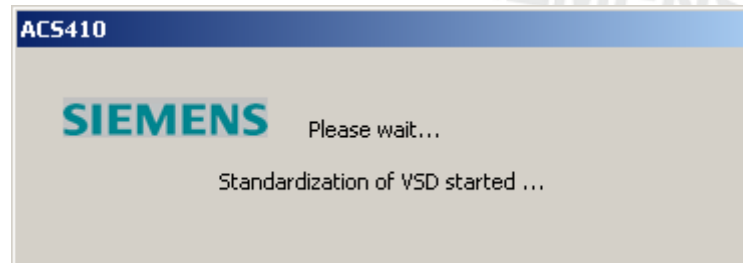
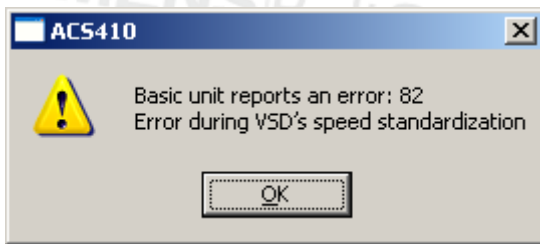After activation of the VSD, column **VSD** appears.



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).
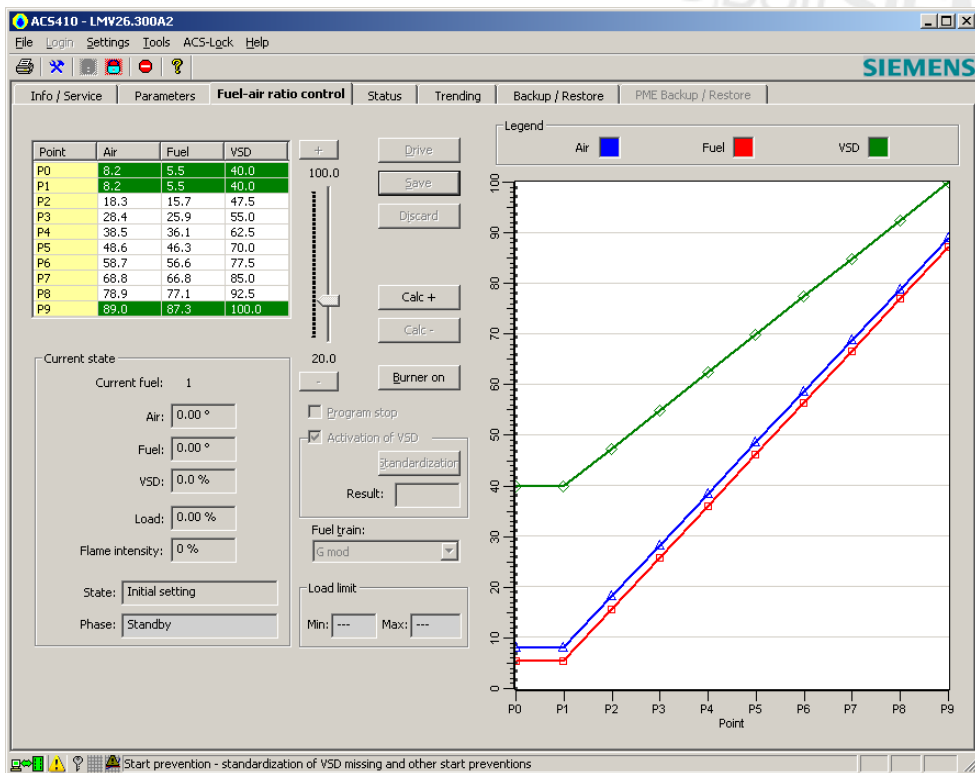
Procedure:
☞
- Go to the mask for the parameters
- Select parameter 641
- Set the parameter to 1 and save it

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).

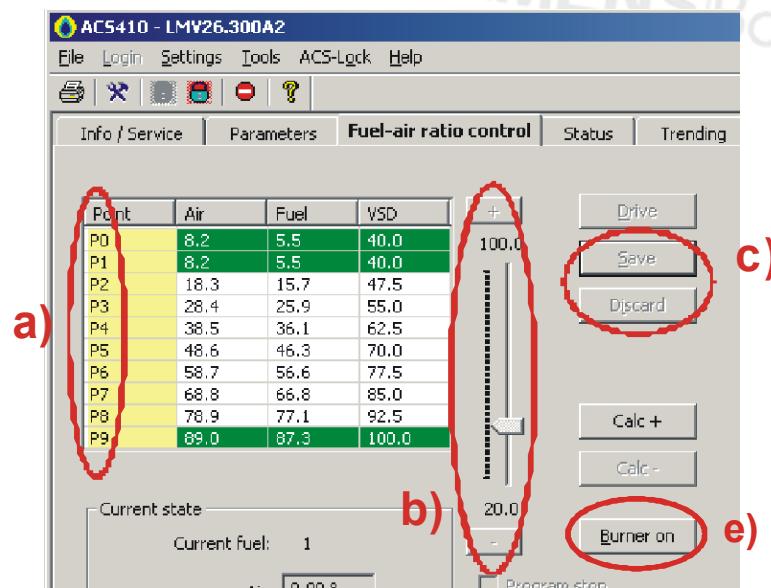The example given below shows the steps to be followed when making the initial settings for fuel train mode *G mod*.

⇨    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

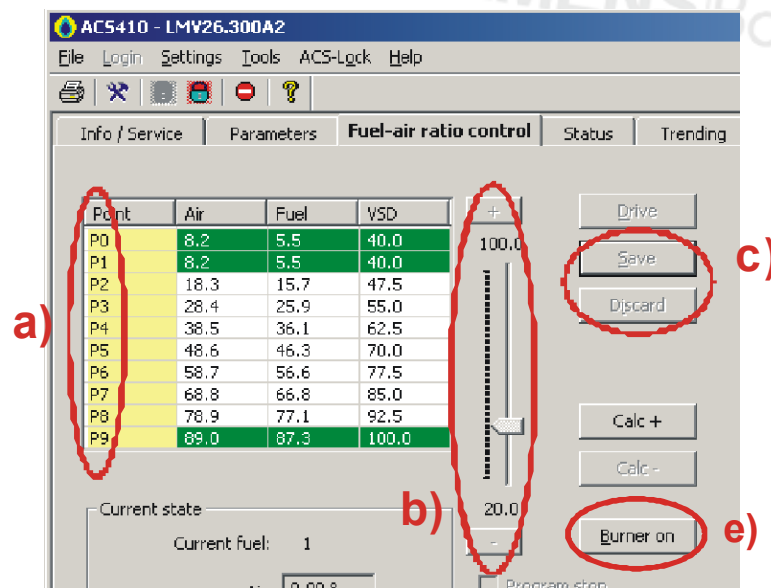When clicking **Calc +** or **Calc –** (d), the following dialog box appears:
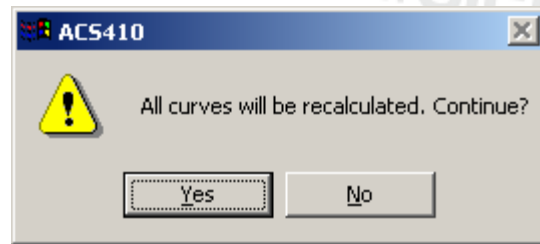


- **Yes**  *S*tarts calculation of the curve and copies it to the LMV2/LMV3. The curvepoints are read in again and the display is refreshed
- **No**  Aborts the entry and closes the dialog box

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).

PC software for microprocessor-based burner controls          CC1J7352en
                                                                         13 Working with the ACS410                              10.09.2019

### 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:
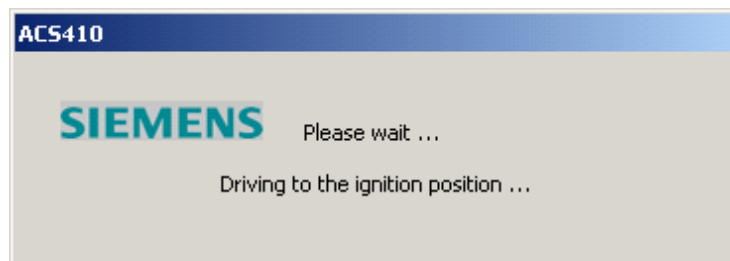


The LMV2/LMV3 travels to the ignition position. To ensure the LMV2/LMV3 stops at the ignition position, the ACS410 automatically sets a program stop.

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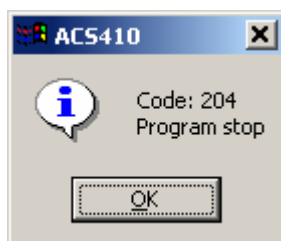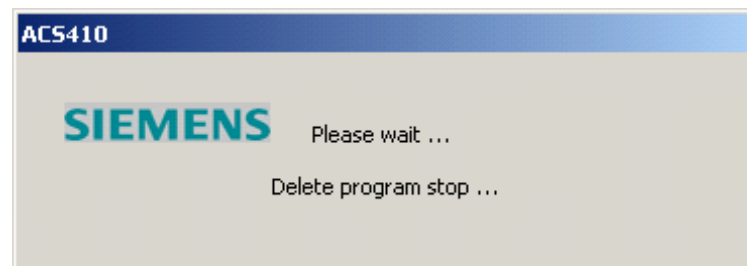


Confirm and close by clicking **OK**.

Remove the tick ☑ for the program stop ☐.
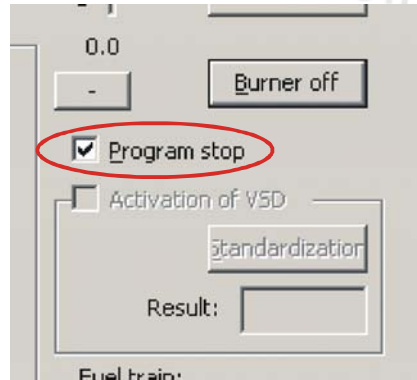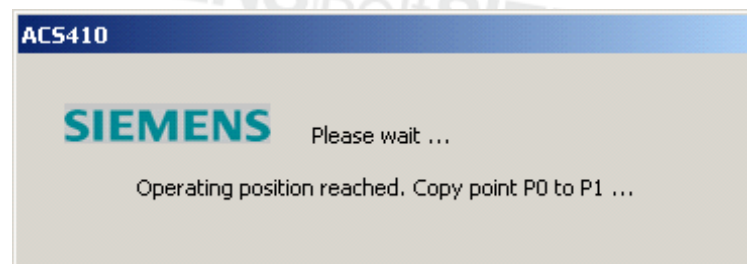


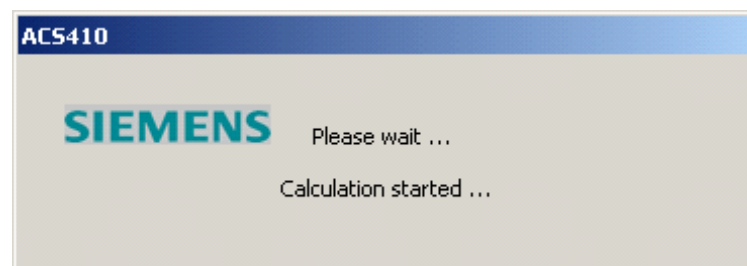The LMV2/LMV3 proceeds.

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.

Smart Infrastructure
PC software for microprocessor-based burner controls
13 Working with the ACS410
CC1J7352en
10.09.2015

### 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:
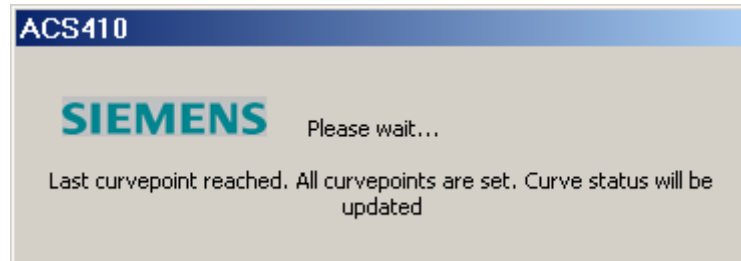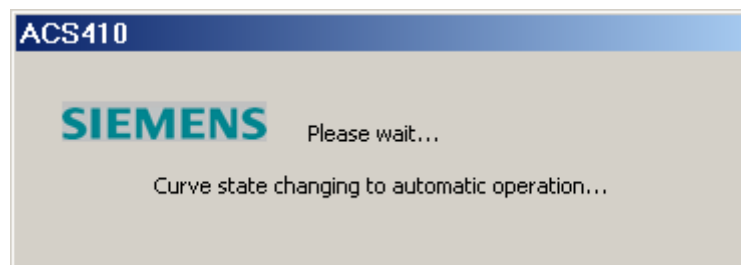


Then, the minimum/maximum load can be matched to the specific application.
In the process, the possible modulation range is restricted.
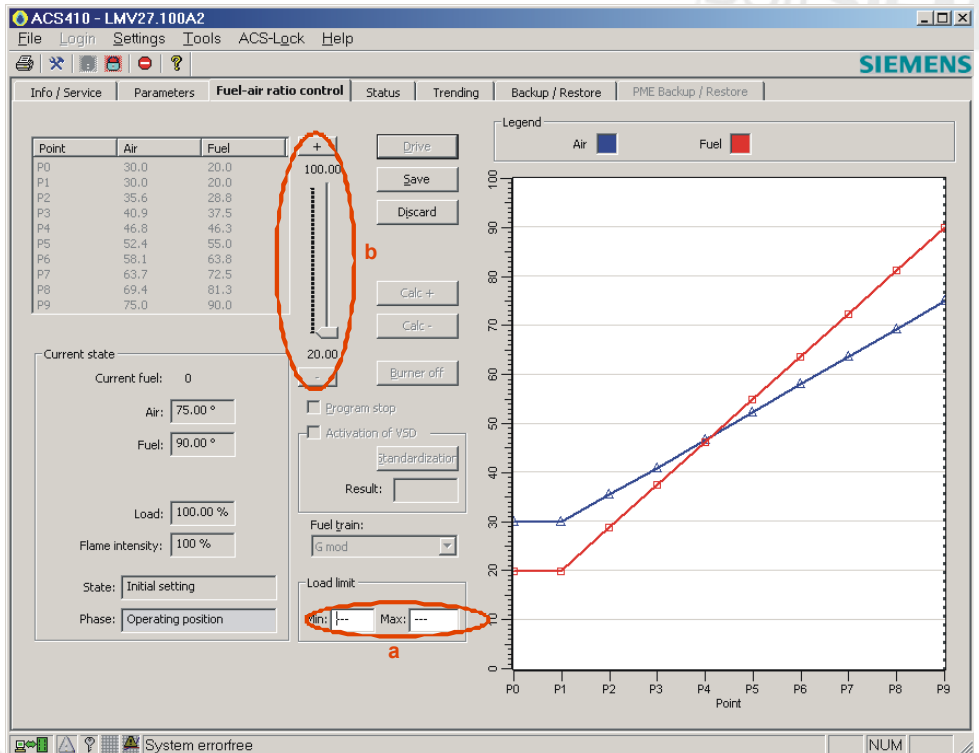
The following message appears:
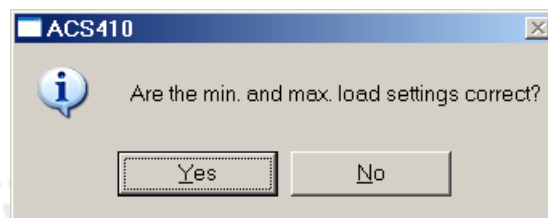


When clicking **Yes**, the initial settings are completed. Minimum and maximum load are not limited and the ratio control curve from **P1** to **P9** is completely traversed.
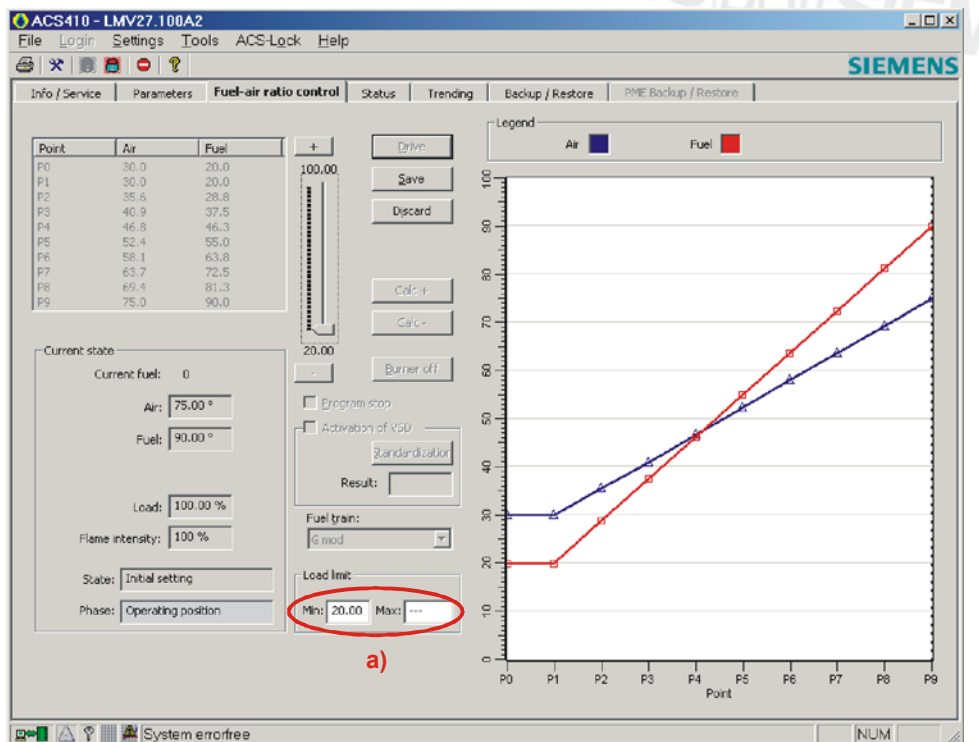
The following message appears:



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.
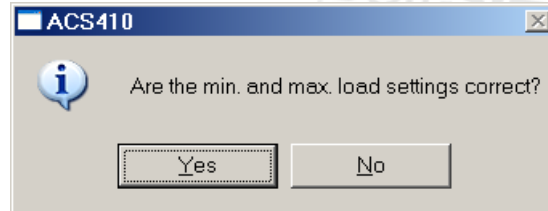
Example of minimum limit:

Example of maximum limit:
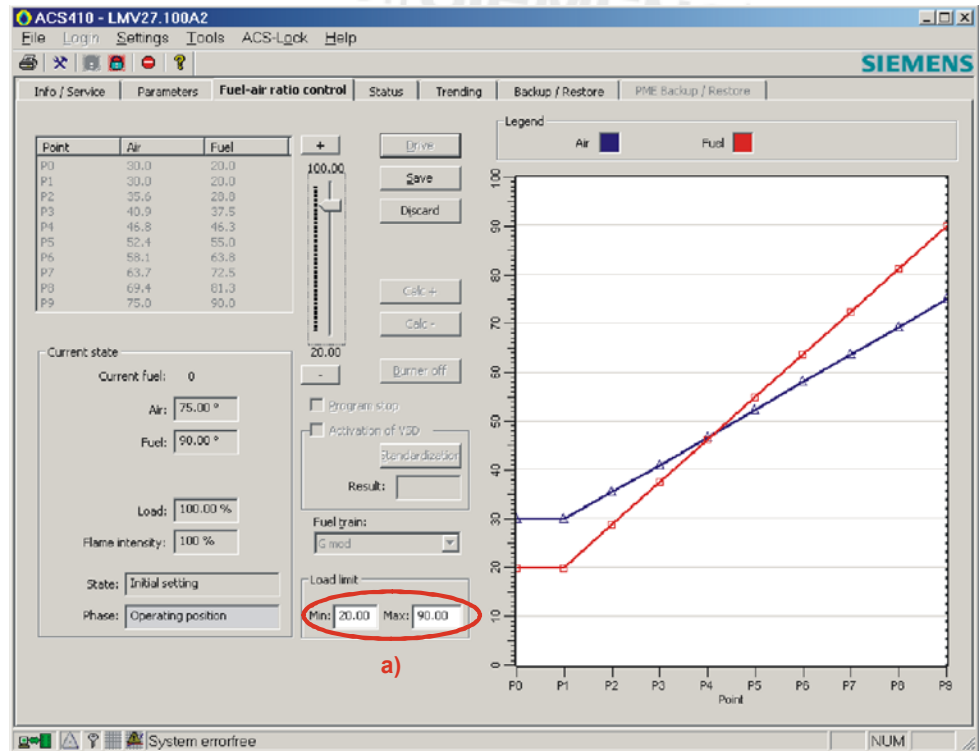


Click **Save** to adopt the values.

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:
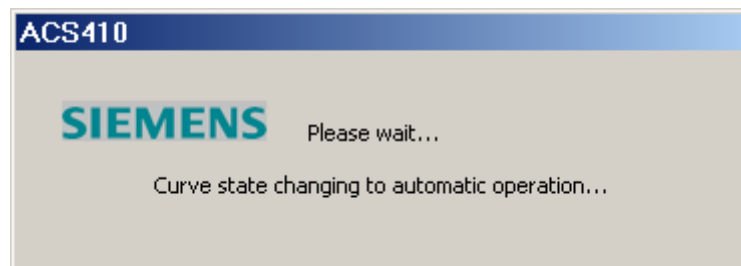


The LMV2/LMV3 changes from the initial settings to automatic operation.
The initial settings are thus concluded.

## 13.3.2  Multistage operation

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

| | | |
|---|---|---|
| Smart Infrastructure | PC software for microprocessor-based burner controls | CC1J7352en |
| | 13 Working with the ACS410 | 10.09.2015 |
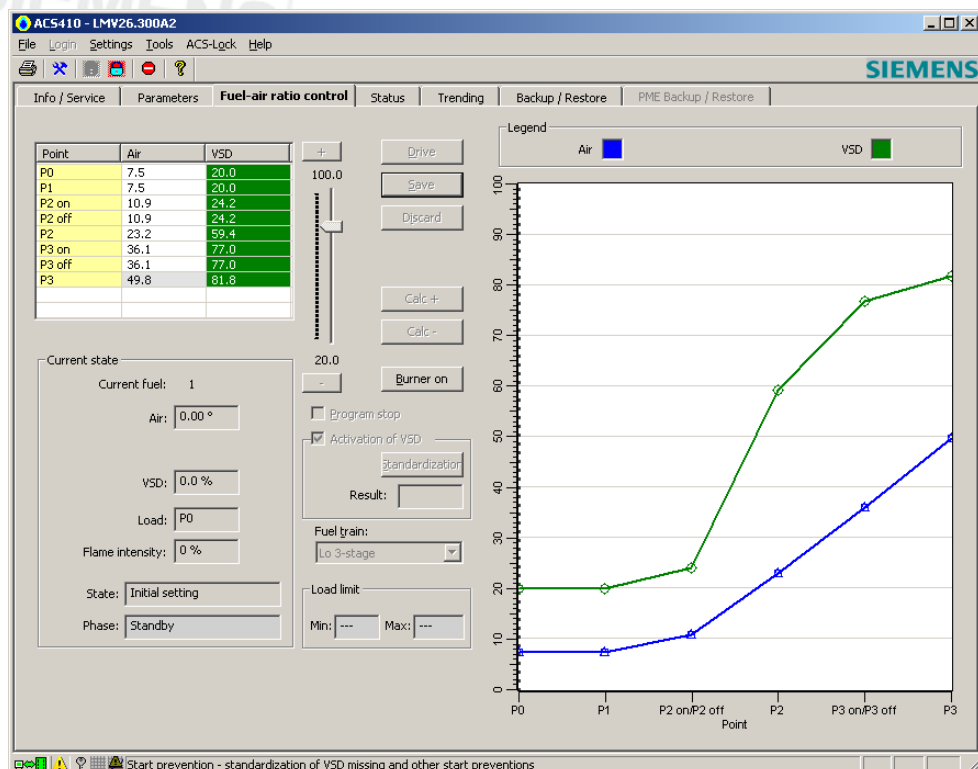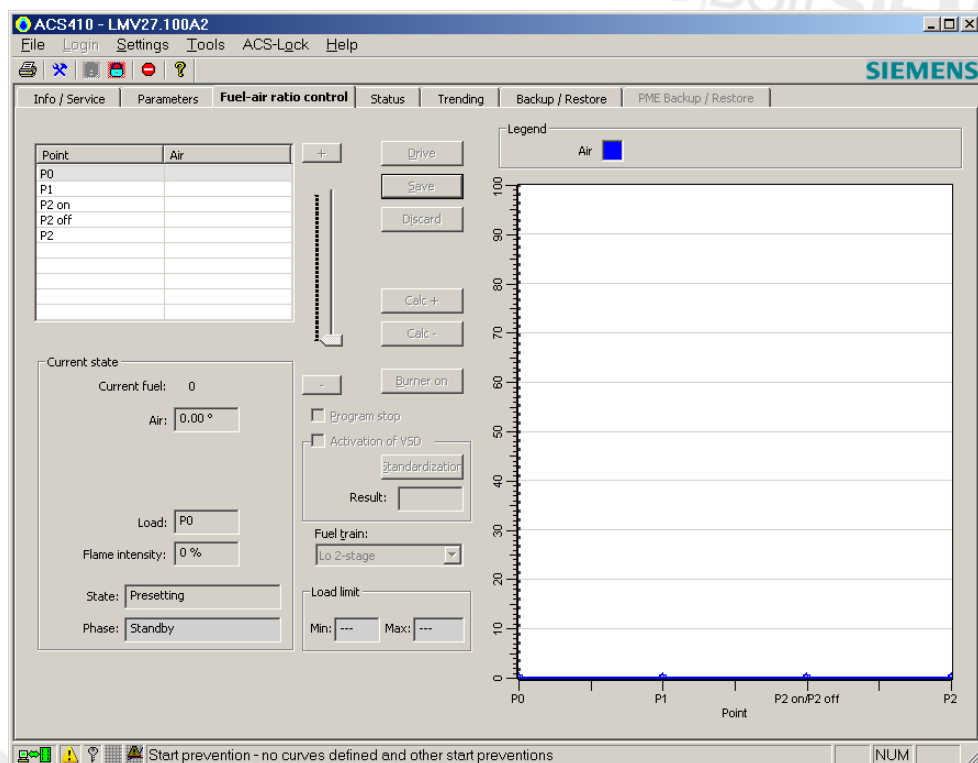
### 13.3.2.1 Activation of VSD (optional)
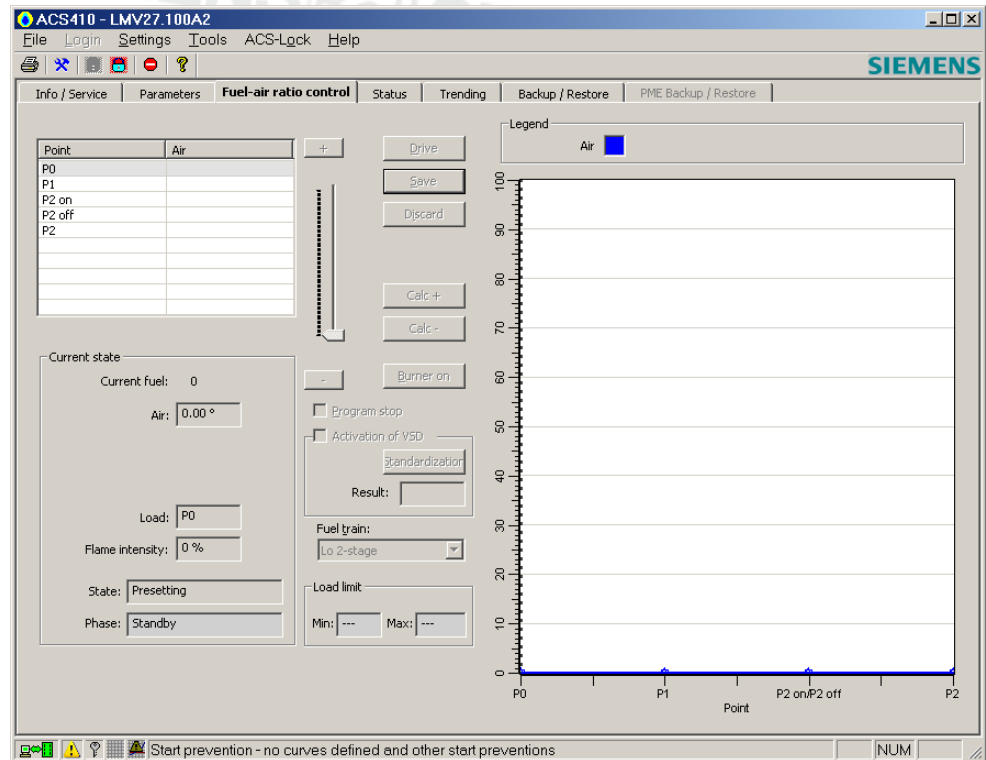


When ticking **Activation of VSD** in connection with LMV2/LMV3, the control of VSDs is permitted. If you selected **Activation of VSD**, there will be no valid standardization of the VSD. Standardization can be started by clicking **Standardization**. After ticking **Activation of VSD**, the following window opens:
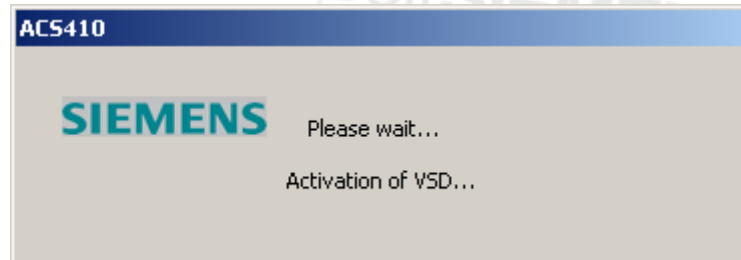
To start the process, click **Standardization** (b).
If valid standardization is already available, you can start by entering the curvepoints.
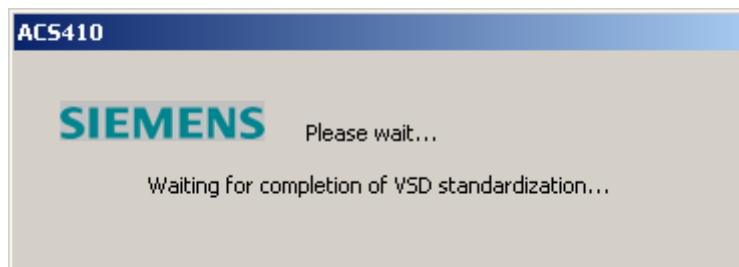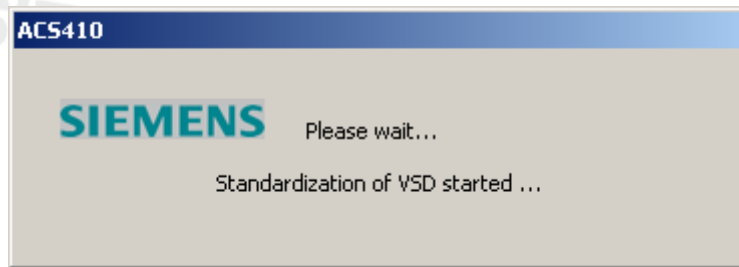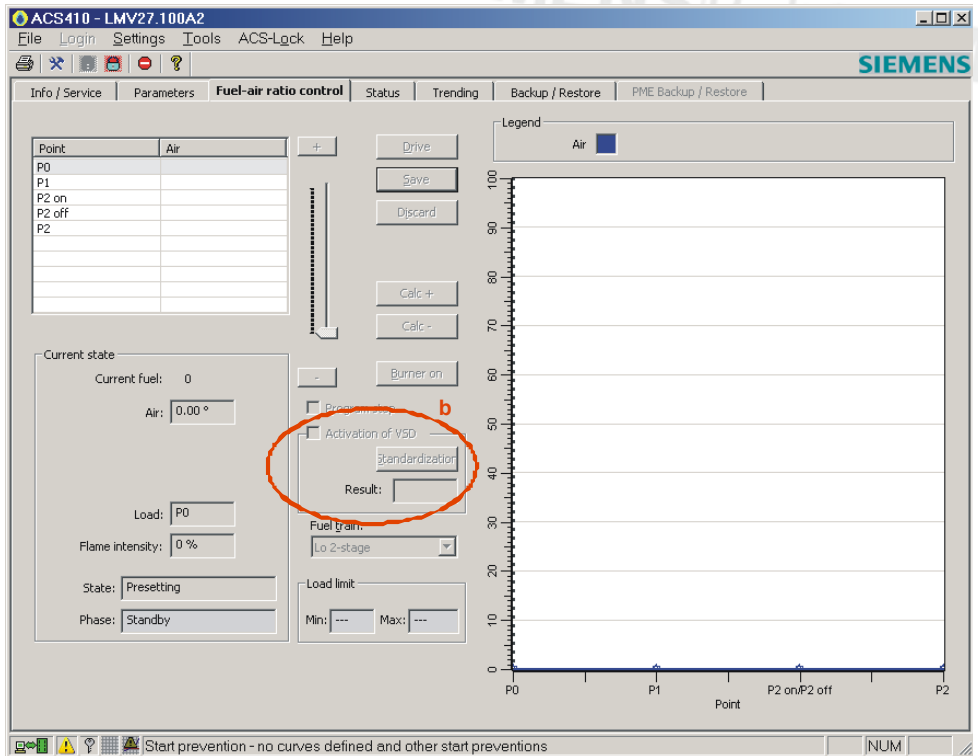
If speed standardization has failed, an error message appears.
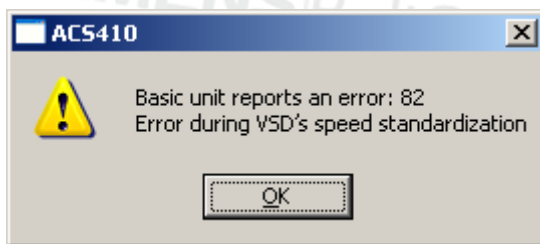


Click **OK** to confirm.
A numerical value delivering more detailed information appears in box **Activation of VSD** (b) under **Result.**

⇨ 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.*

⇨ <span style="background-color:yellow">Reference!
The Basic Documentation covering the respective type of LMV2/LMV3 must be observed!</span>

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**
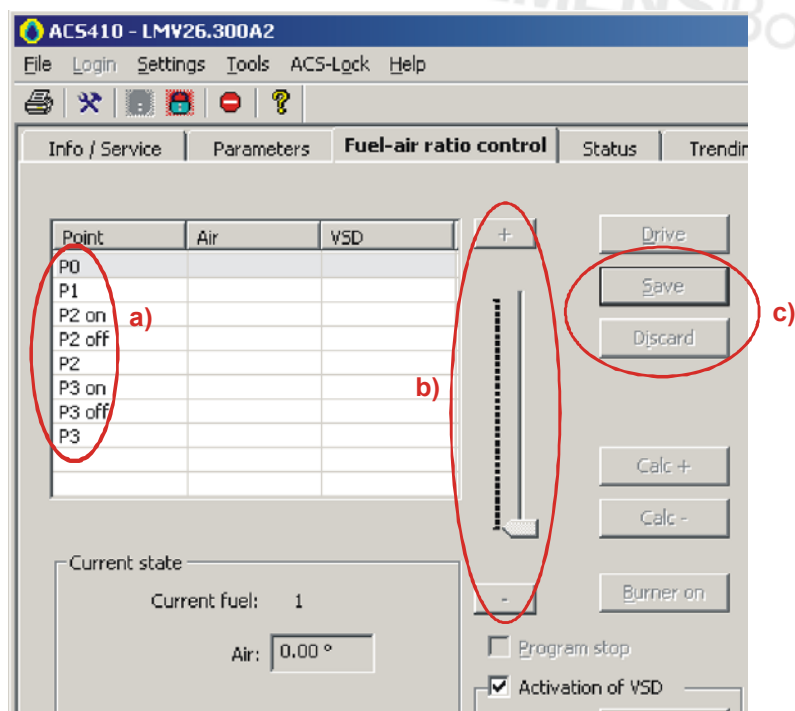


In multistage operation, the curvepoints are set using point **P0** as the starting point. After saving the changed curvepoint, ACS410 proposes a value to be used as the next curvepoint.

☞ 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).

78/128

Smart Infrastructure

PC software for microprocessor-based burner controls
13 Working with the ACS410

CC1J7352en
10.09.2019

### 13.3.2.3 Warm settings

**Burner is started up**
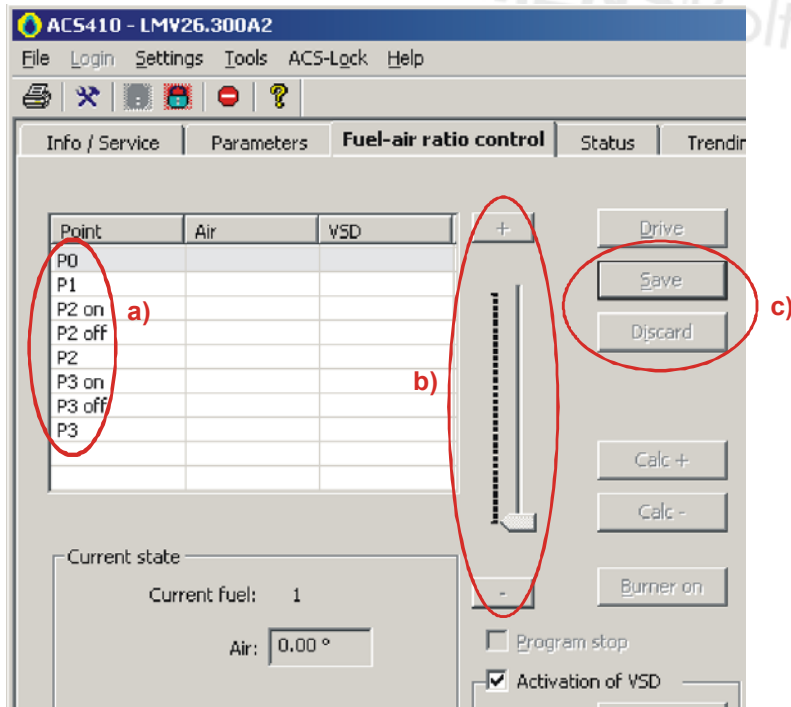


Enter the minimum setting point **P0** (ignition load) in the table on the left (a). Highlight the respective setting point and change the value as required using the scroll bar on the right, or the **+** or **–** button (b), or the arrow keys of your keyboard. After every setting or change, the setting 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:
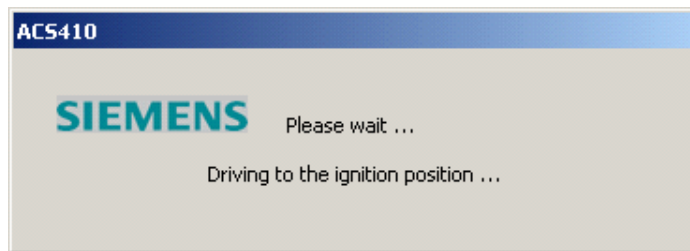


The LMV2/LMV3 travels to the ignition position. To make certain it stops there, the ACS410 automatically sets a program stop.
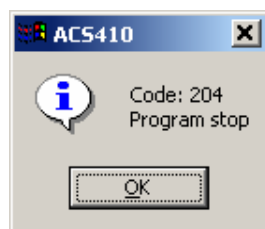


Confirm and close by clicking **OK**.

79/128

Smart Infrastructure          PC software for microprocessor-based burner controls          CC1J7352en
                              13 Working with the ACS410                                    10.09.2015

Remove the tick ☑ for the program stop ☐.

The LMV2/LMV3 proceeds. Program stop is canceled.
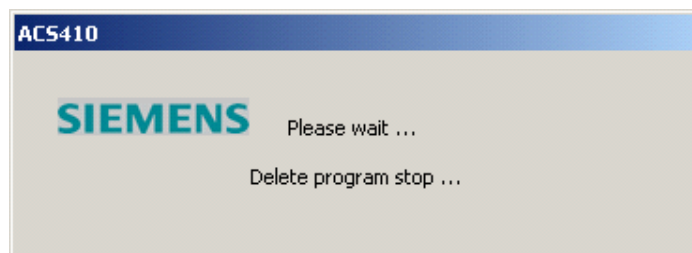
The values of **P0...P2** (P3) are automatically copied, proposed, and can be changed.
Check the curvepoints, change them if required, and click **Save** (c).
All setting points are selected in the order given in table *Function curvepoints* for multistage operation.

**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 cu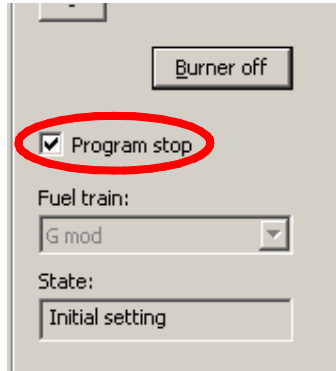rvepoint. Here, it is possible to check the setting point or to optimize it by making readjustments. The values of a curvepoint can be changed in the table on the left (a). When clicking **Drive** (c), the system travels to the changed curvepoint. When clicking **Discard** (c), the changes are canceled 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

👉

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:
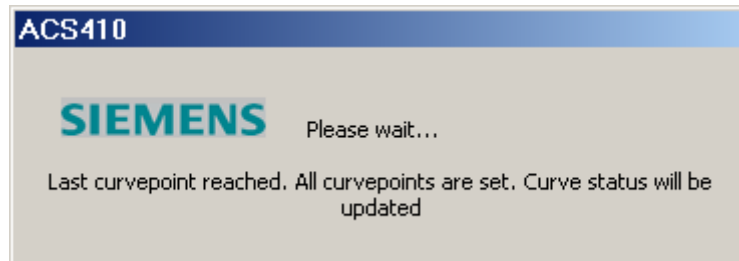


Then, the following message appears:
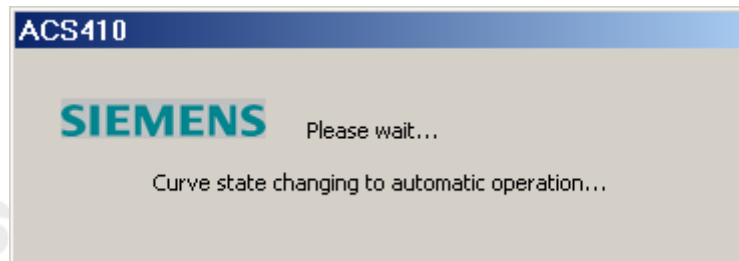


The LMV2/LMV3 changes from the initial settings to automatic operation.
This means that the initial settings are completed.

## 13.4 Status window of burner control

**Example of LME**
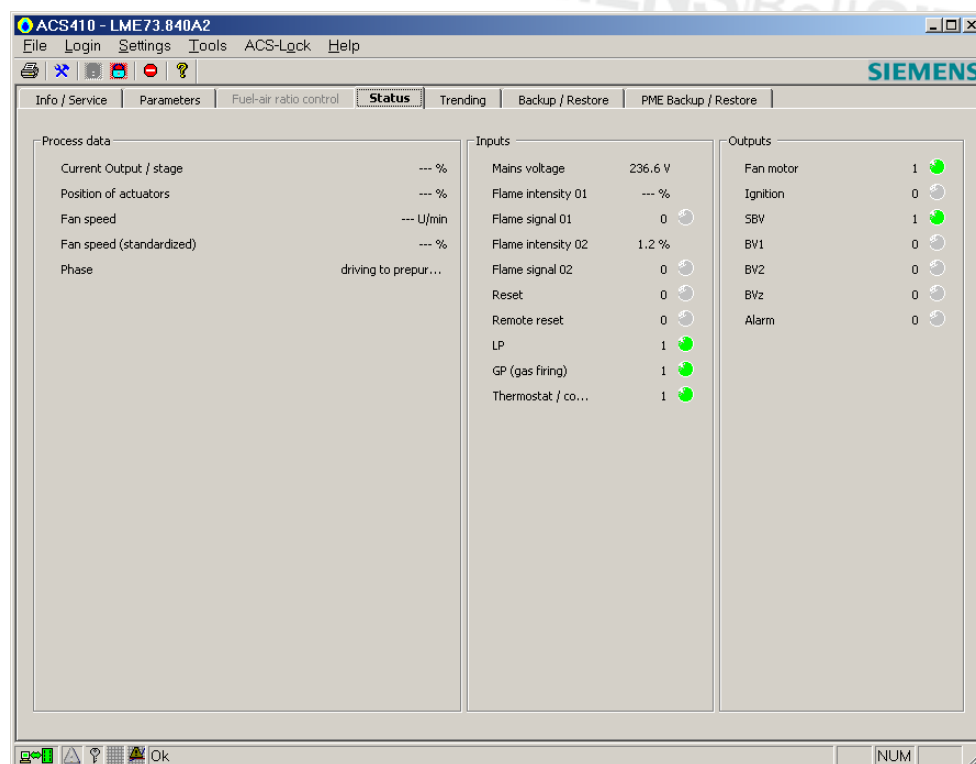


The **Status** window shows the current state of the available inputs and outputs plus operating data.
The displayed values are cyclically refreshed.
The refreshment rate (interval) is adjustable (⇨ chapter *Settings – General*).

## 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.
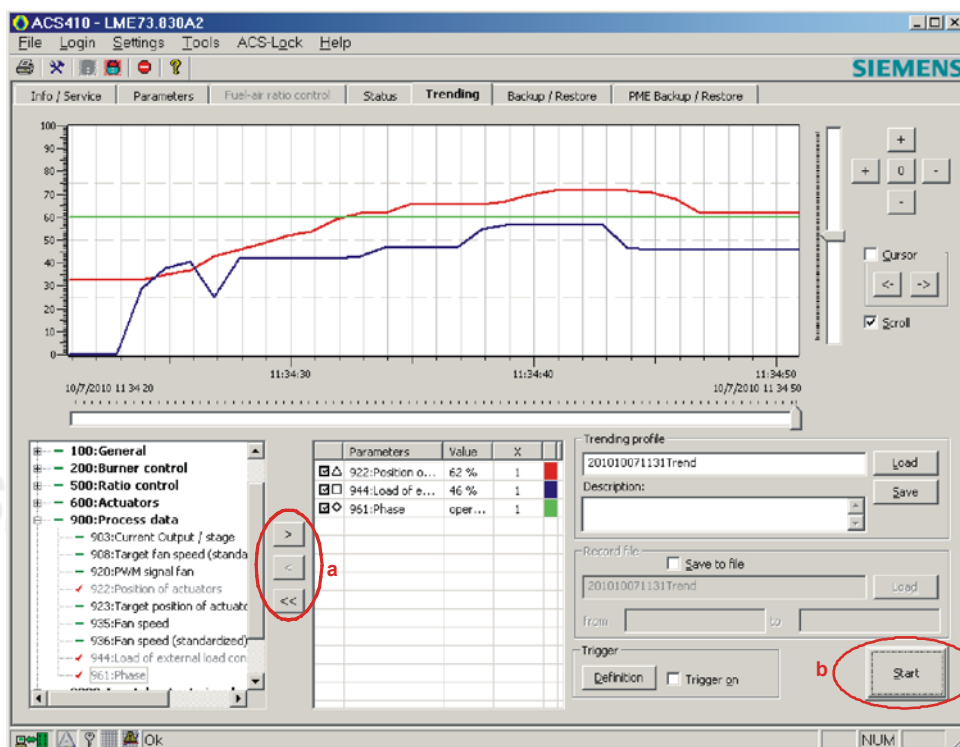


☞ **Note!**
The (data) recordings saved in a file for a period of time exceeding 24 hours are subdivided into several recording files. One file per day is created.

**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).

83/128

Smart Infrastructure  PC software for microprocessor-based burner controls  CC1J7352en
13 Working with the ACS410  10.09.2015

### 13.5.1.1 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 *Closed* |
| 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) |
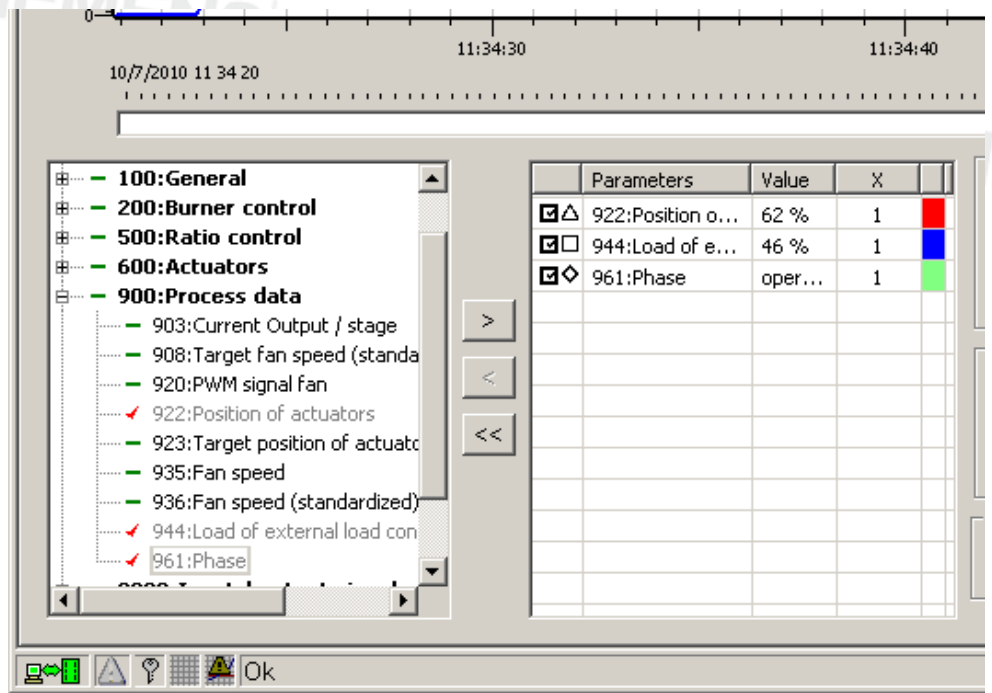
Example: **Trending** window for LME39.100

Presentation of digital I/Os in the trending picture.
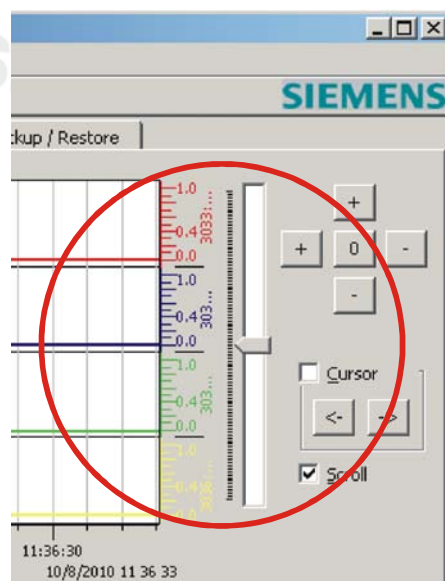


The digital I/Os are arranged above one another in the form of graphs. Each channel is assigned a specific scale in a different color.

## 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.

**Changing the presentation scale**
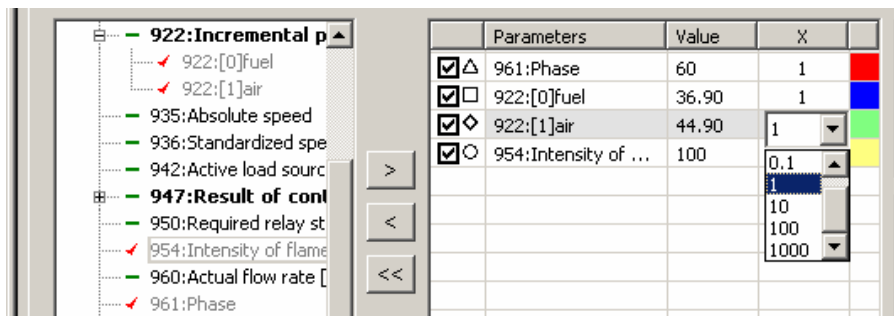


In the table on the right, select box **X** at the parameter to be changed. A pull-down menu opens, showing the available choices for the presentation multiplier of the parameter.

**Changing graph colors**    From the table on the right, select the color at the parameter to be changed.



You can select any color.

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

**Displaying the graph**    The graph's scale can be changed.
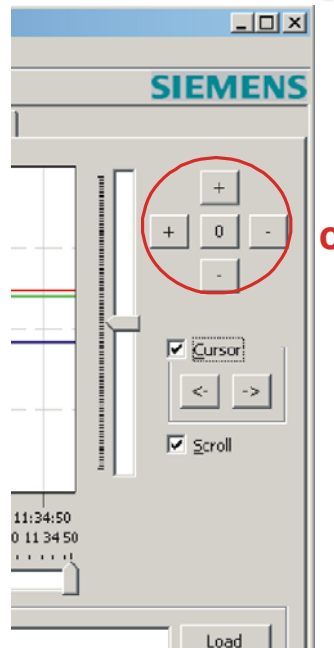


Click the **+** (top) or **–** (bottom**)** button to increase or decrease the scale of the y-axis. Use the **+** (left) or **–** (right) button to increase or decrease the scale of the x-axis. Click the **0-** button to return to the initial scale.
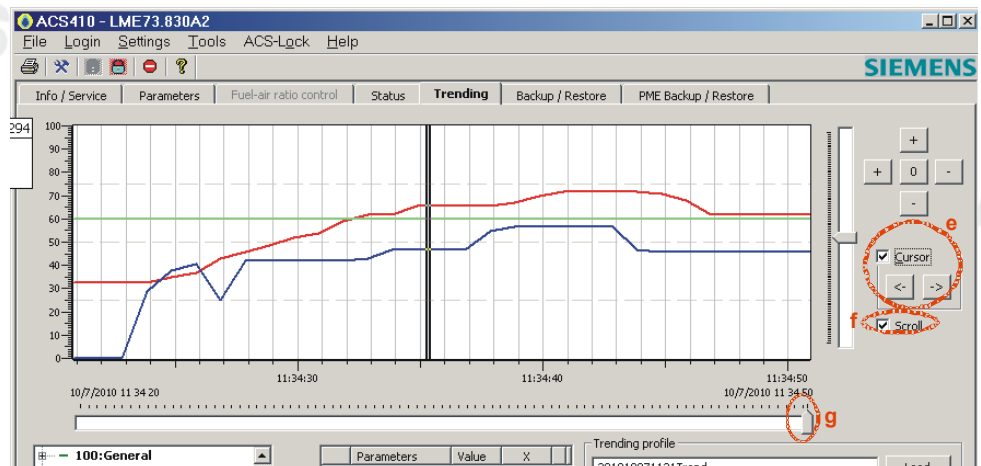


When ticking ☑ the check box at **Cursor** (e), a vertical double line appears for the cursor's position plus a pop-up window in the graphic display. This pop-up window shows the exact values of the selected parameters. Using the mouse or the <- -> buttons, the cursor's position in the display range 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.

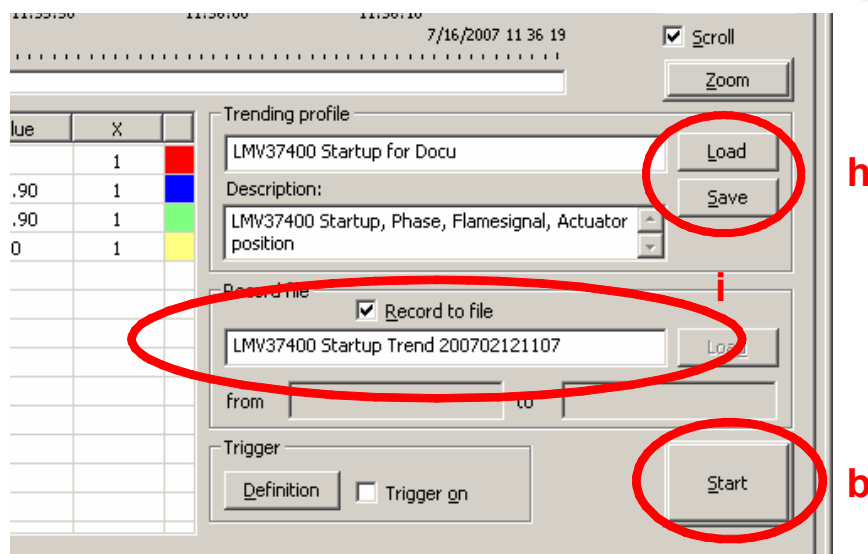### 13.5.3 Recording data
#### 13.5.3.1 Trending profile

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* (<u>y</u>ear = 4 digits, <u>m</u>onth and <u>d</u>ay = 2 digits each, <u>h</u>our <u>m</u>inute <u>s</u>econd = 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**.

88/128

Smart Infrastructure      PC software for microprocessor-based burner controls      CC1J7352en
13 Working with the ACS410      10.09.2019
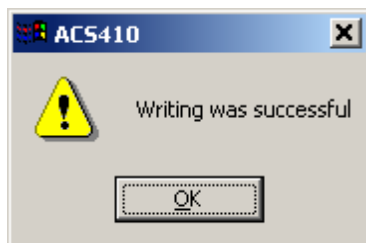
Use the **Load** button (i) to open the selection window of the saved trending profiles.
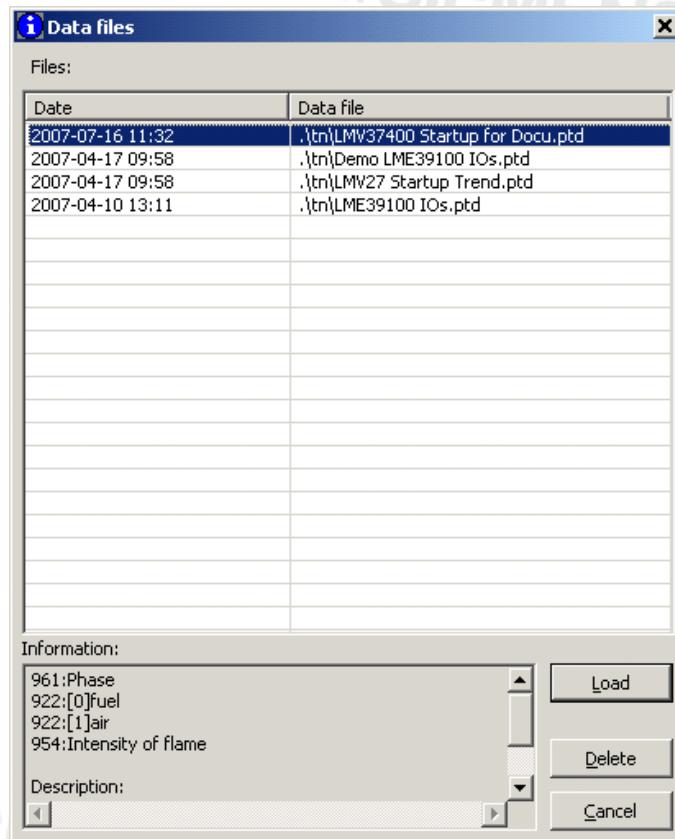


The mouse can be used to select a profile. The **Information** window displays the parameters of the trending profile.

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

Smart Infrastructure      PC software for microprocessor-based burner controls      CC1J7352en
                         13 Working with the ACS410                                10.09.2015

### 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.unt (e.g. 3LMV37.400A2 0x171.unt)

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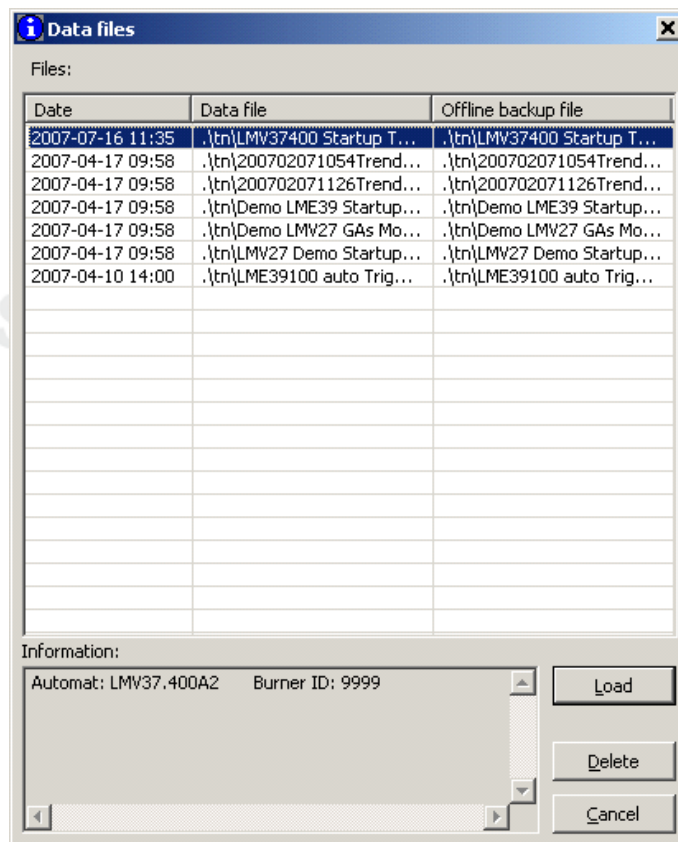


When selecting a data file, all required partial files are loaded, and the **Information** window shows the type of burner control and the associated burner ID.

| | |
|---|---|
| - **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
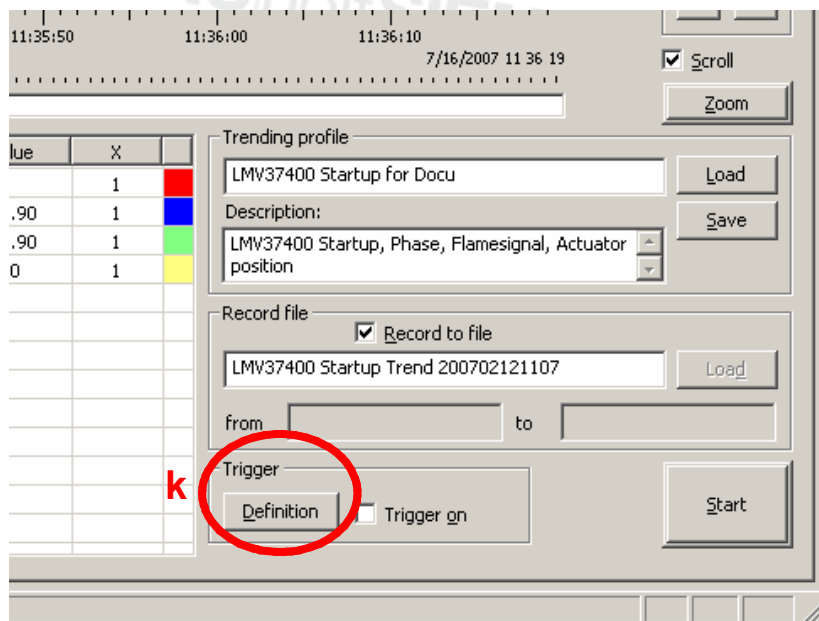


When clicking **Definition** (k), you reach the **Trigger** window. There, you can select one or several interconnected parameters for a trigger event, which triggers data recording and/or an e-mail message.
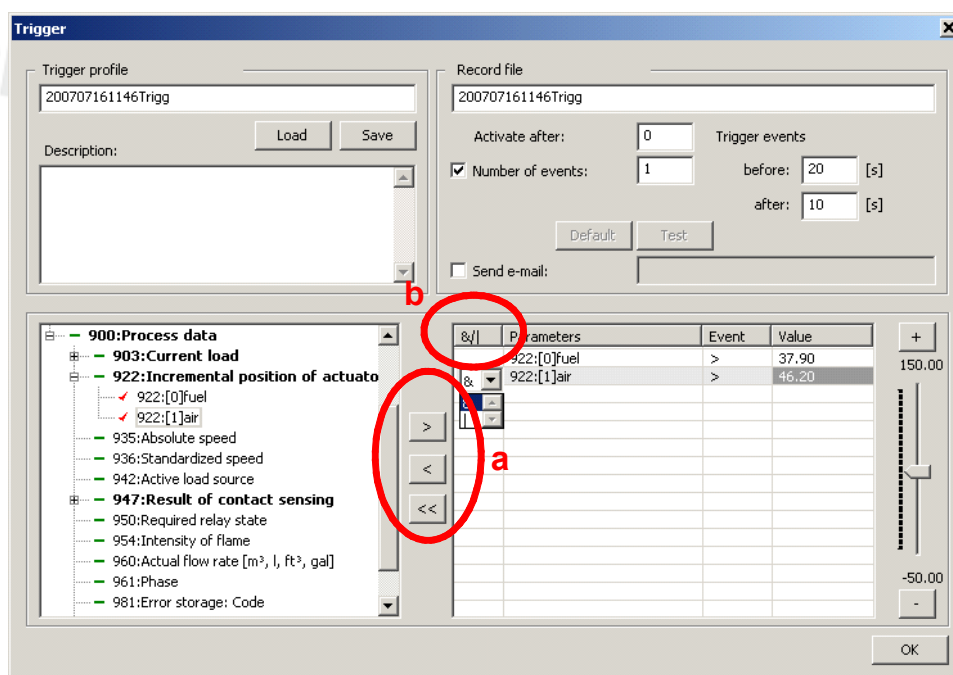


From the list on the left, select the required parameters that shall lead to a trigger event. Highlight the parameters and copy them to the table on the right by double-clicking, or by using the arrow button **>** (a). If you wish to remove selected parameters from the table on the right, use arrow button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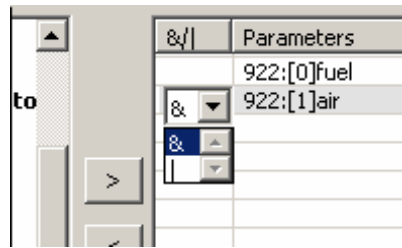


☞ Note!
The individual trigger events must always be connected with AND (both criteria must be satisfied) or with OR (one of the 2 criteria must be satisfied). Note that the AND operation is given priority over OR.
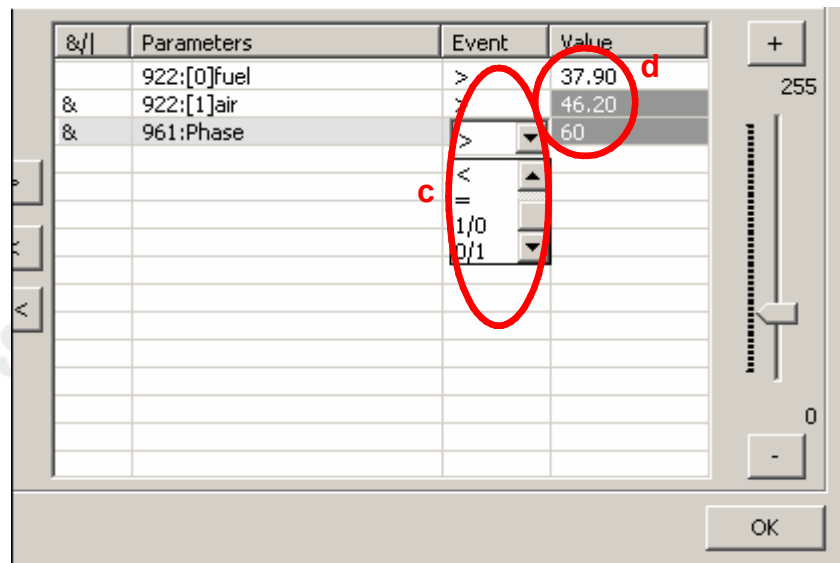


Using **Event** (c), various events can be defined:

- 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).

Example of LME / LMO:        = fan motor (M)
                             **OR**
                             (fuel valve V1 **AND** fuel valve V2)
                             **OR**
                             alarm



M        V1        Alarm        ≙ M OR V1
                                AND V2 OR
         V2                     Alarm

7352z03e/0308

Trigger release
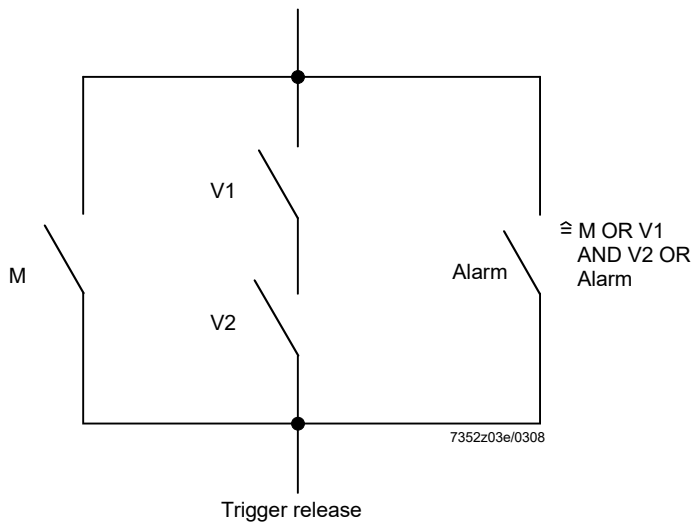
| &/\| | Parameters | Event | Value |
|---|---|---|---|
|  | 3033:Fan motor | = | 1 |
| & | 3036:BV1 | = | 1 |
| & | 3037:BV2 | = | 1 |
| \| | 3133:Alarm | 0/1 | 0 |

\> 
< 
<< 

+ 
- 

OK

Example of LMV2/LMV3:    Phase = 60 (operating position)
**OR**
(fuel actuator >60° **and** air actuator >40°)



| &/| | Parameters | Event | Value |
|---|---|---|---|
|  | 961:Phase | > | operation |
| & | 922:[0]fuel | > | 60.00 ° |
| & | 922:[1]air | > | 40.00 ° |

### 13.5.4.1 Bit masking with parameters
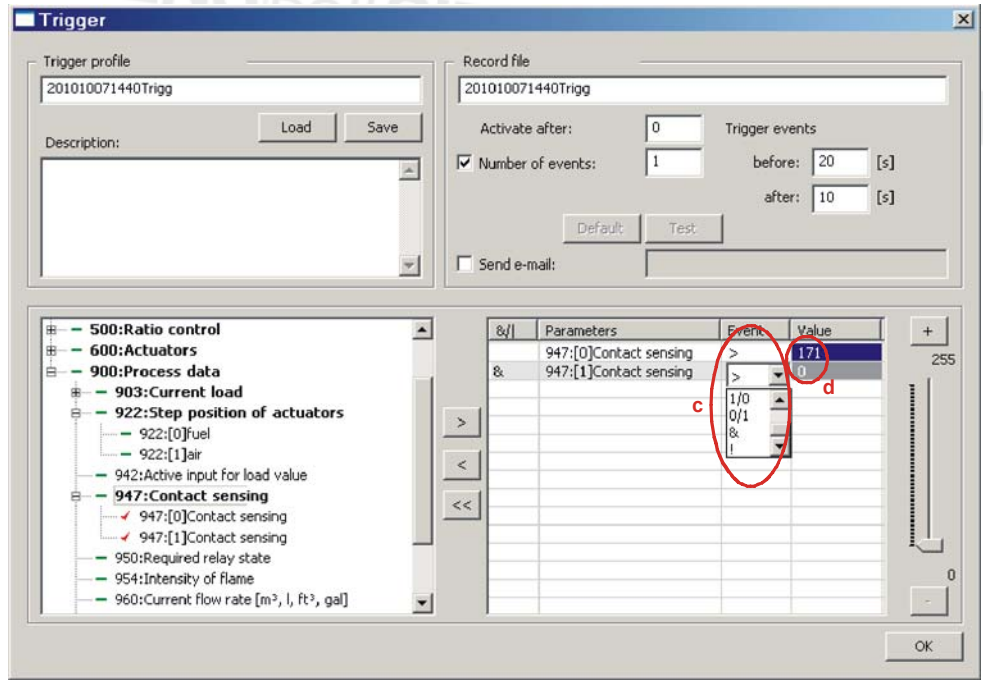


With the help of **&** or **!,** the state of a single or of several bits of a process or parameter value can be evaluated. **&** is the query for logic **1**, **!** the query for logic **0**.

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 *Closed*) 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 *On*) 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).

95/128

Smart Infrastructure      PC software for microprocessor-based burner controls      CC1J7352en
13 Working with the ACS410      10.09.2015

### 13.5.4.2 Saving trigger actions
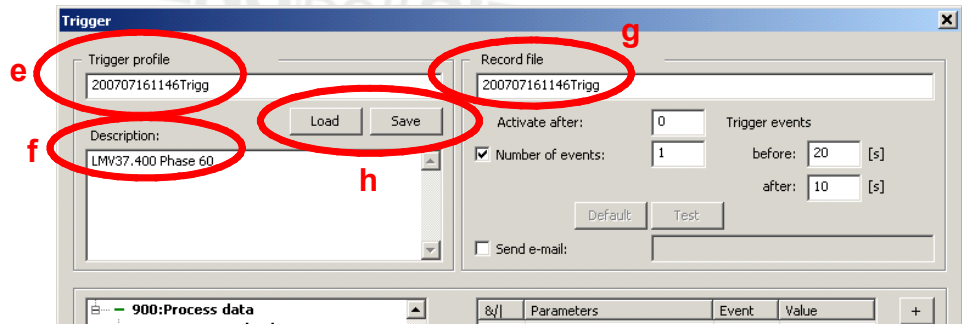


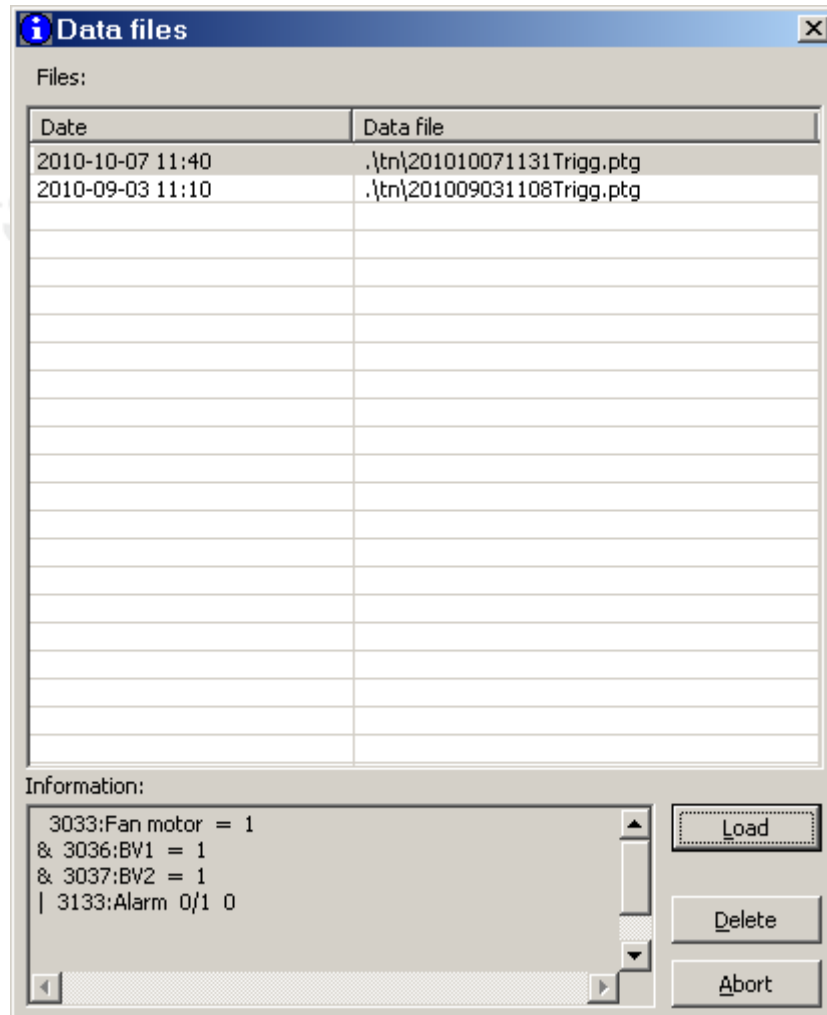**Trigger profile** (e) offers you the choice of saving the trigger events in a file. The system proposes a file name (format of file name: *YYYYMMDDssmmTrend*). This file name can be randomly selected or can also be overwritten. Filing location is ACS410 program subfolder *tn*, file name with extension *.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.
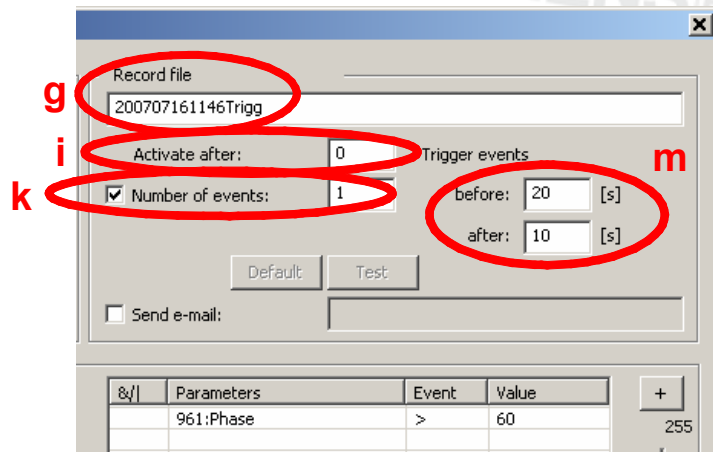


The system proposes a file name (format of file name: *YYYYMMDDssmmTrigg*). This name can be overwritten by any other name.
The graphs of the parameters selected from the **Trending** window are recorded in this file.

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**
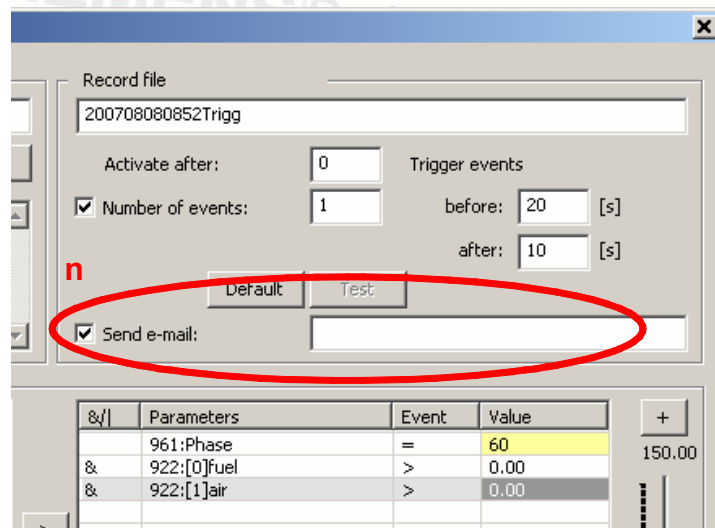


Prerequisites for **Send e-mail** (n):

- 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.

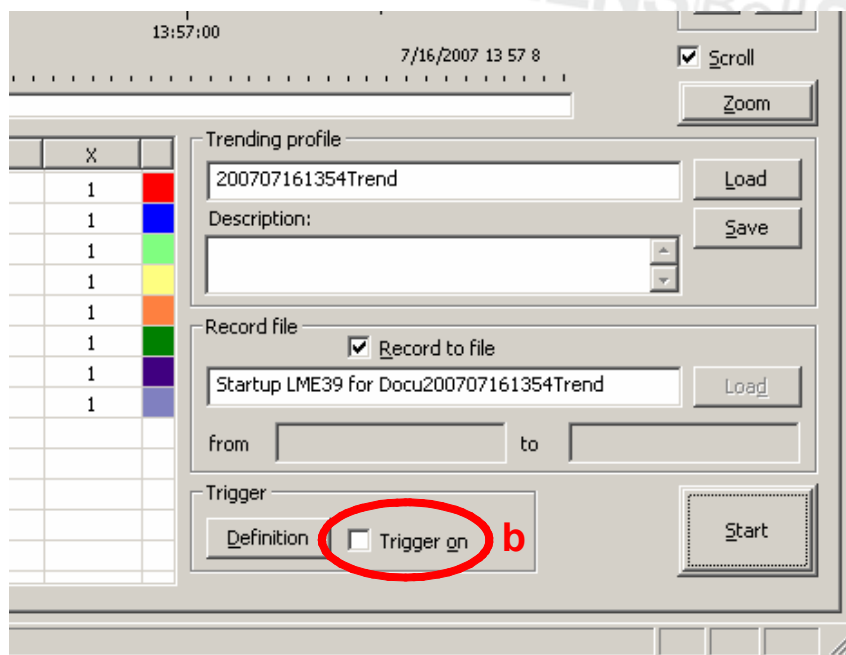Enter the recipient's e-mail address in the text box to the right of **Send e-mail** (n).
**Test** (n) enables you to check your e-mail connections and to send test e-mail messages.
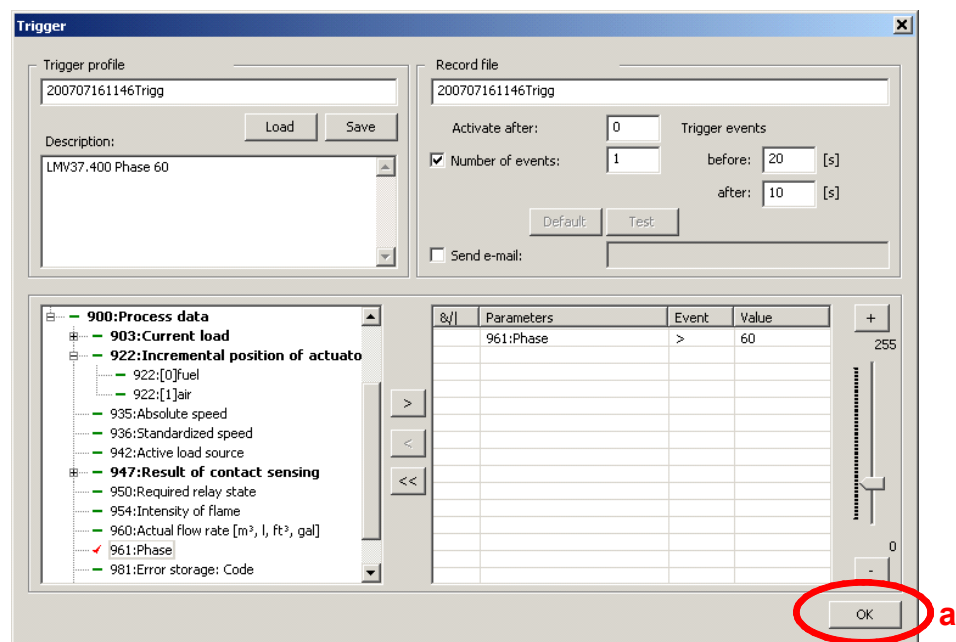


Confirm the entries made in the **Trigger** window by clicking **OK** (a).
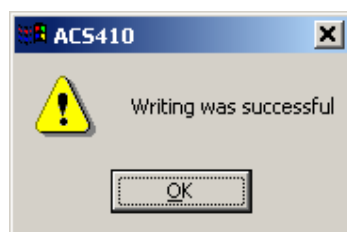
## 13.5.5 Triggering

⇒ 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)

Smart Infrastructure
PC software for microprocessor-based burner controls
13 Working with the ACS410
CC1J7352en
10.09.2015

## 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.
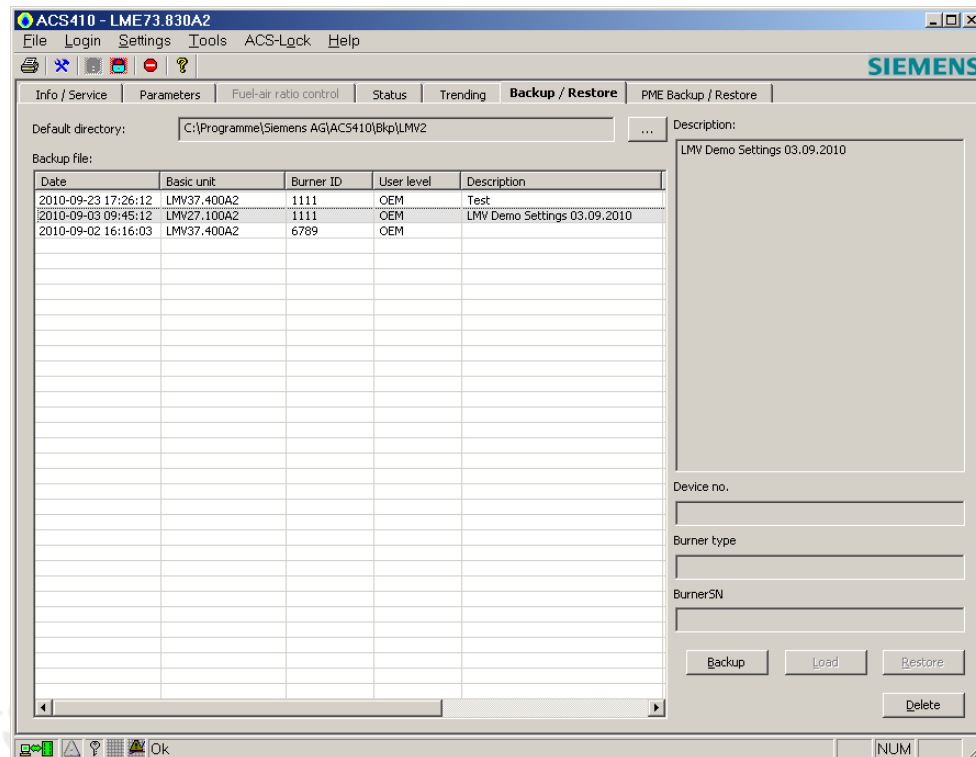


When clicking **Backup**, the window for entering free description text opens.
Click **Delete** if you wish to delete a selected backup file.

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

### 13.6.1.1 Selecting the backup directory
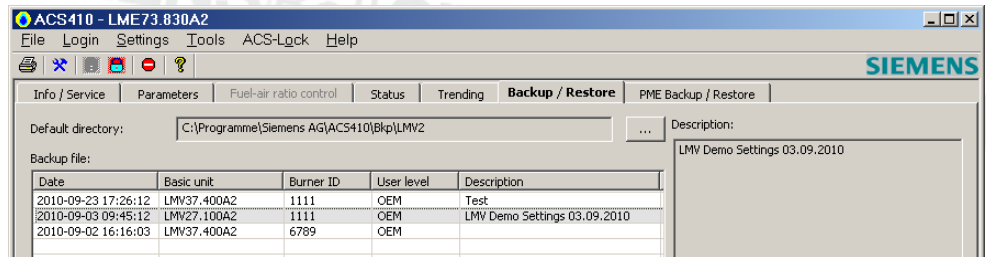


Click [···] to select the directory where the backup files shall be archived.

To make the entry, Windows Explorer is opened.
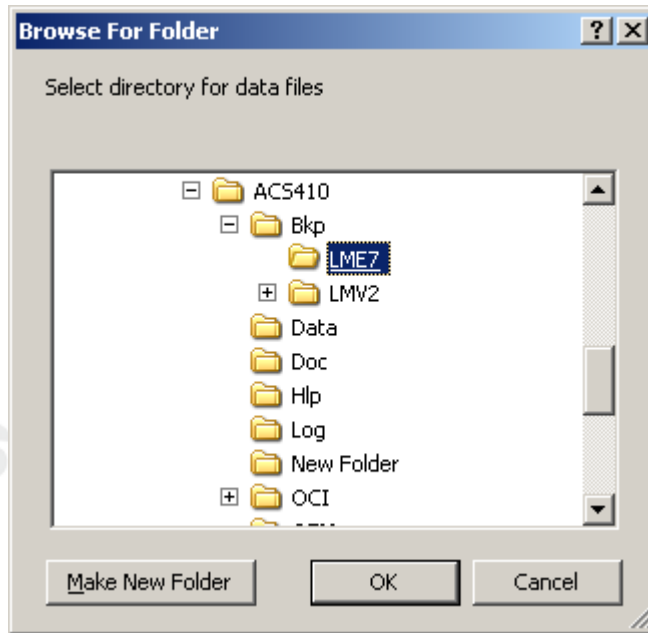


When clicking **Make New Folder**, you can create a directory for saving backup files. By selecting an existing directory and confirming with **OK**, the new directory is opened and the available data files appear in the **Backup / Restore** window for further handling.

**Setting up backup and selecting archiving**

**Backup description**

File name:
C:\Programme\Siemens AG\ACS410\Bkp\LME7\2010100   ...

Product no.
LME73.830A2

Description:

Device no.
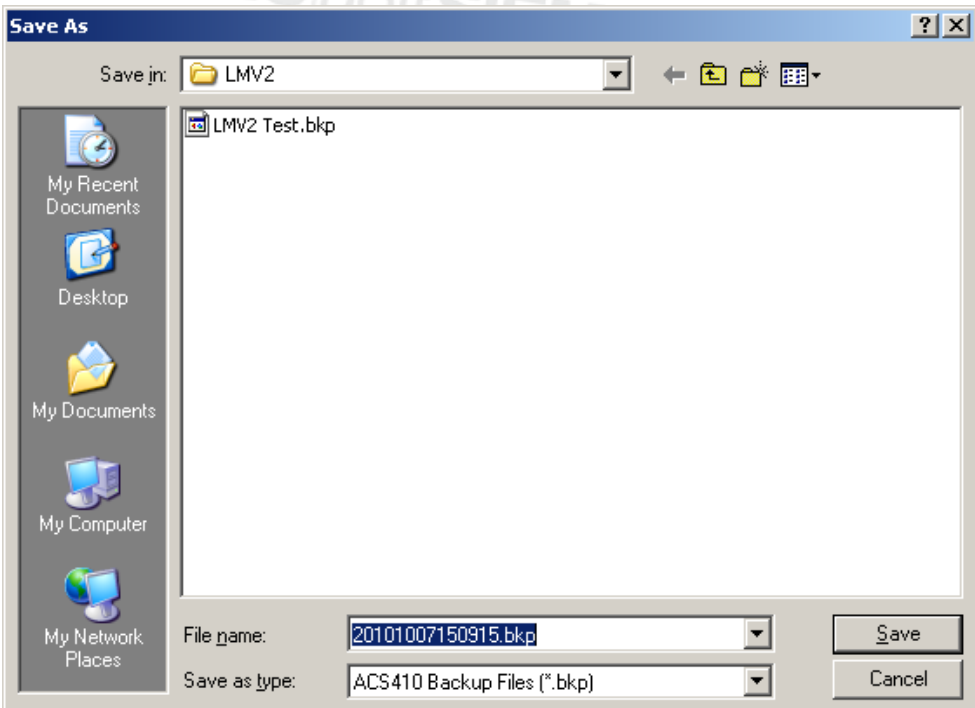
Burner type

BurnerSN

OK   Abort

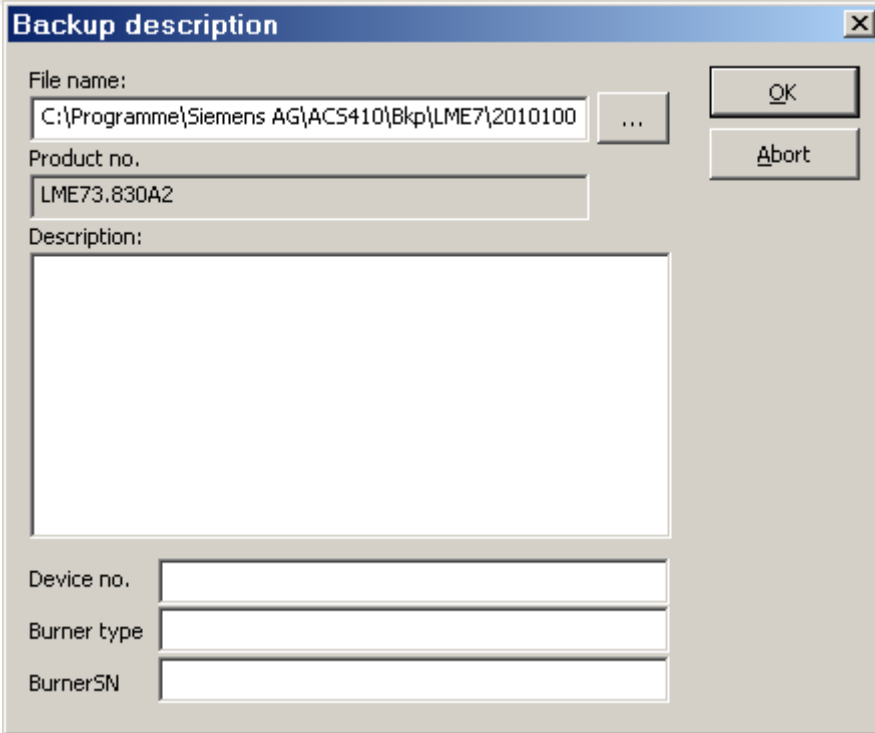Dialog box **Description** can be used to enter free text. Boxes **Device no**., **Burner type** and **BurnerSN** can be used to enter customer-specific burner description to be saved together with the backup file. To start the backup process, click **OK**.

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

**Save As**

Save in: LMV2

LMV2 Test.bkp

My Recent Documents

Desktop

My Documents

My Computer

My Network Places

File name:  20101007150915.bkp   Save

Save as type:  ACS410 Backup Files (*.bkp)   Cancel

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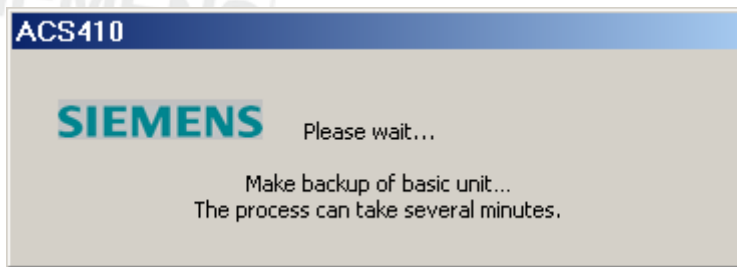
**Note!**
Creation of a backup may take several minutes, depending on the type of burner control and the selected rate of communication.

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.

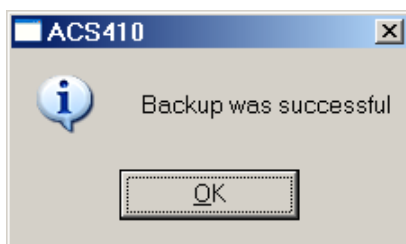Click **Restore** to open the following window:
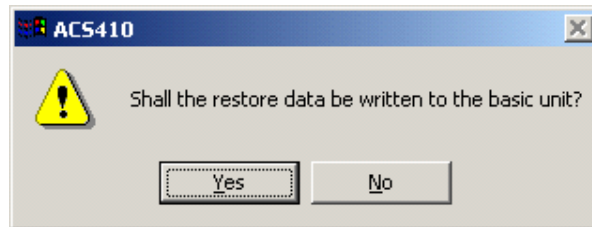


|  |  |
|---|---|
| - **Yes** | Starts the restore process |
| - **No** | Aborts the restore process |

When starting the restore process, the following message appears:
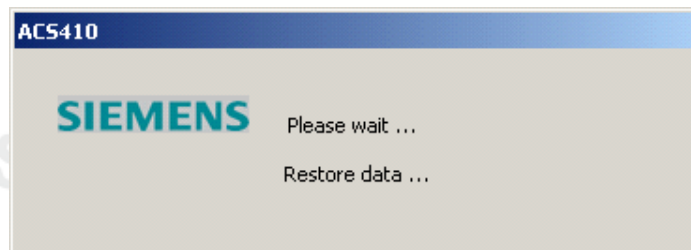


Successful execution of the restore process is reported:
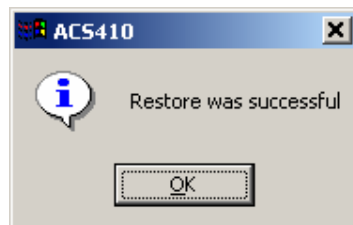


Confirm by clicking the **OK** button.

**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<br>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 |

- **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,

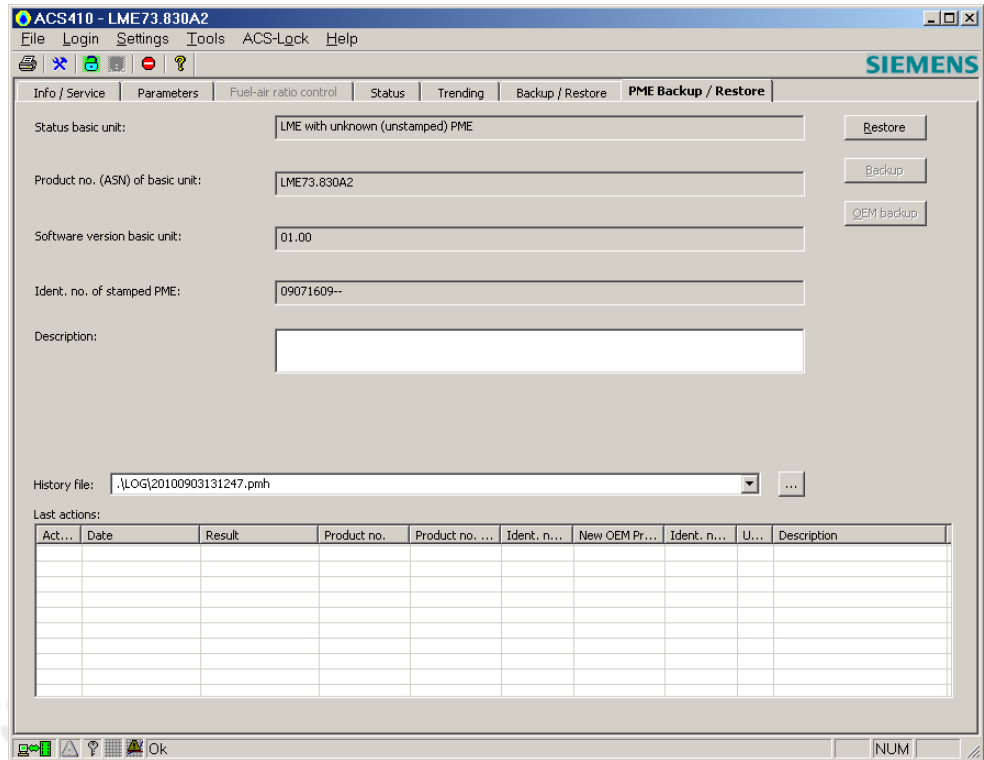LME39: **burnEr ID**
LME7/LME8:**---- ----**
LMV2/LMV3: **2147483647** or **---** on the **Parameters** menu

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.



| 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.

106/128

Smart Infrastructure

PC software for microprocessor-based burner controls
14 PME backup/restore

CC1J7352en
10.09.2019

**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. ⇨ Reference! The Basic Documentation covering the respective type of LME7/LME8 must be observed! |
| 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! |

| Status message | Meaning | Action |
|---|---|---|
| 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. <br> ⇨ Reference! <br> 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.
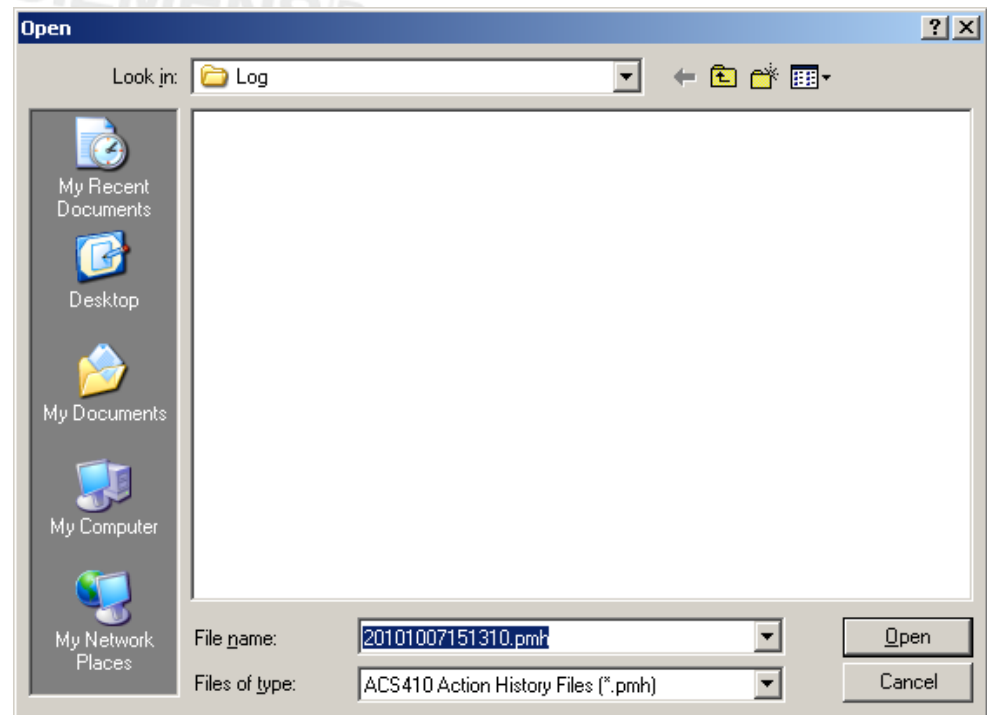


Here, a new file archiving directory can be set up or selected. The name proposed for the log file can be adopted or overwritten.
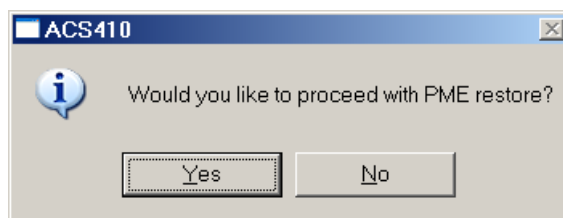
# 14.1 PME program module restore process

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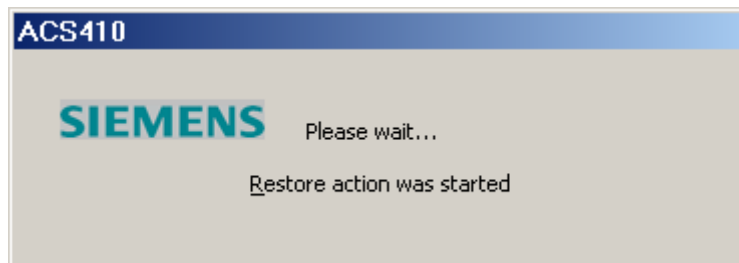
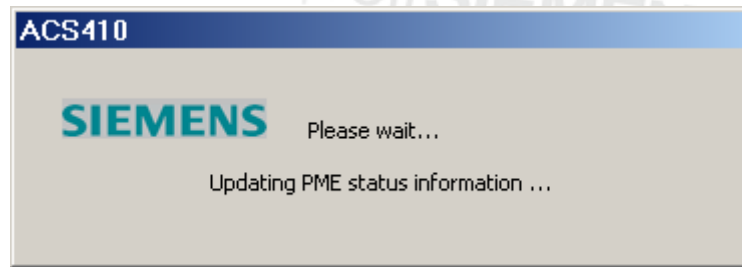To start the restore process, click **Restore**.
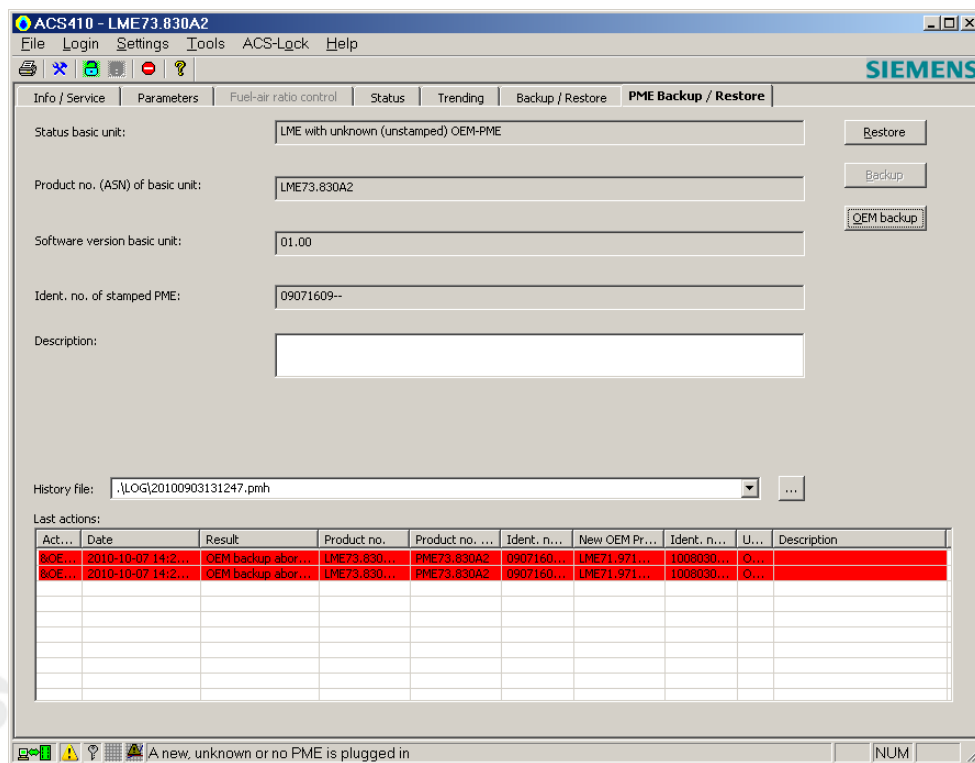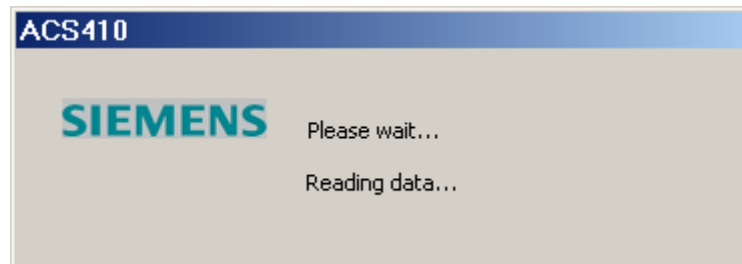


Click **Yes** to confirm.
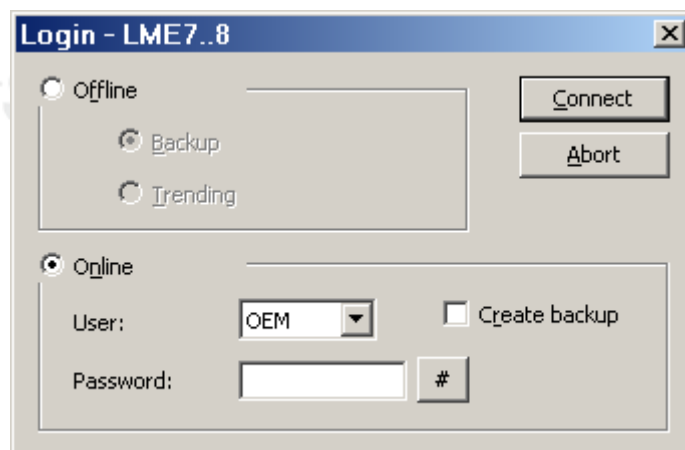


The following message appears:

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:
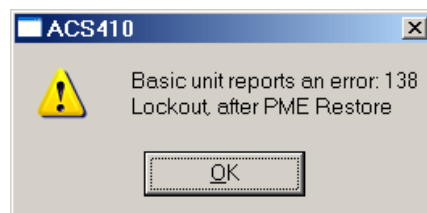


Confirm by clicking **OK**; then, reset the LME7/LME8 for another function.

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

# 14.2 PME program module backup process

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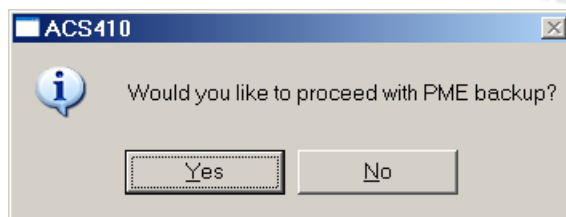


A box opens. Click **Yes** to confirm.

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.

## 14.3   PME program module OEM backup

The *OEM backup* function is for use with LME7/LME8 only!
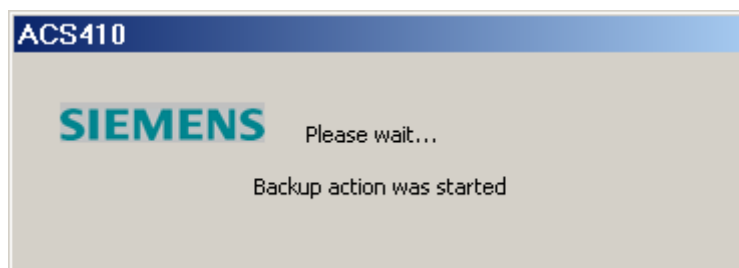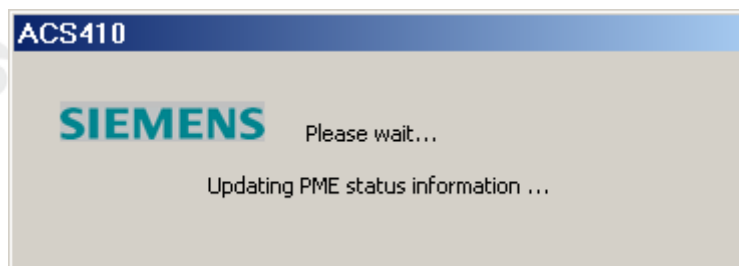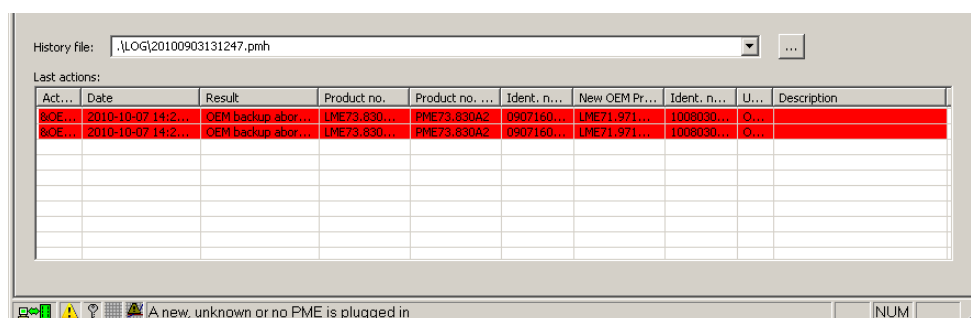
⚠️ **Warning!**
**On the basis of existing program sequences, this function allows the OEM at its own responsibility to create time and setting variants and to store program sequences on special OEM PME program modules. Approval, release and identification of the PME program modules are the responsibility 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:
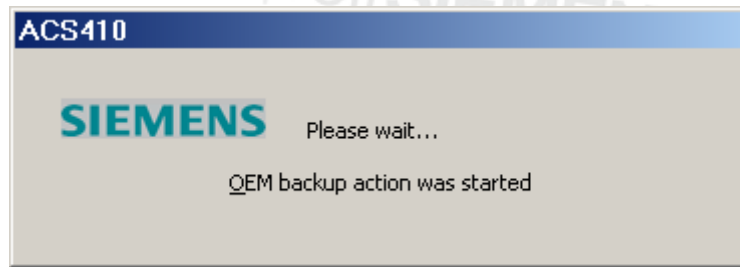


Then, the following message appears:
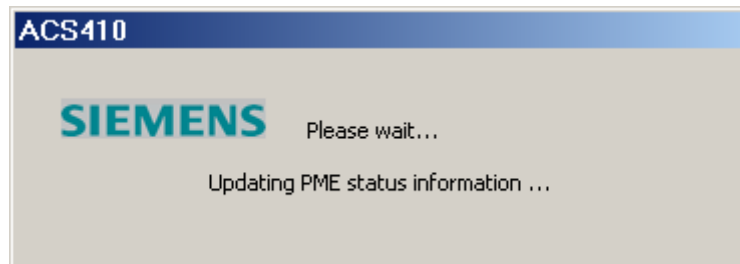


Upon successful completion, **Status basic unit**: shows the message **OEM backup successfully completed**.
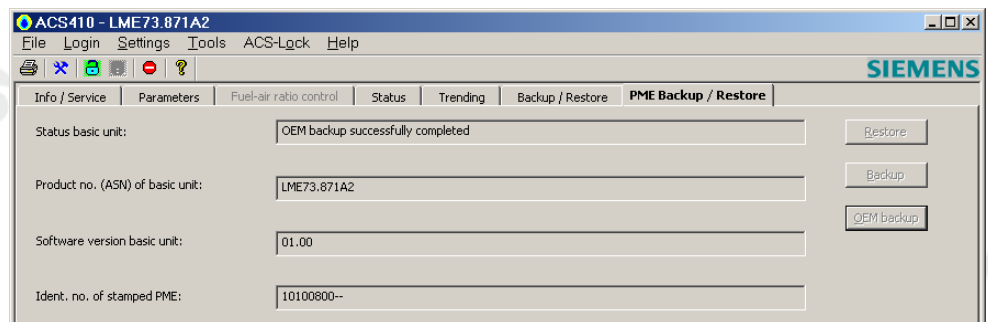


After a short time, the message displayed after **Status basic unit**: changes to **LME with unknown (unstamped) OEM-PME.**
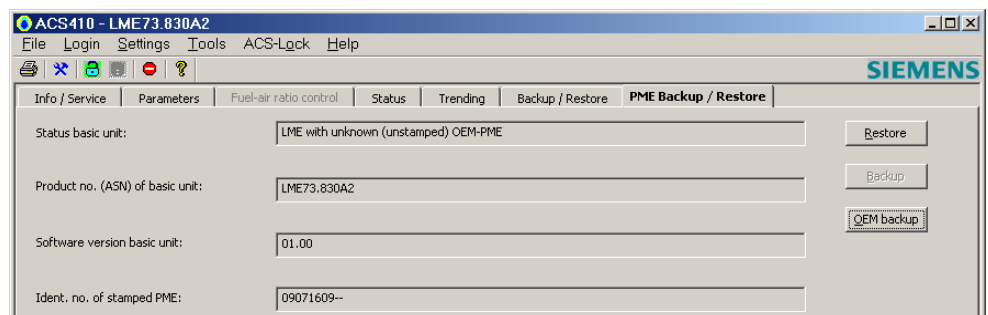


To operate the LME7/LME8, a PME restore is required.
(⇨ chapter *PME program module restore*).

# 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.
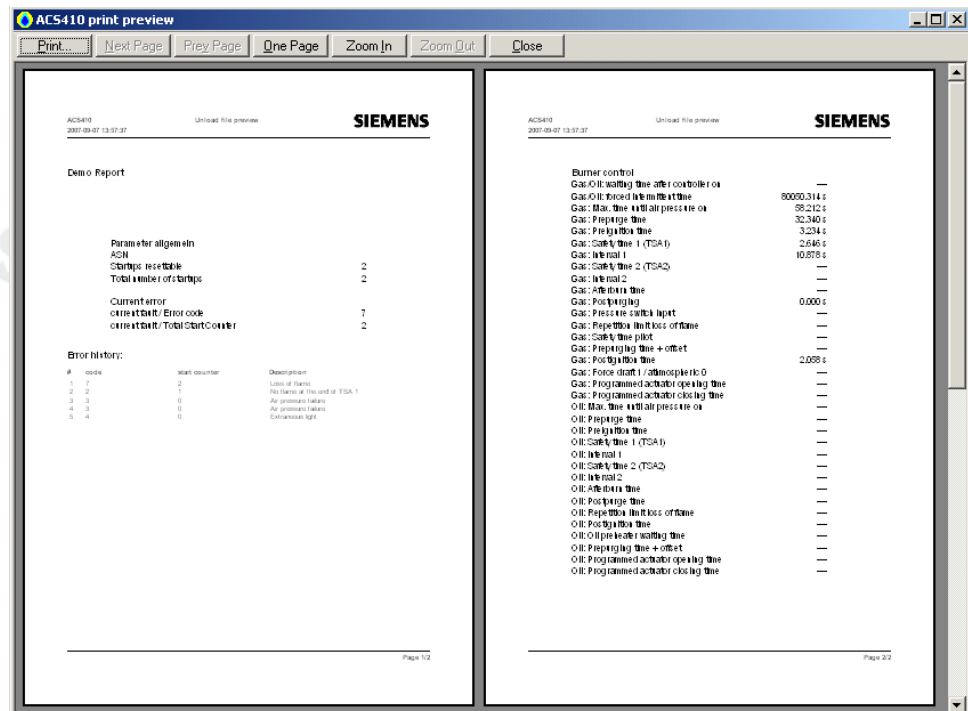


Example: Report offline backup

# 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.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| Error2142 | AbeCom-ReqData() has failed! | Communication between burner control and ACS410 is disturbed | Check wiring between burner control and OCI410 interface.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| Error2143 | AbeCom: Order number discrepancy! | Communication between burner control and ACS410 is disturbed | Check wiring between burner control and OCI410 interface.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| Error2144 | AbeCom error! | Communication between burner control and ACS410 is disturbed | Check wiring between burner control and OCI410 interface.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| Error2145 | AbeCom-SendData() has failed! | Communication between burner control and ACS410 is disturbed | Check wiring between burner control and OCI410 interface.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| 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.<br>Restart the ACS410.<br>Check interface settings of the ACS410 (⇨ chapter *Settings*) |
| 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 *Burner identification* | On the **Parameters** menu, enter a correct value for parameter *Burner ID* |

PC Software for microprocessor-based Burner Controls
16 List of the most important error messages

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 **Parameters** menu, check the value given for *Burner ID* |
| 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 *Backup/restore* |
| 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 *Settings*) |
| 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 *Settings*) |
| 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 *Burner identification* could not be read | If the error occurred on the **Parameters** menu, repeat the read access by clicking **Refresh**. 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 *Settings → E-mail*, line *E-mail server – name*, 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 *Subject* line of mask *Settings → E-mail* | Complete the settings required for e-mails (Subject) |
| Error2209 | E-mail address not entered! | In mask *Settings → E-mail* no e-mail address has been entered on the *To:* line | Complete the settings required for e-mails or the **Trigger** menu (under Trending → Trigger → **Definition** 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 *Settings → E-mail*, line *E-mail server – name*. 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 *Settings → E-mail*, line *E-mail server – name*. Compare the settings made with the information given by your provider |
| Error2212 | Trigger list is empty! Trigger cannot be started! | The **Trigger** menu does not contain a trigger event. Trigger cannot be activated without this entry | Create at least one trigger event in the **Trigger** 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 **Basic unit** 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 **Info/Service** 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 |

PC Software for microprocessor-based Burner Controls
16 List of the most important error messages

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) | ⚠️ **Important!** **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.** |
| Error2301 | 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 |

## 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 *Settings*) |
| 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 *Settings*) |
| 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 *Settings*) |
| 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 *Settings*) |
| 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 *Settings*) |
| 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 *Settings*) |
| 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 *Burner identification* | On the **Parameters** menu, enter a correct value for parameter *Burner identification* |
| 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 *Settings*) |
| 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 *Settings*) |
| Burner ID could not be read! | Parameter *Burner identification* could not be read | If the error occurred on the **Parameters** menu, repeat the read access by clicking **Refresh**. Restart the ACS410 |
| Burner ID invalid. Valid value required | Thus far, no value has been entered for parameter *Burner identification* | On the **Parameters** menu, enter a correct value for parameter *Burner identification* |
| 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 *Settings → E-mail*, line *E-mail server – name*. 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) | ⚠ **Important!** **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** |
| E-mail address not entered! | In mask *Settings → E-mail* no e-mail address has been entered on the *To:* line | Complete the settings required for e-mails or the **Trigger** menu (under Trending → Trigger → **Definition** button) |
| E-mail subject not entered! | No text has been entered on the *Subject* line of mask *Settings → E-mail* | 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 *Settings*) |
| 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 *Settings*) |
| 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 *Data exchange via OCI410* |
| 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 *Settings*) |
| 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 *Basic unit* 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 **Parameters** menu, check the value given for **Burner ID** |
| 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 *Backup/restore* |
| 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 *Settings*) |
| 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 *Settings → E-mail*, line *E-mail server – name*. Compare the settings made with the information given by your provider |
| SMTP server not specified! | In *Settings → E-mail*, line *E-mail server – name*, 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)
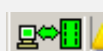
| Error message | Meaning | Recommended measure |
|---|---|---|
| Standardization of VSD has failed | Error occurred when standardizing the speed of the VSD | For cause of the error, refer to the display of results in the ratio settings. Clear text diagnostics is offered by the error history on the **Info/Service** 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 **Trigger** menu does not contain a trigger event. Trigger cannot be activated without this entry | Create at least one trigger event in the **Trigger** 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

| Symbol | Description |
|---|---|
| | 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 **Help topics for operating the ACS410 and documentation** |
| | 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 **Trending** window |
| | Indicating active trigger handling in the **Trending** window |
| Normal mode | Indicating the burner control's current operating state |

# 18 Glossary

| | |
|---|---|
| ASN | Device type |
| BCI | **B**urner **C**ommunication **I**nterface |
| DFÜ | Data exchange via the telephone line (Internet) over longer distances |
| DSL | **D**igital **S**ubscriber **L**ine |
| FA | Burner control, equivalent to basic unit |
| GSM | **G**lobal **S**ystem for **M**obile Communications |
| ISDN | **I**ntegrated **S**ervices **D**igital **N**etwork |
| LAN | **L**ocal **A**rea **N**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…<br>LMV3… | Microprocessor-based burner controls from Siemens for gas or oil burners of small to high capacity |
| MAPI | **M**essaging **A**pplication **P**rogramming **I**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 | **U**niversal **S**erial **B**us |
| VSD | **V**ariable **S**peed **D**rive |

# 19 Index

Smart Infrastructure          PC Software for microprocessor-based Burner Controls          CC1J7352en
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