

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

### **Installation and Operating Instructions**

**For use with software version 1.10 or higher**  
**Date of issue: 17.03.2008**



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# 1 Introduction



When using the ACS410 package, compliance with the technical documentation on the respective type of burner control (LMV2... / LMV3... / LME... standard / LME39... / LMO... standard) is mandatory!

Type of burner control	Data Sheet no.	Basic Documentation no.
LMO... standard	N7130	---
LME1... / LME2... / LME4... standard	N7101	---
LME6...	N7104	---
LME7...	N7105	P7105
LME39...	N7106	P7106
LMV2...	N7541	P7541
LMV3...	N7546	P7546
OCI410...	N7616	---
OCI400	N7614	---

## General

The ACS410 package is a convenient tool designed for visualizing, saving and transmitting all data delivered by advanced microprocessor-based burner controls made by Siemens.

The ACS410 operating software provides the following functions (for burner controls with BCI interface (LMV2... / LMV3... / LME39...) 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 logging (logging, 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 BCI interface (LMV2... / LMV3... / LME39...) via OCI410...:

- Parameterization
- 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 programs used by this operating system.

This document was issued on March 17, 2008, and covers ACS410 version 1.10 or higher!



## 2 System requirements

- Type of processor: Min. Pentium III / Celeron, 500 MHz or comparable
- Basic: IBM or IBM-compatible
- Operating system: Win 2000 (Build 5.00), XP min. (SP2) min. 15 MB free hard disk storage (data logging requires additional storage space for saving data files)
- Browser to display online help: Internet explorer minimum version 6.0.2800.xxxx
- Monitor: Min. 800 x 600 resolution, 256 colors
- Main memory: Min. 256 MB RAM
- Free serial RS-232-COM interface, for operation with OCI400, alternatively a USB-RS-232 adapter can be used if a USB COM port is available
- Free USB 1.1 interface or higher, for operation with OCI410...
- Input devices:                      Keyboard  
   Mouse or touch pad
- Optional CD-ROM drive, for installation of ACS410 via CD
- Optional: Internet access for sending e-mails from the ACS410, or downloading ACS410 via Siemens' Extranet

To be able to use the ACS410, the following additional components are required:

- In the case of communication via UDS interface (with optical data transmission):  
OCI400
- or
- In the case of communication via BCI (Burner Communication Interface):  
OCI410...

# 3 Typographical conventions

## Safety guidelines

These Installation and Operating Instructions contain notes which you must observe to ensure your own personal safety and to protect the product and 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, chapters or sections.

## Qualified staff

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 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.

## 4 Special notes



The ACS410 package is a convenient tool for use by qualified staff, 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 is obliged to check the correct function of the plant in a conventional way both during and after commissioning and, if required, to ensure manual shutdown.

### 4.1 Correct parameterization of the system



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 unit's parameterization is 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 gas / air ratio control system (only with LMV2... / LMV3...)



When setting the electronic gas / 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 modulating and multistage operation. In addition, the user is obliged to fully operate the parameterized plant without making use of the ACS410, but using the AZL2... display and operator unit, and to verify the correct settings.

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



The procedure (checking the memory) described in section «Parameter 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 is obliged to verify the correct setting of all parameters with the help of the AZL2...display and operator unit, without using the ACS410.

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



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

### 4.5 Place of installation



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



# 5 License and liability regulations



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### 6. SPECIAL NOTE

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# 6 Procurement of software

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

# 7 Languages

The ACS410 package is available in English and German. To select one of them, go to program menu item **Settings** (refer to section «Settings – Languages»).

## 8 Installing / deinstalling the software

For installing the software, you need to have administrator rights on your PC. Before installing the software package, all active applications that are not really required should be closed. Also take care that your virus scanner is not activated.

Load the complete installation files of ACS410 and the USB / OCI410 drivers to a directory of your choice.

### 8.1 Installing the OCI410

**Prior** to installing the ACS410, install the OCI410 hardware and the associated drivers (⇒ OCI410 Data Sheet N7616):

- Connect the OCI410 to a free USB port of your PC. Follow the instructions given by the operating system

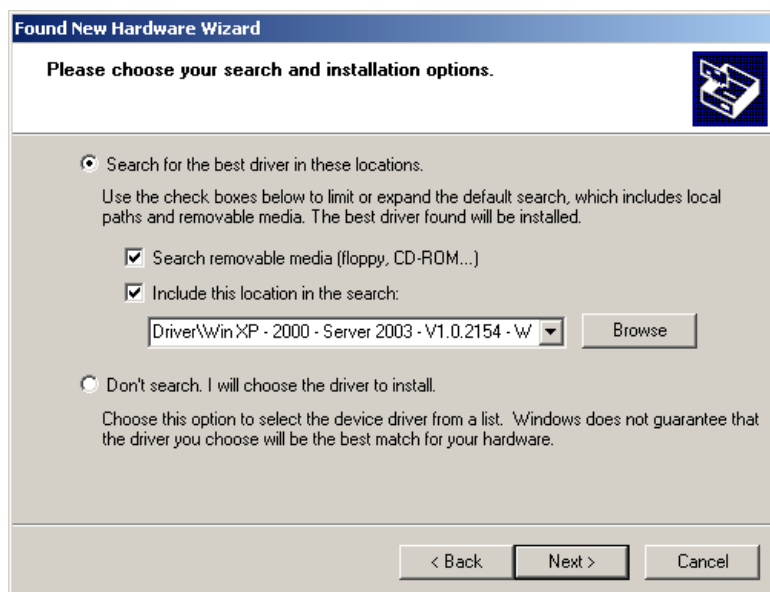
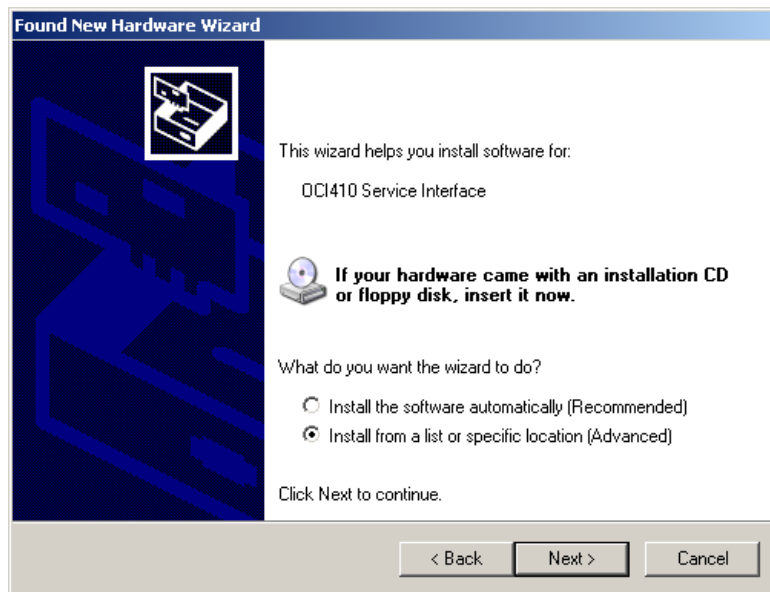
Start the wizard twice:

1. Install the OCI410... service interface.
2. Install the USB serial port interface.

For installation, the operating system (here, Windows XP) opens a wizard showing the following windows:



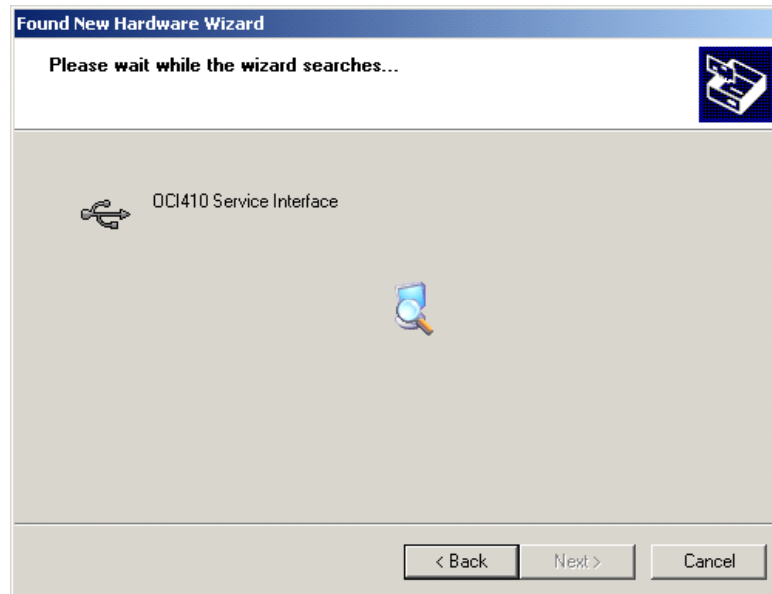
To install the driver for the OCI410... interface, select **No, not this time** and click **Next>**



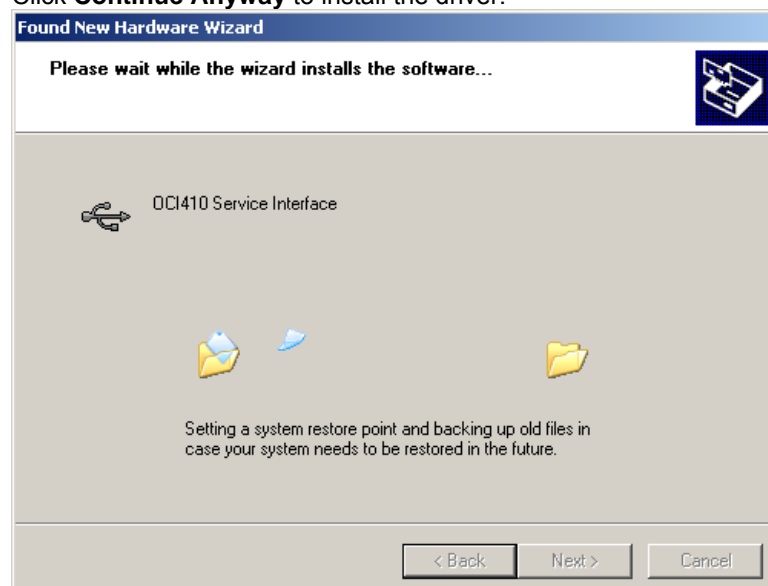
Tick at **Include this location in the search:**

Click **Browse** and a window opens showing the structure of the directory. To select the driver, change to the directory you selected for unpacking the program files after downloading the ZIP file. Then, select subdirectory *OCI410 USB Driver* and highlight folder *WinXP-2000-Server 2003-V1.0.2154-WHQL certified*. Confirm your selection by clicking **OK / Open**. This adopts from USB or *Ftdibus.sys* file *Ftser2k.sys* for installing the OCI410... Continue by clicking **Next>**.

The following windows open:



Click **Continue Anyway** to install the driver.





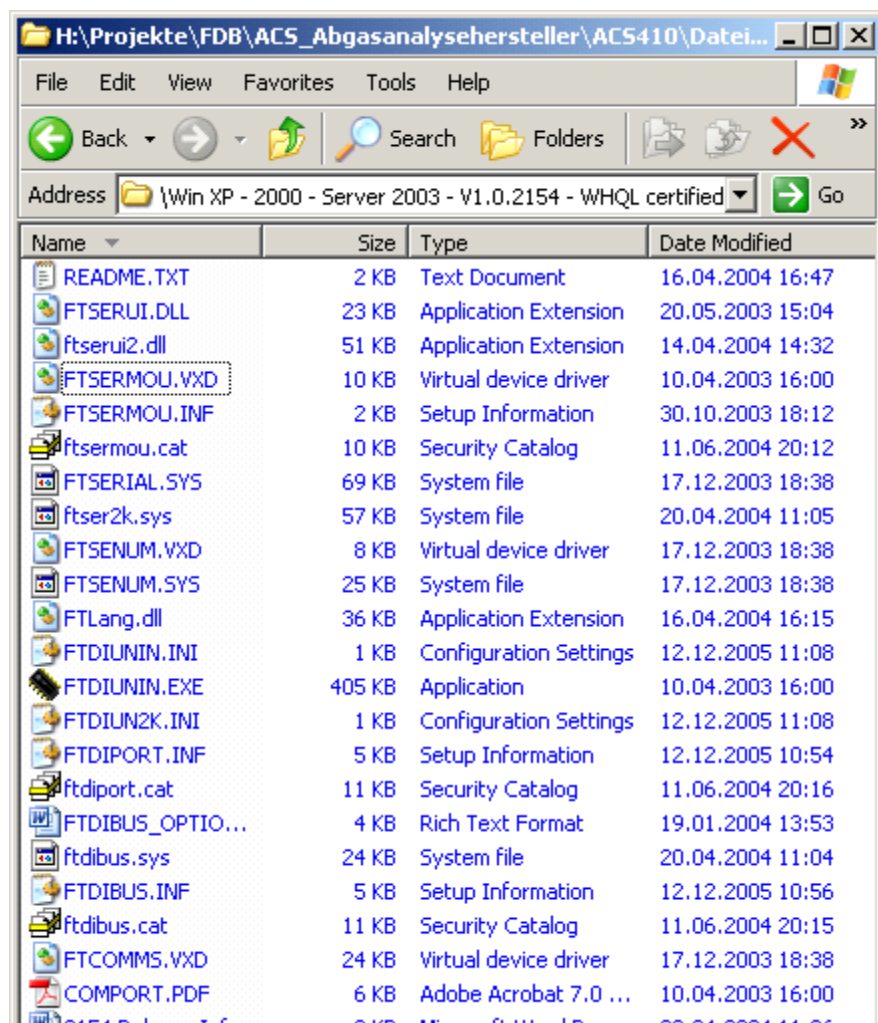
Click **Finish** to complete the first part of the driver installation for the OCI410 service interface.



Then, the wizard opens a second time for installing the USB serial port driver. Perform the same actions as described above!



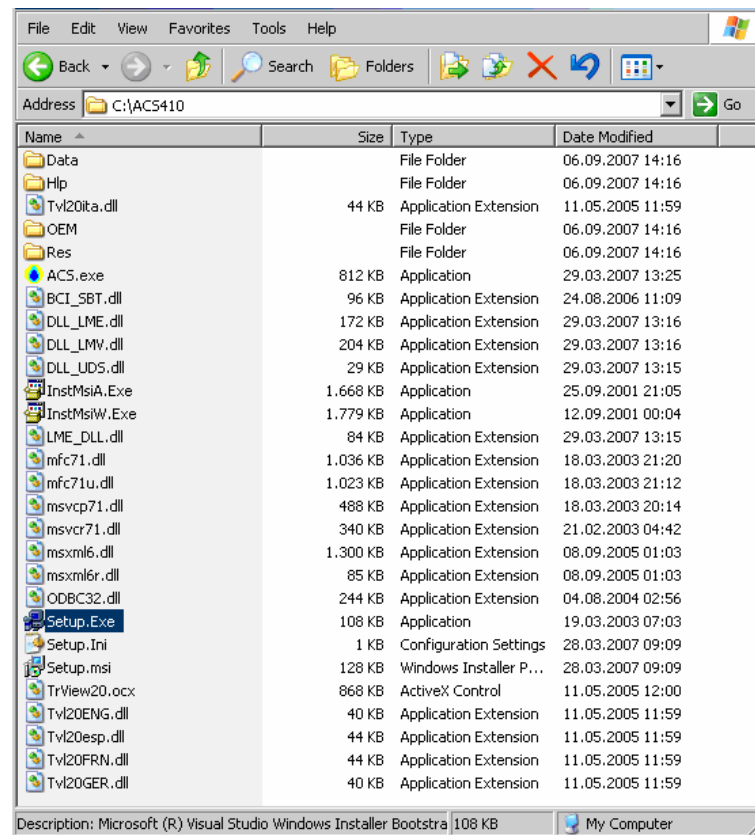
Installation of the OCI410... is not tied to the license for the ACS410. This means that the drivers for the OCI410... can be installed on different computers.



## 8.2 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.

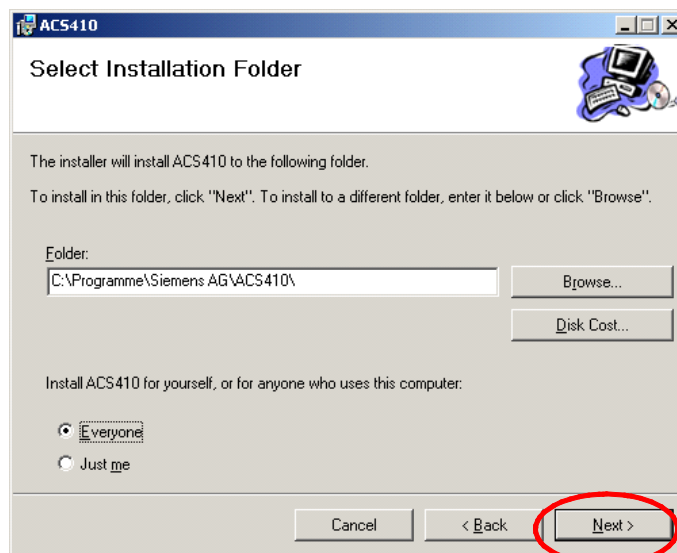
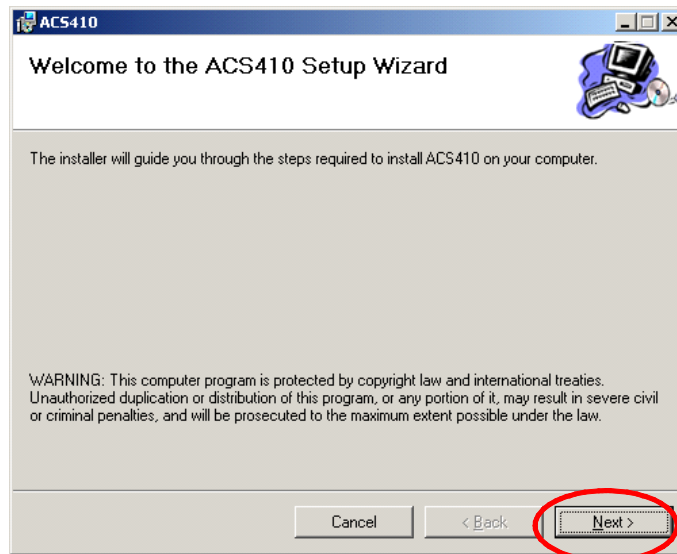
To start the installation, double-click the “setup.exe” file.





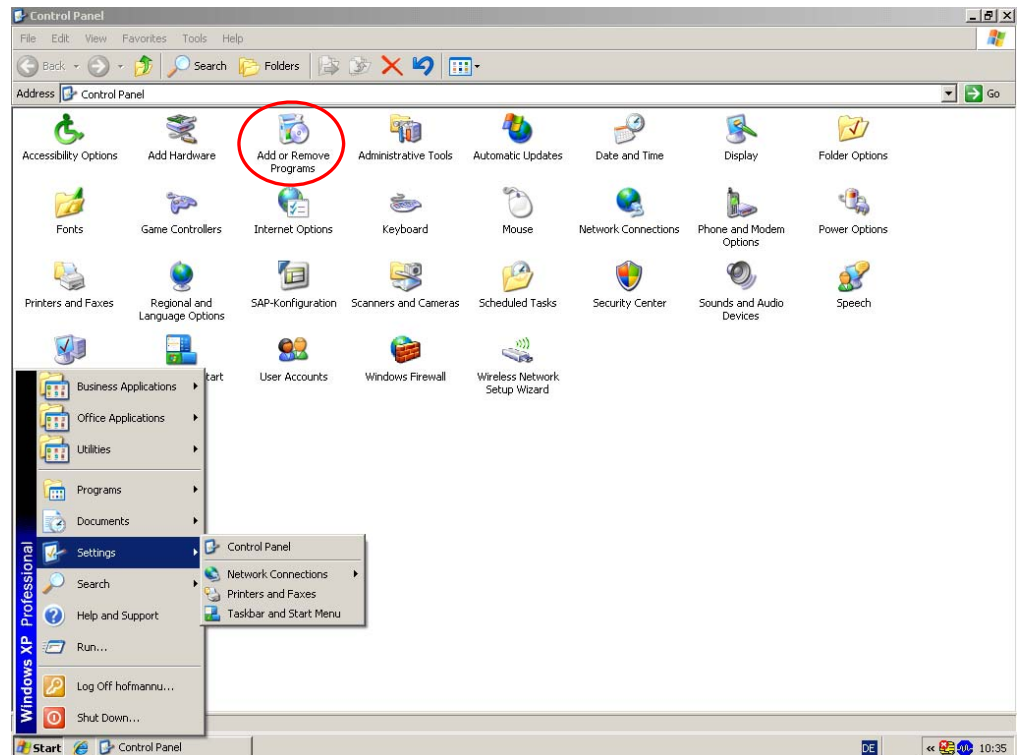
## Installing the ACS410 (cont'd)

Follow the installation instructions.

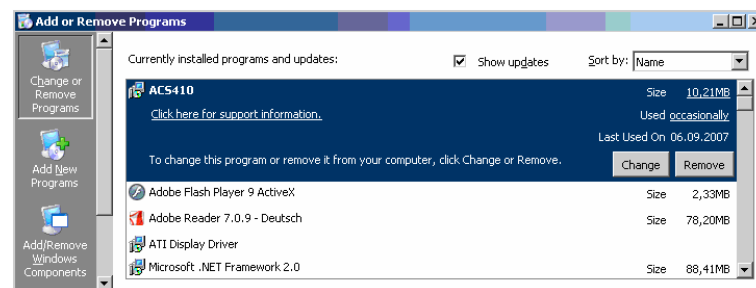


## 8.3 Deinstalling the ACS410

This function deinstalls the software, installs missing files, or corrects corrupted files, connections and registration entries. From the Windows start menu under **Settings, Control Panel**, select the **Add or Remove Programs** icon and open the program.



Highlight **ACS410** and click **Change** or **Remove**.

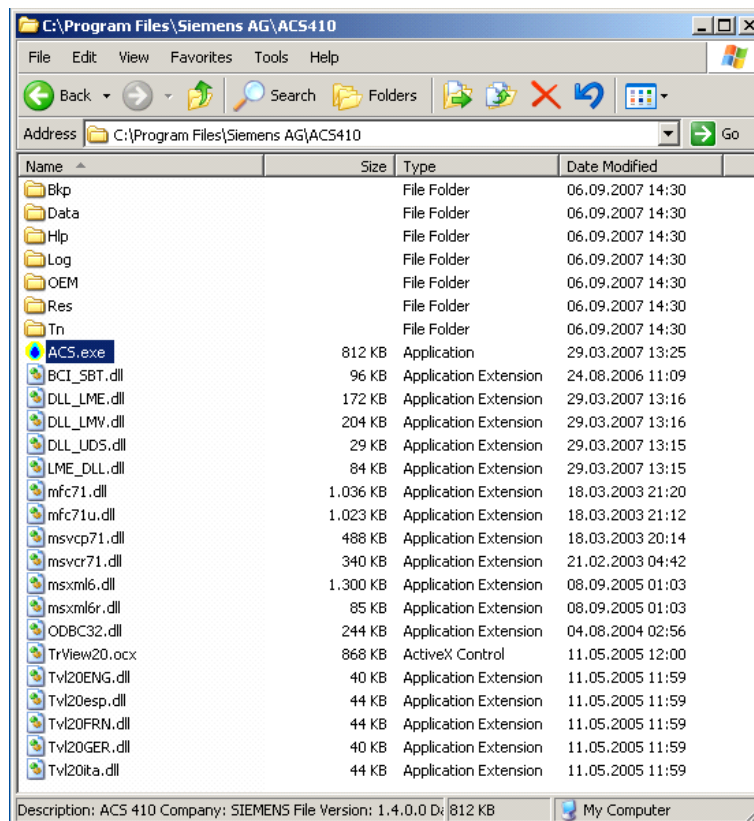


Follow the instructions given.

## 8.4 Files contained in the scope of delivery

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

Installation directory:



ACS.exe: Program that can be executed

xxx.dll: All files with extension ".dll" are files required for working with Windows

Subfolders:

- Data: Language files as a protected Excel table. XML files for the ACS410 report function
- Hlp: Help files for ACS410
- Log: Log files on operation and system messages in connection with the respective session
- Oem: Start picture, logo for printing function and display of ACS410
- Res: Various icons for use with ACS410
- 
- tn: Contains all files required for offline viewing of backup files, created by the trending / trigger function  
Format of filename:  
YYYYMMDDhhmm.xxx for all filenames automatically proposed by the ACS410 (year = 4 digits, month and day = 2 digits each, hour and minute = 2 digits each), or the filename assigned by the user followed by file extension xxx:
- .unl (Unload file) contains all parameters and values of the active online connection between basic unit and ACS410, in binary form
  - .unt (Unload file) contains all parameters and values for offline viewing of backup files
  - .dtd (Data file) contains the data of a recording from the trending module
  - .dtg (Data file) contains the data of a recording from the trigger module
  - .ptd (Profile file) contains the profile data from the trending module
  - .ptg (Profile file) contains the profile data from the trigger module
- 
- Bkp: Contains all files created via the backup / restore function.  
A complete backup of a burner control consists of 2 data files that belong together:  
Format of filename:  
YYYYMMDDhhmm.unl for unload file  
YYYYMMDDhhmm.bkp for backup file  
(year = 4 digits, month and day = 2 digits each, hour and minute = 2 digits each)  
Example: 20070212110716.unl and 20070212110716.bkp

## 9 Connecting the plant

**Ensure compliance with the relevant national safety regulations!**



- Before making any wiring changes in the connection area of the burner controls (LMO... standard / LME... standard or LMV2... / LMV3...), completely isolate the units from mains supply (all-polar disconnection)
- Ensure protection against electric shock hazard by providing adequate protection for the burner control's connection terminals

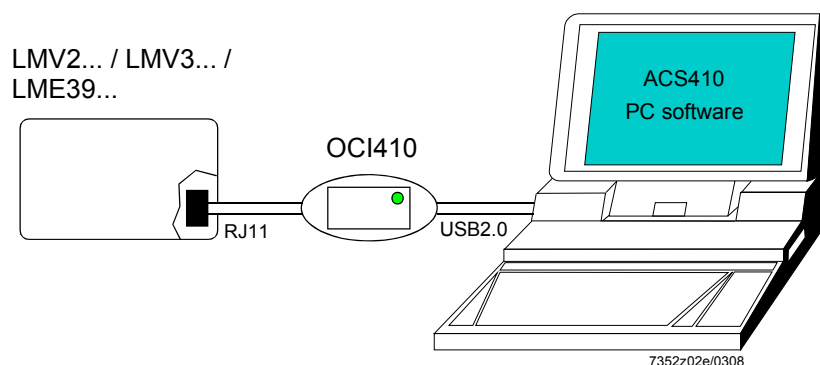
## 9.1 Data exchange via the OCI410

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

### OCI410...

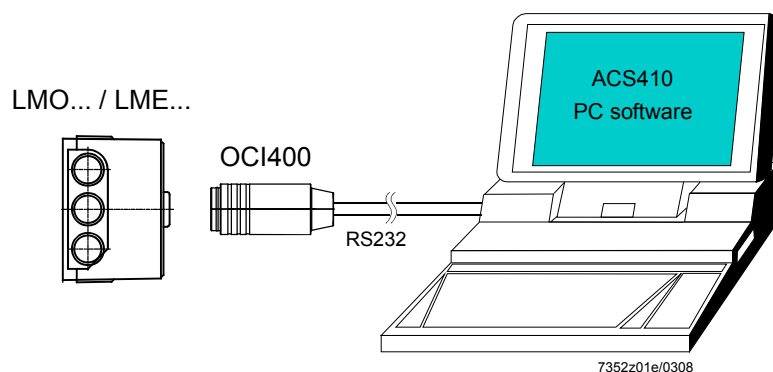


## 9.2 Data exchange via the OCI400 (only with LME... / LMO...)

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

### OCI400



## 10 Starting the program

Connect the burner control to your PC via the OCI400 or OCI410... interface.

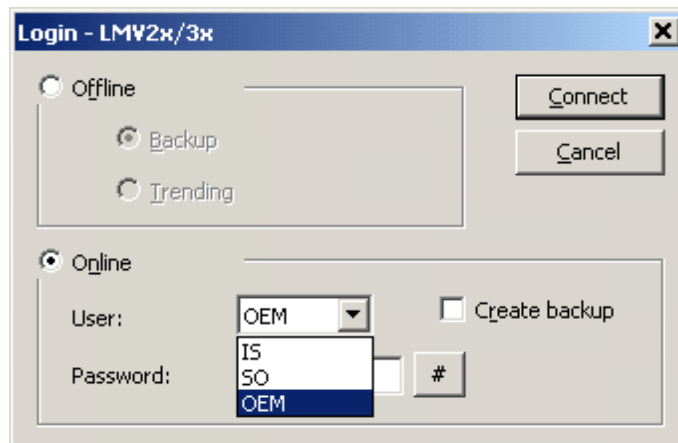
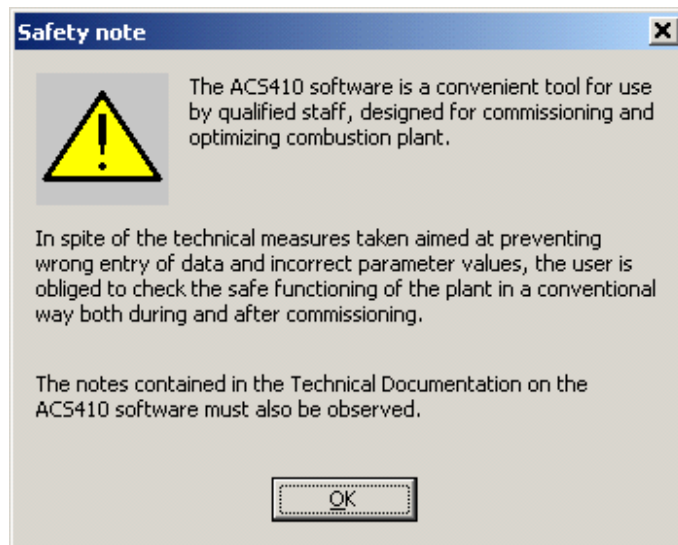
To start the software program, click the **ACS** icon on the Desktop or select **ACS** from the Windows start menu under **Programs**.



When starting the program, the COM port to which the OCI4... interface is connected may have to be selected (refer to section «Settings – General»).

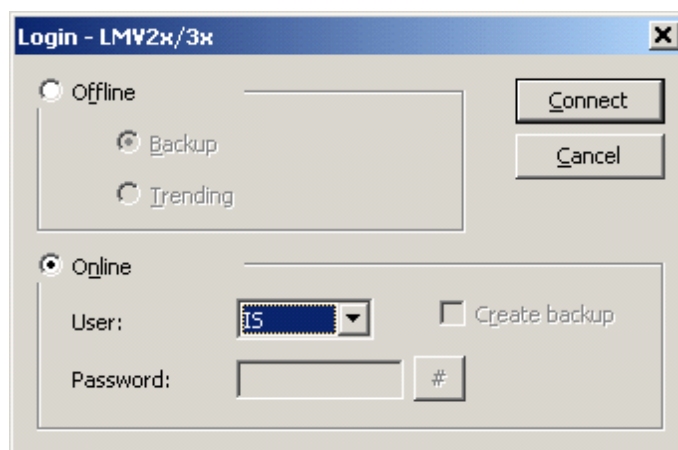
### 10.1 Logging on at the burner control – online operation

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

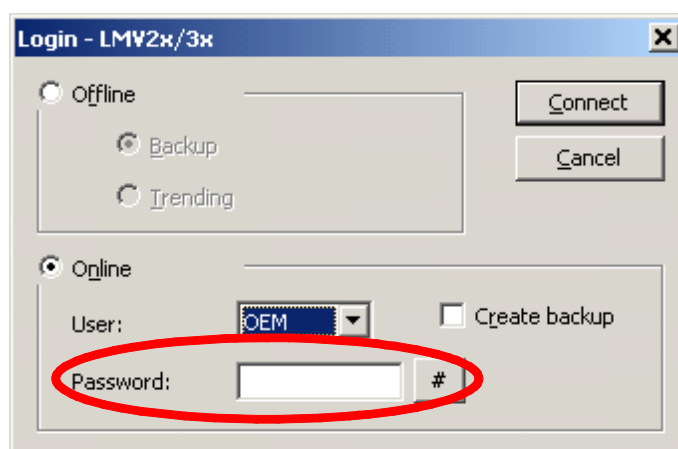


Depending on the user level in accordance with the type of OCI410..., select IS (installer), SO (heating engineer), or OEM (burner or boiler manufacturer) from the list.





User IS (installer) requires no password. The operations offered are limited (refer to chapter «Connecting the plant»).

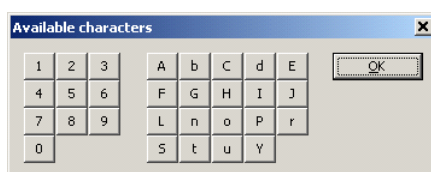


Users SO and OEM require specific passwords.



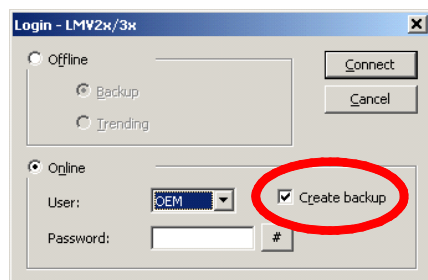
If you don't have the required password, or if you forgot it, contact the boiler, burner or burner control manufacturer!

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



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

- ☒ Creating a backup file



If 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.



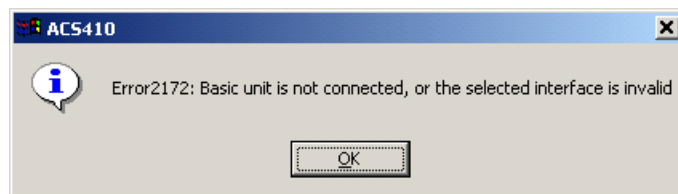
Prerequisite: The basic unit must have a burner identification.

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



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

- Message box when no OCI4... interface was found at the selected COM port



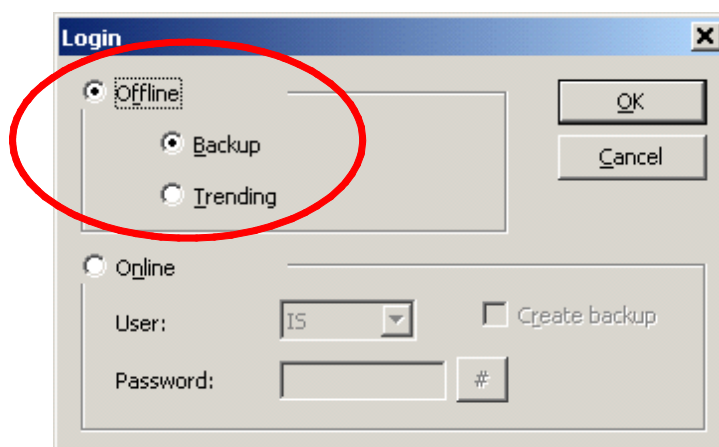
Solution: Select the COM port where the OCI4... interface is connected (refer to section «Settings – General»).

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



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

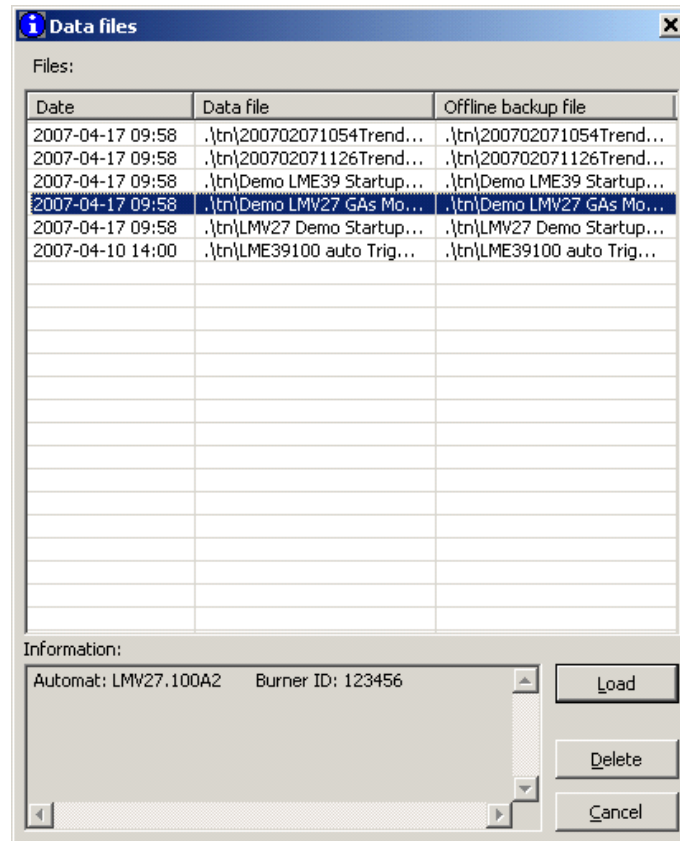
## 10.2 Offline operation without the burner control



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

### 10.2.1 Trending and the report function

After selecting **Trending** in the register monitor under **Offline** and confirming with **OK**, the selection window of archived files opens

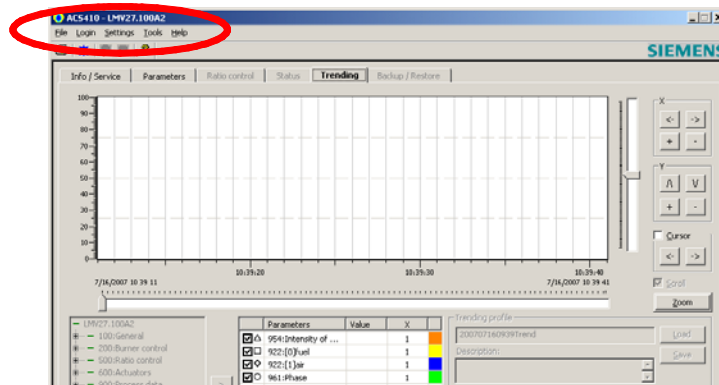


When selecting a file, the *Information* window shows the type of burner control and the relevant burner identification.

- **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.

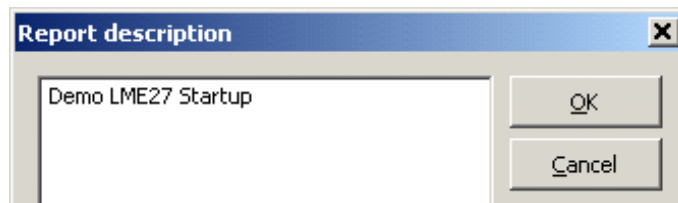
## Trending window offline

(Refer to section «Data recording (Trending)»)



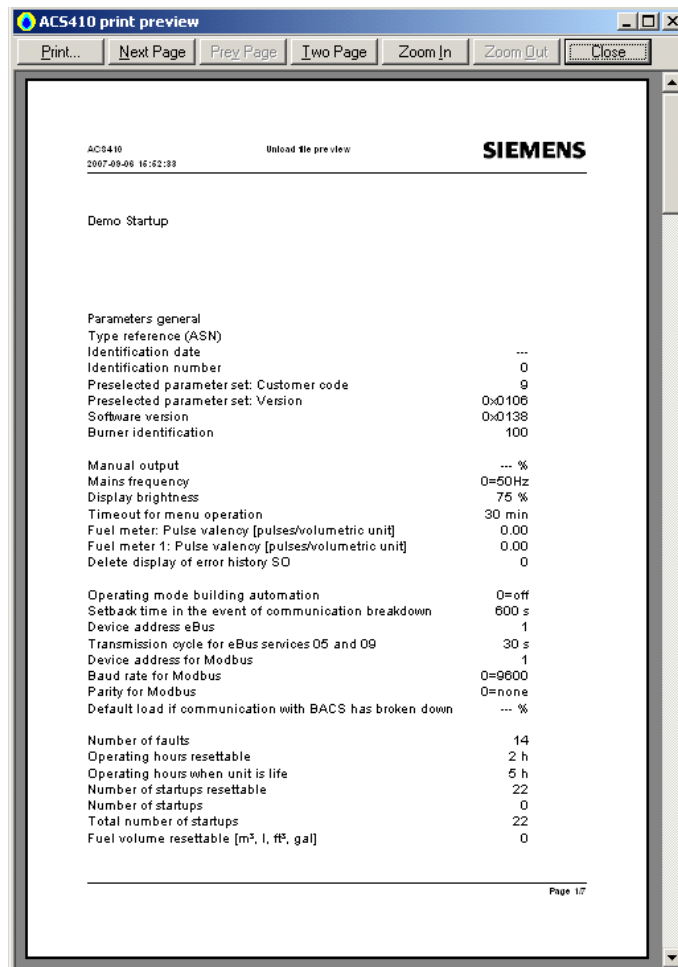
Here, from the *Trending* window, it is possible to call up a report function offline.

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



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

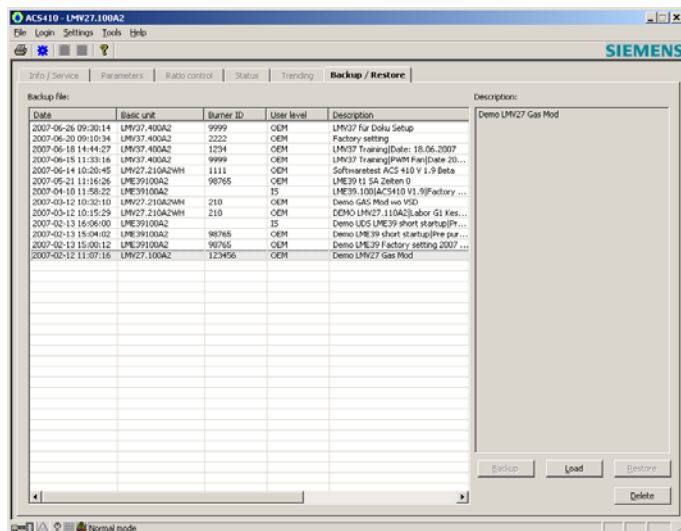
When clicking the **OK** button, the *Preview* window for the print function opens (refer to section «File»).



Example: *Preview* window for the print function

## 10.2.2 Backup files

After selecting **Backup** in the register monitor under **Offline** and confirming with **OK**, the **Backup / Restore** selection window opens (refer to section «Backup / Restore»).



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

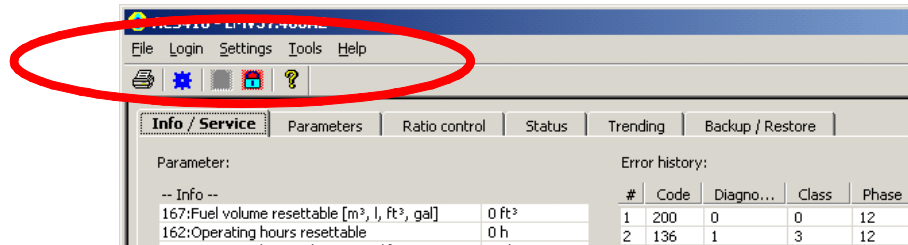
- **Load** Copies the parameter and status data to the *Info / Service, Parameter* and *Ratio Control* windows of the ACS410.
- **Delete** Removes and deletes the selected file from the list.

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

# 11 Program window

After connecting to the burner control via the logon process of the ACS410, the program window appears.

## 11.1 Menu bar

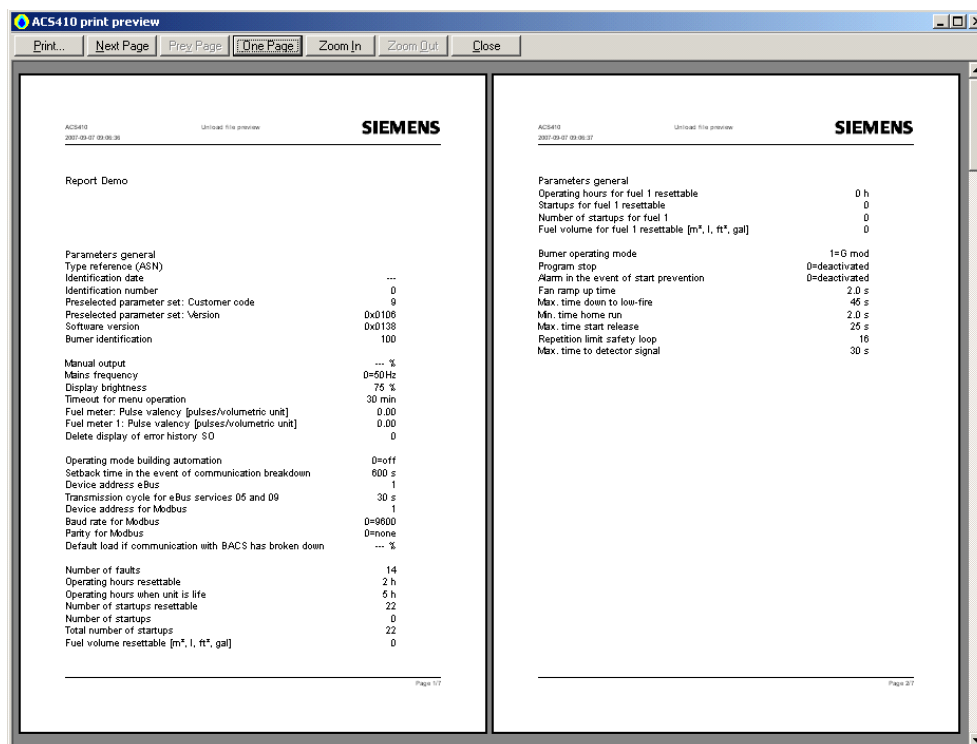


**Report** Use this command to print a status report of the burner control in offline mode (overview of all relevant data).

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

## 11.1.1 File

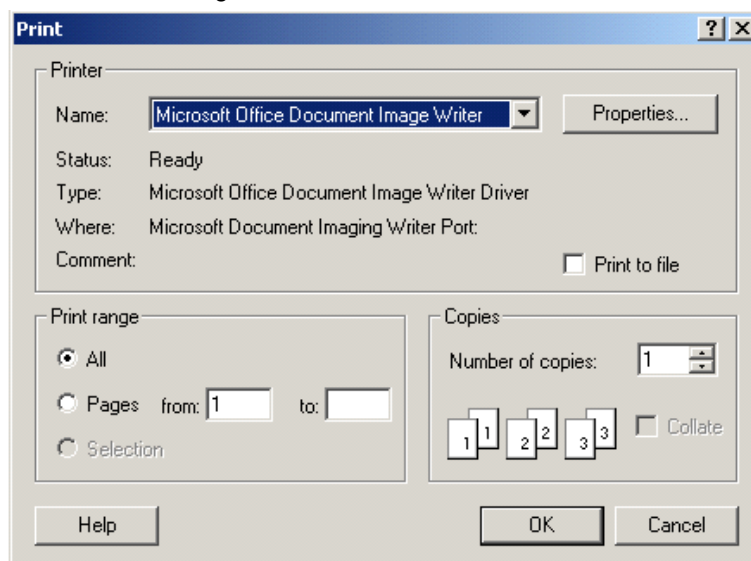
**Print Preview:** Print view of the table(s) with the current data from the selected program view.



Example of window showing the page view

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

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



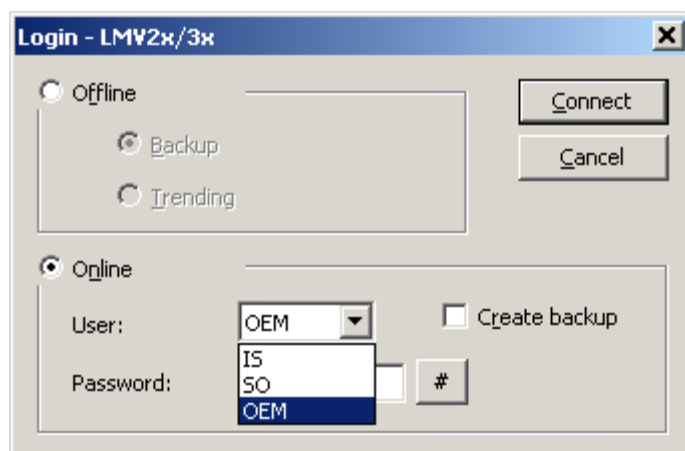
Here, you can change the printer settings and output the current data from the selected program view.



## 11.1.2 Logging in

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

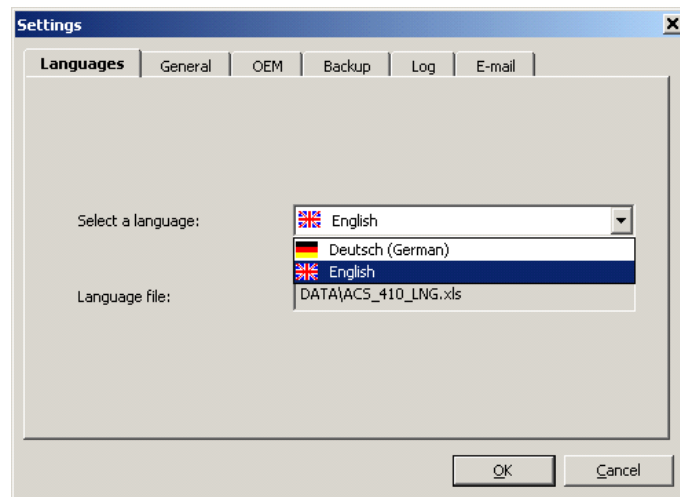
To show burner control files that have been saved (backup files) or trend files (trending) and to print status reports (refer to section «Offline operation without burner control»).

Program start online

To logon at the burner control via the relevant online user level (requiring a password for SO or OEM), or to change to another login level, refer to section «Logging on at the burner control»).

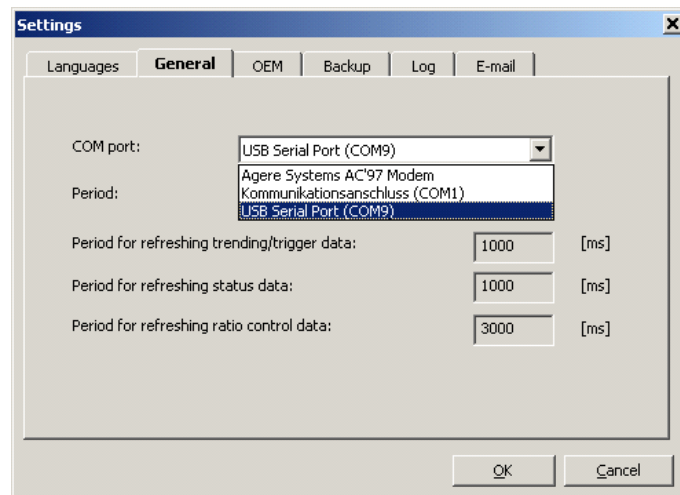
### 11.1.3 Settings

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



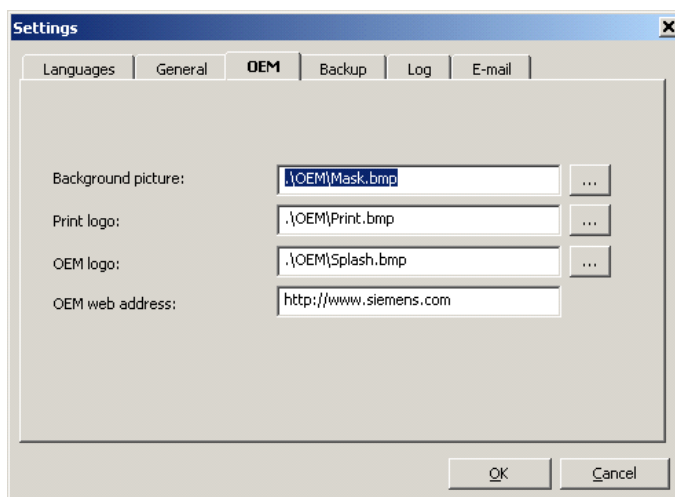
**General:**

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



**OEM:** Start picture and program logo in ACS410 can be changed (only 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

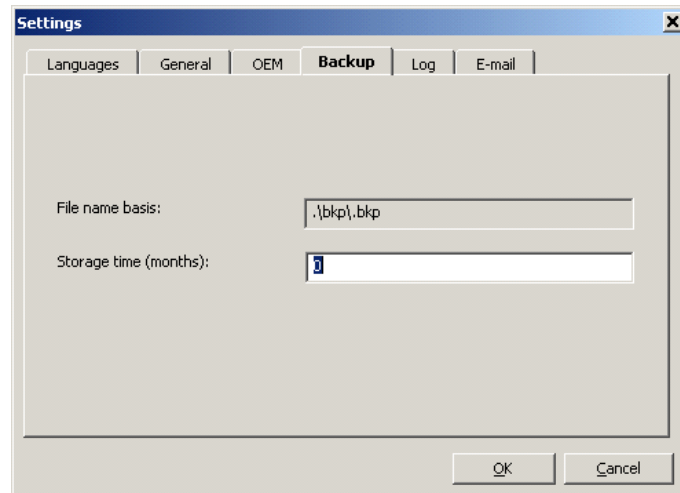


**Backup:** The storage time for the backup files (files with parameters and the current operating state of the burner control) can be entered here.

0 = no limitation of storage time

≥1 = storage time in months

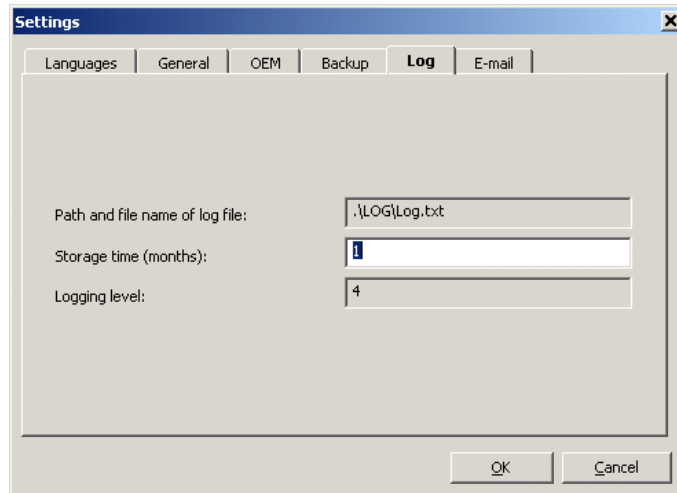
The files are saved in subfolder "bkp" of the ACS410 directory (refer to section «Files contained in the scope of delivery»).



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

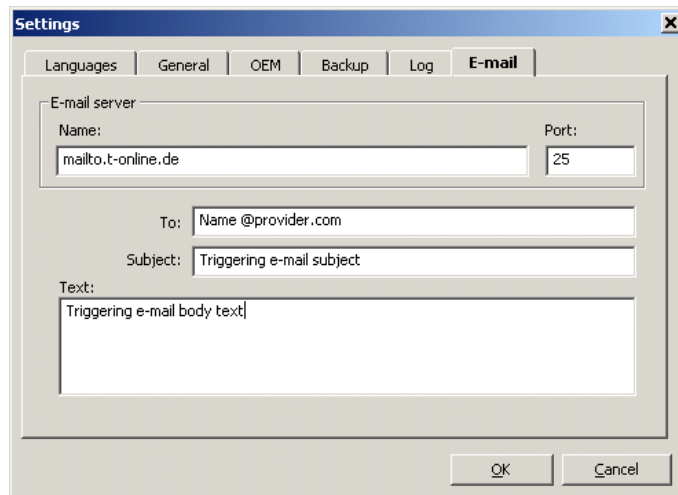
0 = no limitation of storage time  
≥1 = storage time in months

The files are saved in subfolder "bkp" of the ACS410 directory (refer to section «Files contained in the scope of delivery»).



**E-mail:** E-mail settings for sending e-mails from the *Trigger* menu (refer to section «Settings of 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)



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 new software start.

### 11.1.4 Extras

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



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

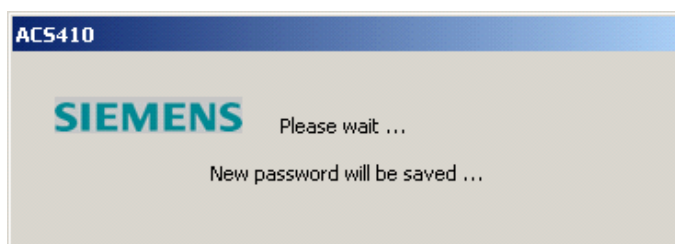
If you don't have the required password, or if you forgot it, contact the boiler, burner or burner control manufacturer!

- 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 the “#” button, you reach a starting menu with all available letters and numbers.

Confirm by clicking the **OK** button. The new password is then transmitted to the burner control.

During transmission, the following message appears:



Successful saving of the password is indicated.

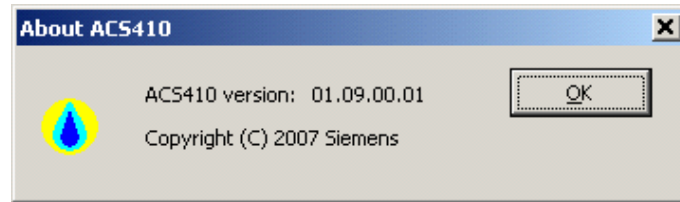


Confirm by clicking the **OK** button.

## 11.1.5 Help

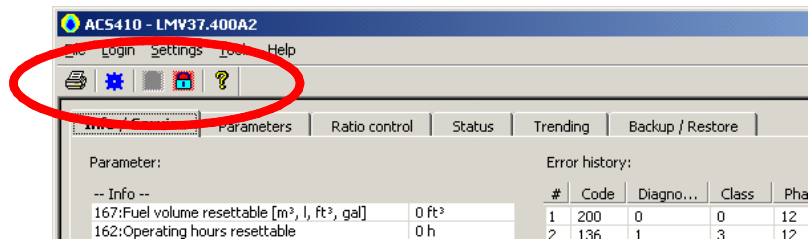
**Help topics:** Retrieval of ACS410 software documentation

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





## 11.2 Toolbar



Print: Click this button to open the menu for the printer settings.

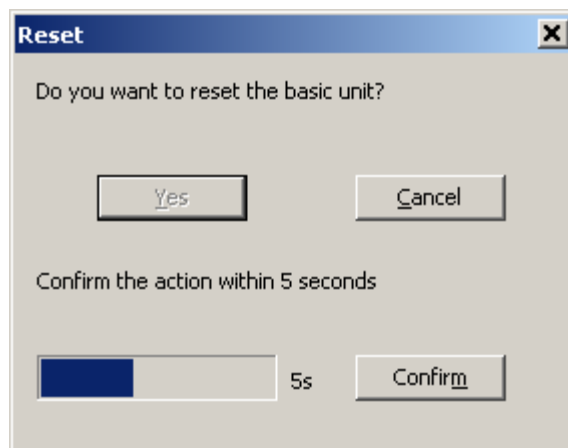


Settings: Click this button to open the menu for the settings.



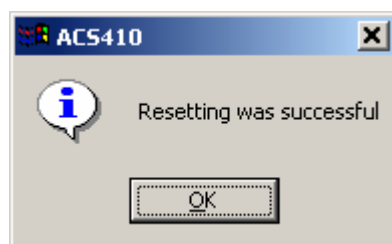
Reset: If the burner control has locked out (lockout position), you can start the reset sequence here.

The following dialog box appears:



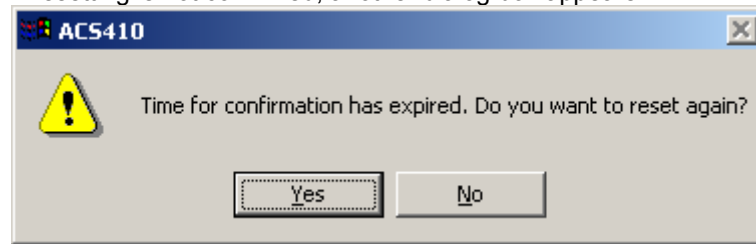
- **Cancel** Closes the dialog box
- **Yes** Starts the reset
- **Confirm** Confirm here within 5 seconds after "Yes"

If the action was successful, another dialog box appears:



Confirm by clicking the **OK** button.

If resetting is not confirmed, another dialog box appears:

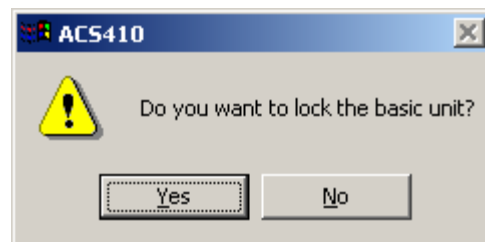


- **Yes**                      Repeats the action
- **No**                        Aborts the action and closes the dialog box

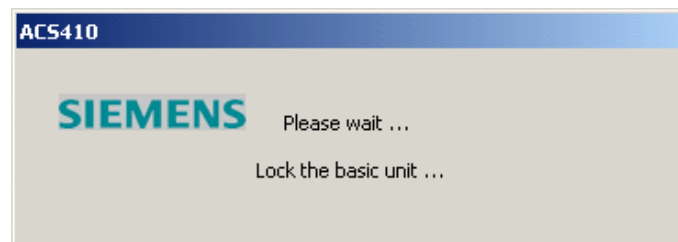


Lock:                      Click this button to bring the burner control into the lockout position.

The following dialog box appears:



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

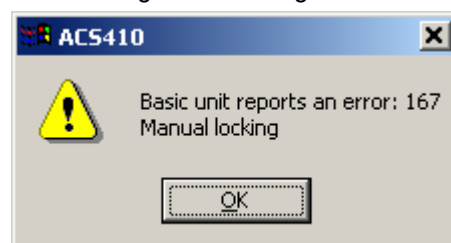


If the action was successful, another dialog box appears:



Confirm by clicking the **OK** button.

The following error message from the burner control appears:

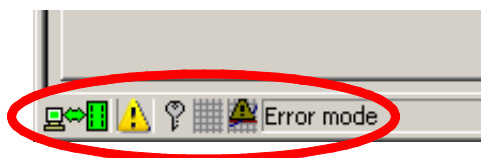


Confirm by clicking the **OK** button.



Help:                      Click this button to open the *Help topics* menu.

## 11.3 Status bar



Connection status: Indicates an online connection to the burner control.



Lockout position: Indicates when the burner control is in the lockout position.



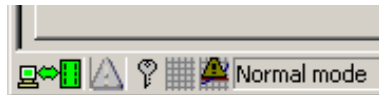
Send password: Indicates when a password is sent.



Trend recording: Indicates when graphs are plotted in the *Trending* window.



Trigger handling: Indicates when trigger handling in the *Trending* window is active.

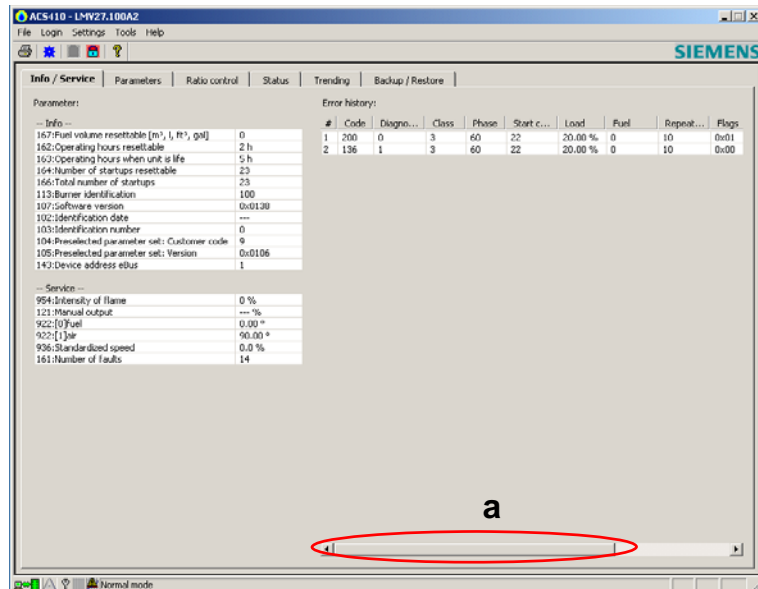


Status: Indicates the burner control's current operating state.

# 12 Working with ACS410

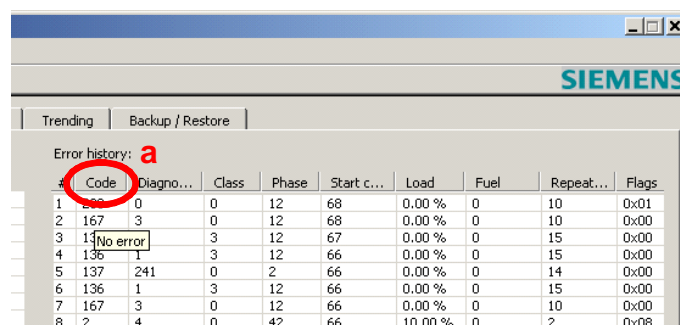
## 12.1 Info / Service window

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.

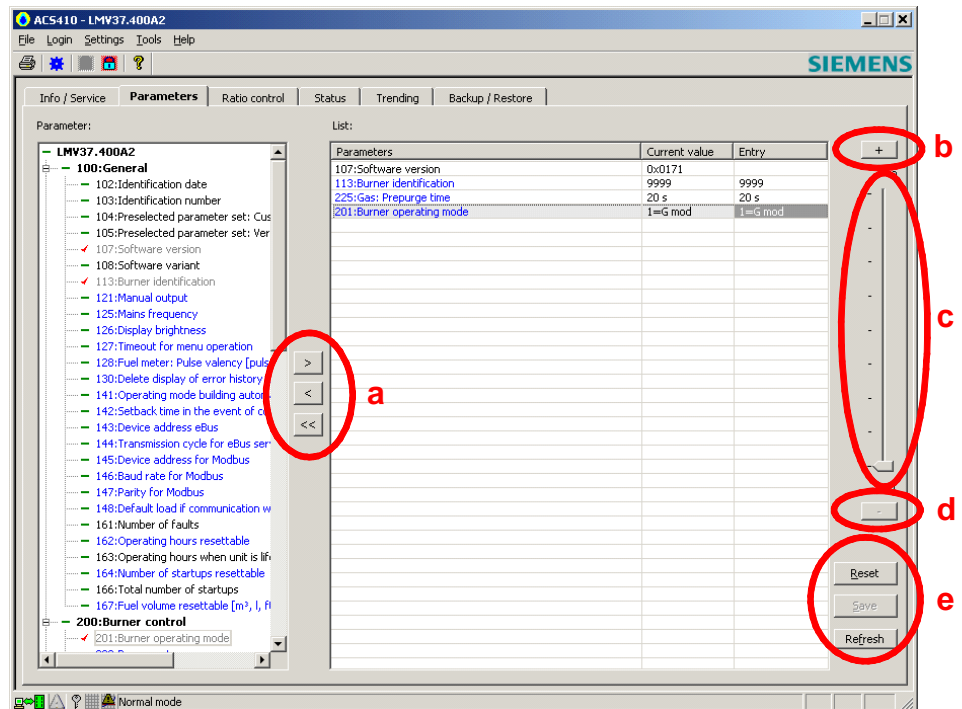


When moving the horizontal scroll bar (a), additional error history information is displayed. The data presented in columns **Repeat counter** and **Flags** are only of interest to Siemens. They have no meaning for the user.

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



## 12.2 Parameter window



### Parameter changes

All parameters displayed blue are editable. Parameters in black cannot be changed. You are authorized to change parameters, depending on your user level (refer to chapter «Connecting the plant»).

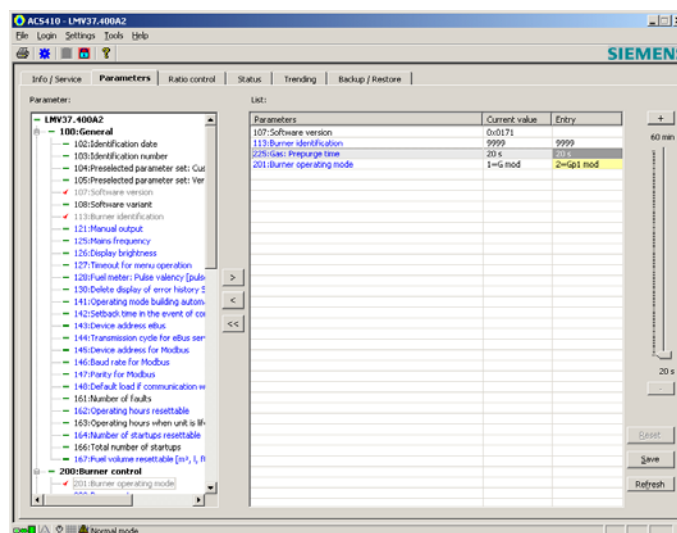
Select the required parameters from the list on the left. Highlight and copy them to the list on the right by double-clicking or by using the arrow button > (a).

If you want to remove certain parameters from the table on the right, use arrow button < (a) for individual parameters, or arrow button << (a) for all parameters.

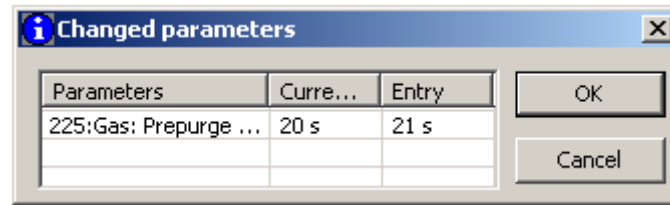
In the table on the right, highlight the individual **Entry** cells under **Parameters** and change the value with the scroll bar on the right (c), or with the + button (b) or – button (d).

Click the **Save** button (e) to save the changes made in the text box.

First, the changed parameter is displayed, highlighted yellow.

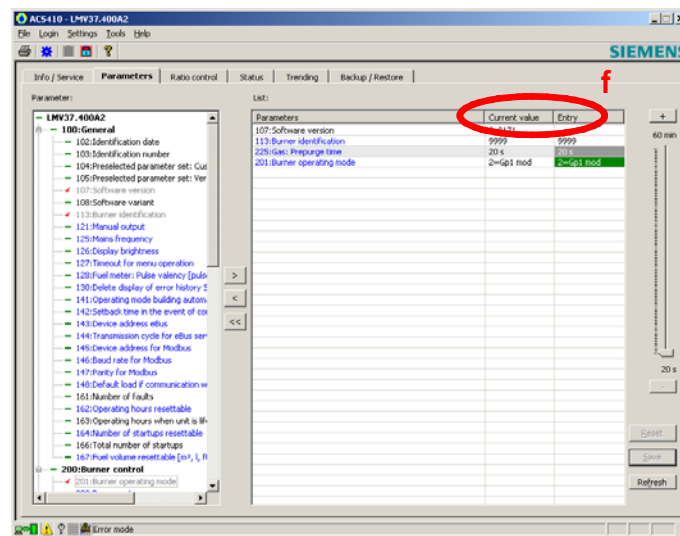


Then, the following dialog box appears:



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

After clicking the **OK** button, the changed parameter is shown highlighted green.



## Checking the memory

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



This visual check by the user is mandatory!

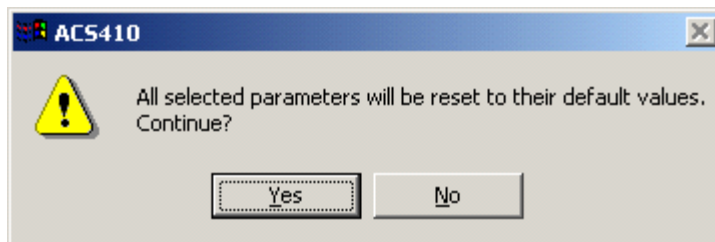
If the changed parameter is highlighted red, the transmission to the burner control was not successful. If this error message occurs while a parameter is changed, the change on the basic unit was most probably not made. For this reason, the correct basic setting on the basic unit must be verified (repeat the action with the help of the ACS410, or use the AZL2... display and operator unit).

Click the **Refresh** button (e) to reload the data, and then **Current value** (f) to actually update them. In that case, the program removes the green background.

## 12.2.1 Resetting parameters

By clicking the **Reset** button (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 the **Reset** button (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

## 12.2.2 Deleting curves

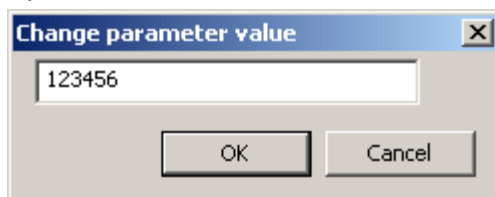
To delete the set curve parameters in the LMV2..., proceed as follows:

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

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

## 12.2.3 Changing the burner identification

A double click or use of arrow button > transfers the parameter for burner identification to the editing window on the right. Burner identification is selected by clicking and can now be changed. The change is made with arrow button + or -. A new entry window opens where the new burner identification can be entered. If, thus far, a burner identification has not yet been entered, the dialog box shows a numerical value: 2147483648. This represents the default setting. Once the burner identification is set, the default setting cannot be entered anymore.



Here, it is possible to enter a maximum of 9 digits for the burner's identification.

- **OK**

Copies the number to the text box

- **Cancel**

Aborts the entry and closes the dialog box

Then, click the **Save** button to permanently file the burner's identification in the basic unit.

## 12.3 Ratio control window (only with LMV2... / LMV3...)



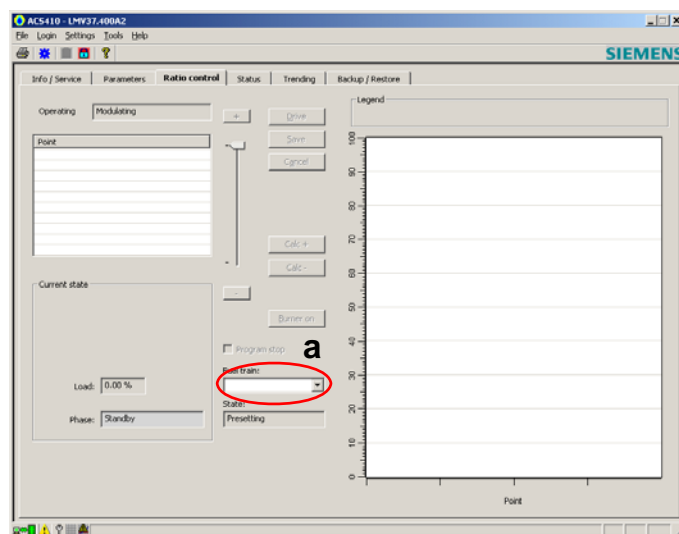
For fuel / air ratio control, compliance with the Basic Documentation on the respective type of burner control is mandatory!

**After the initial ratio control settings, or after curvepoints of ratio control have been reached, the preselection of output on the basic unit is only possible via ACS410. A preselection of output on the basic unit via contact, analog input or building automation is not possible anymore.**

**Readjustment of output via contact, analog input or building automation is released on the basic unit only after the ACS410 has been closed.**

When making the settings on the LMV2... / LMV3... burner control for the first time, there are no curvepoint values contained in the table on the left and the status box displays "Pre-setting".

The initial settings are started by selecting the type of fuel train (a).

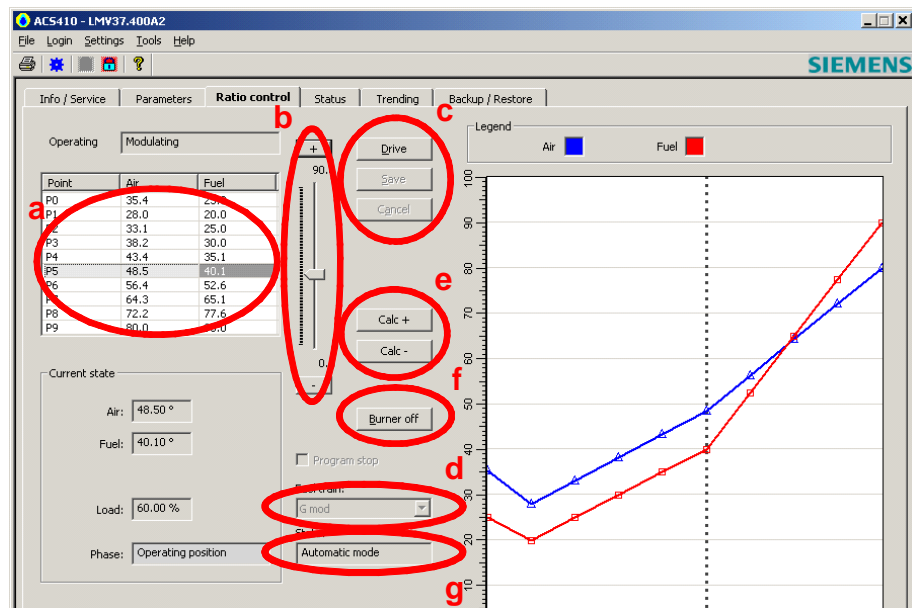


If previously set curvepoints shall be deleted, follow the procedure described in section «Changing parameters – Delete curves».

In operation, a dotted vertical line shows the current output position.



## 12.3.1 Modulating operation



### Setting the curvepoints

The example given below shows the steps to be followed when making the initial settings for fuel train mode “G mod” (refer to the Basic Documentation on the LMV2... / LMV3...).

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

Table “Function curvepoints”:

Setting point	Function
<b>P0</b>	<b>Curvepoint “Ignition load”</b>
<b>P1</b>	<b>Curvepoint “Low-fire”</b>
<b>P2 – P8</b>	<b>Curvepoint “Ratio control”</b>
<b>P9</b>	<b>Curvepoint “Nominal load”</b>

### Cold settings

#### Burner is not started up

From the table on the left (a), select curvepoints P0 (ignition load), P9 (nominal load), and then P1. Highlight the air, fuel or VSD cell (only when the variable speed drive is working) and change the value as required using the scroll bar on the right, or the + or – button (b), or the arrow keys on your keyboard.

After a setting or change, every curvepoint must be copied to the burner control by clicking the **Save** button (c) – or the **Cancel** button (c), if the last changes made shall be deleted before saving.

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

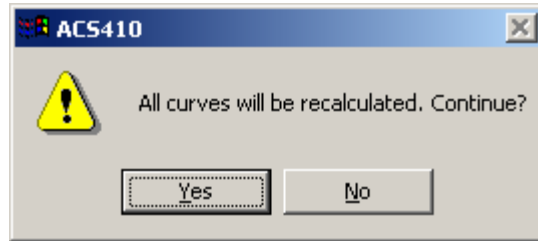
Select curvepoint P4, for example.

**Calc – (d)** The curvepoints between P4 and P1 will be recalculated  
**Calc + (d)** The curvepoints between P4 and P9 will be 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 = variable speed drive

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



- **Yes** Starts calculation of the curve and copies it to the burner control. The curvepoints are read in again and the display 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 via **Burner on** (e).

## Warm settings

### Burner is started up

From the table on the left (a), select min. curvepoint P0 (ignition load) and then curvepoint P9 (nominal load). Highlight the air, fuel or VSD cell (only when the variable speed drive is working) and change the value as required using the scroll bar on the right, or the **+** or **–** button (b), or the arrow keys on your keyboard.

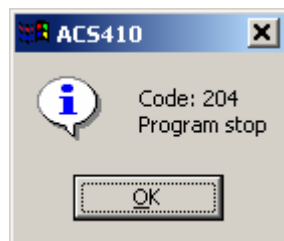
After a setting or change, every curvepoint must be copied to the burner control by clicking the **Save** button (c) – or by clicking the **Cancel** button (c), if the last changes made shall be deleted before saving.

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:

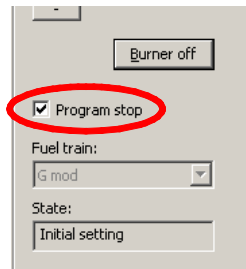
\*

When making the settings for the first time, the burner control sets a program stop per default, which is indicated by the following dialog box:

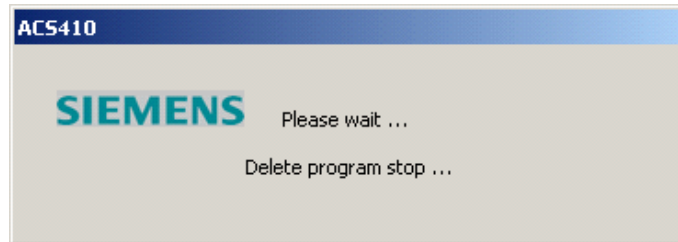


Confirm and close by clicking the **OK** button.

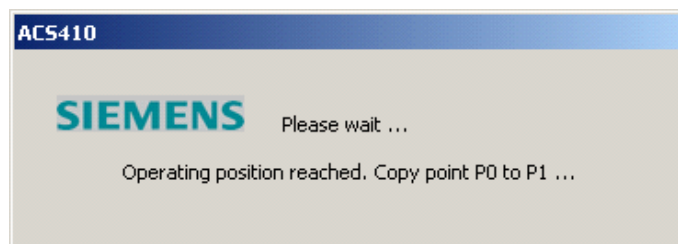
Remove the tick ☒ for the program stop ☐.



Program stop is deleted.

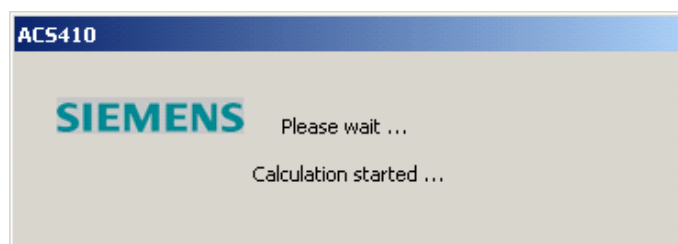


P0 entries are automatically copied to P1, if nothing else has been entered here.



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

Then, the burner control performs a linear calculation of the curvepoints between P1 and P9.



The data are copied to the burner control. 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) in order to linearize the ratio control curve from the selected point, in the + or - direction.

## Approaching and changing curvepoints

From the table on the left (a), select the curvepoint to be approached by highlighting it with the mouse. By clicking **Drive** (c), the burner control approaches 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 burner control for permanent use.



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.

## Changing curvepoints while the burner is operating



When parameterizing a curvepoint while the burner is **in operation**, certain system-related limits for setting a curvepoint must be observed.

The readjustment limits given below only apply to the load point where the system currently operates.

The other curvepoints can be changed at will.

For active load points, the following readjustment limits apply:

Actuators:

Ramp time set on the LMV2... / LMV3...: 5 s	Max. readjustment 3.1°
---	------------------------

Ramp time set on the LMV2... / LMV3...: 10 s	Max. readjustment 1.6°
--	------------------------

Variable speed drive:

Ramp time set on the LMV2... / LMV3...: 5 s	Max. readjustment 4%
---	----------------------

Ramp time set on the LMV2... / LMV3...: 10 s	Max. readjustment 2%
--	----------------------

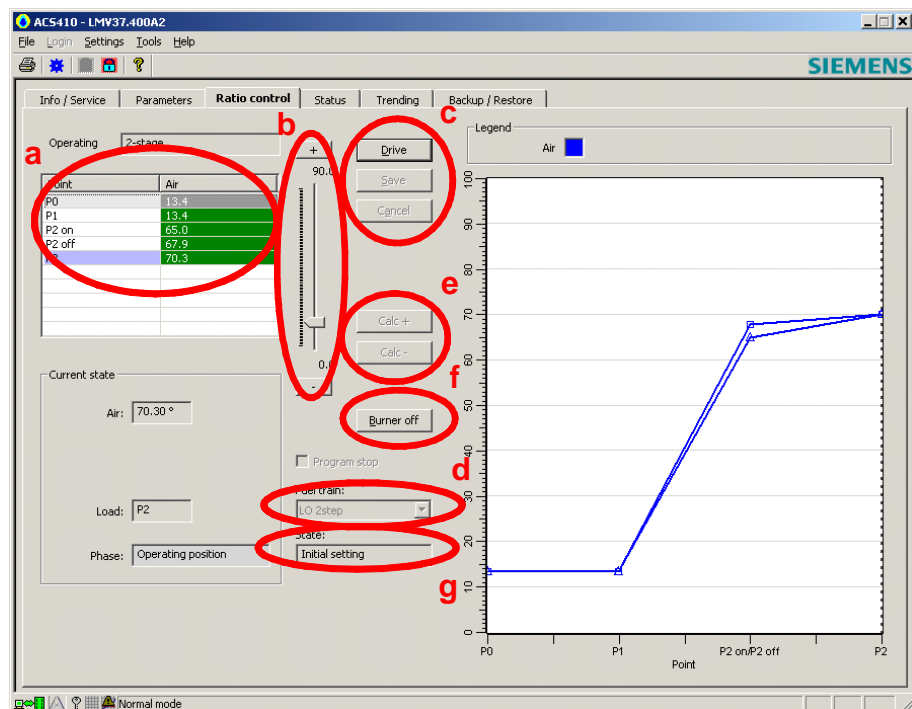
This means that greater readjustments of actuators or variable speed drives must be made in several steps while observing the above mentioned maximum increments.

If a value greater than the maximum allowable change is set, the connected basic unit sends a warning message (curve too steep).

## 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 completes the initial ratio control settings. To set the output limits (minimum / maximum value of output), change to the parameter window to make the respective parameter settings. For the relevant parameter numbers, refer to the Basic Documentation on the connected type of burner control (LMV2... (P7541), LMV3... (P7546)).

## 12.3.2 Multistage operation



The example given below shows the steps to be followed when making the initial settings for fuel train mode “LO 2 stage” (refer to the Basic Documentation on LMV2... / LMV3...).

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

Table “Function curvepoints”

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

### Cold settings

#### Burner is not started up

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

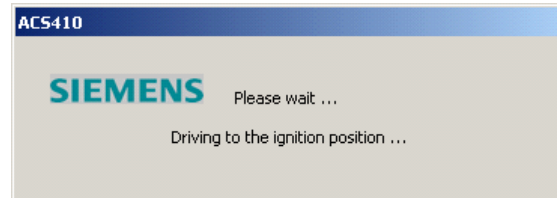


In this operating mode, it is not possible to recalculate curvepoints via **Calc +** or **Calc -** (d), which means that the buttons cannot be clicked here.

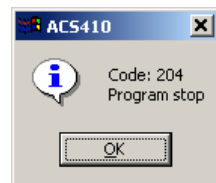
On completion of the cold settings and after a heat request from the boiler controller to the burner, the burner can be put into operation via **Burner on** (e).

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 on your keyboard. After every setting or change, the setting point must be copied to the burner control by clicking the **Save** button (c). When clicking the **Cancel** button (c), the last changes made are deleted before saving. When clicking the **Burner on** button (e) and with the heat request from the boiler controller to the burner, further curve parameterization is started.

The following dialog box appears:

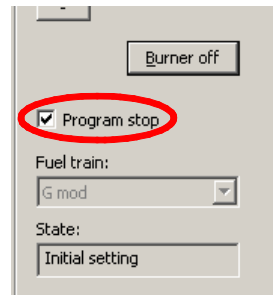


When making the initial settings, the burner control sets a program stop per default, which is indicated by the following dialog box:

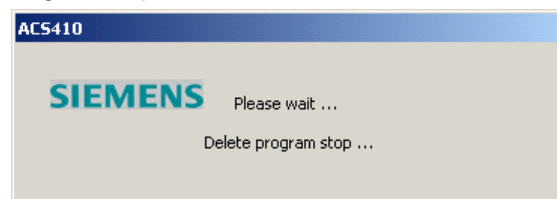


Confirm and close by clicking the **OK** button.

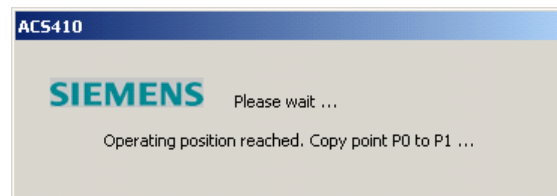
Remove the tick ☒ for the program stop ☐.



Program stop is canceled.



P0 entries are automatically copied to P1 and can be changed.

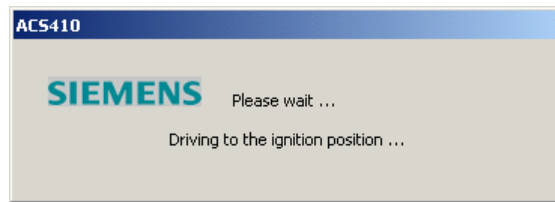


Check the curvepoints, change them if required, and click the **Save** button (c). All setting points are selected in the order given in table “Function curvepoints” for multi-stage operation.

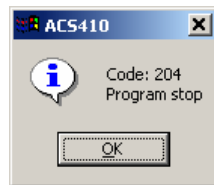
## Driving to the curvepoints

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

When clicking the **Burner on** button (e), and with the heat request from the boiler controller to the burner, the following dialog box appears:

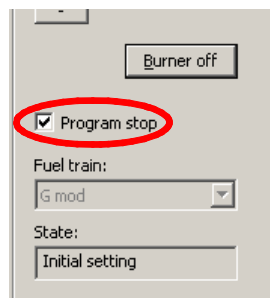


When making the initial settings, the burner control sets a program stop per default, which is indicated by the following dialog box:

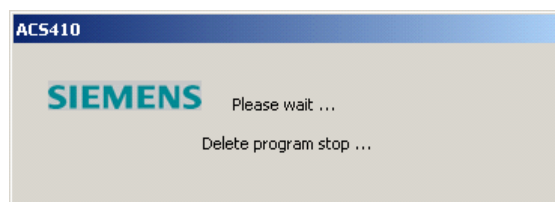


Confirm and close by clicking the **OK** button.

Remove the tick ☒ for the program stop ☐.



Program stop is canceled.



Select a curvepoint from the table on the left (a).

When clicking the **Drive** button (c), the respective curvepoint is approached by the burner control.

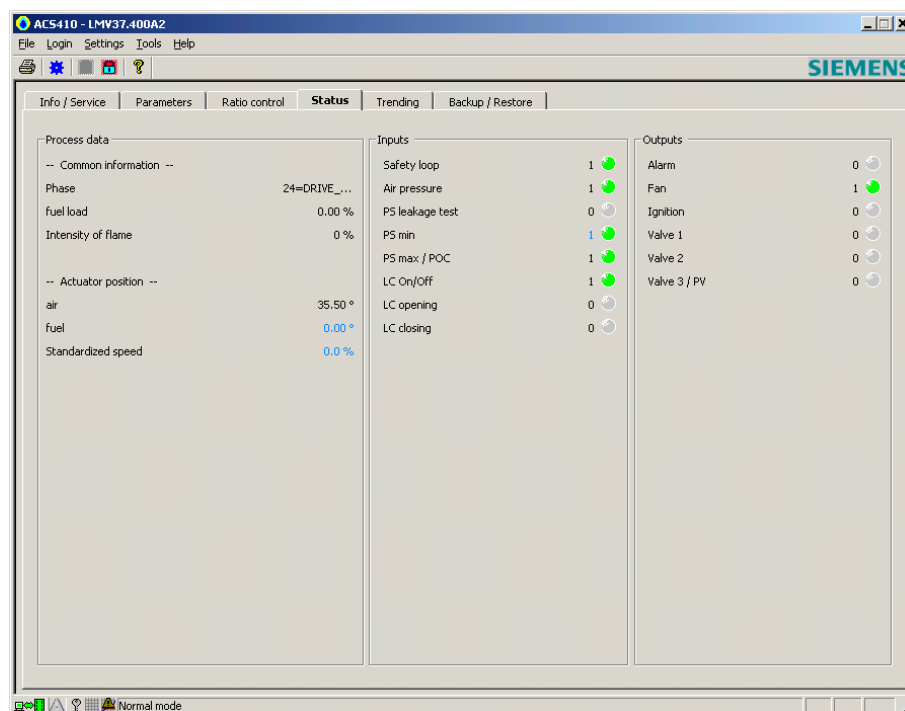
Here, it is possible each setting point to check or optimize the setting point.

After changing of a curvepoint, the curvepoint must be saved and checked again.

Repeat the process for all adjusted curvepoints until all settings are correct.

After all curvepoints P1...P2 (2-stage) or P1...P3 (3-stage) have been approached and checked, the burner control switches from initial setting mode to automatic mode.

## 12.4 Status window of burner control



The *Status* window shows the current state of the available inputs and outputs plus operating data.

The displayed values are cyclically updated.

The refreshment rate (period) is adjustable (refer to section «Settings – General»).

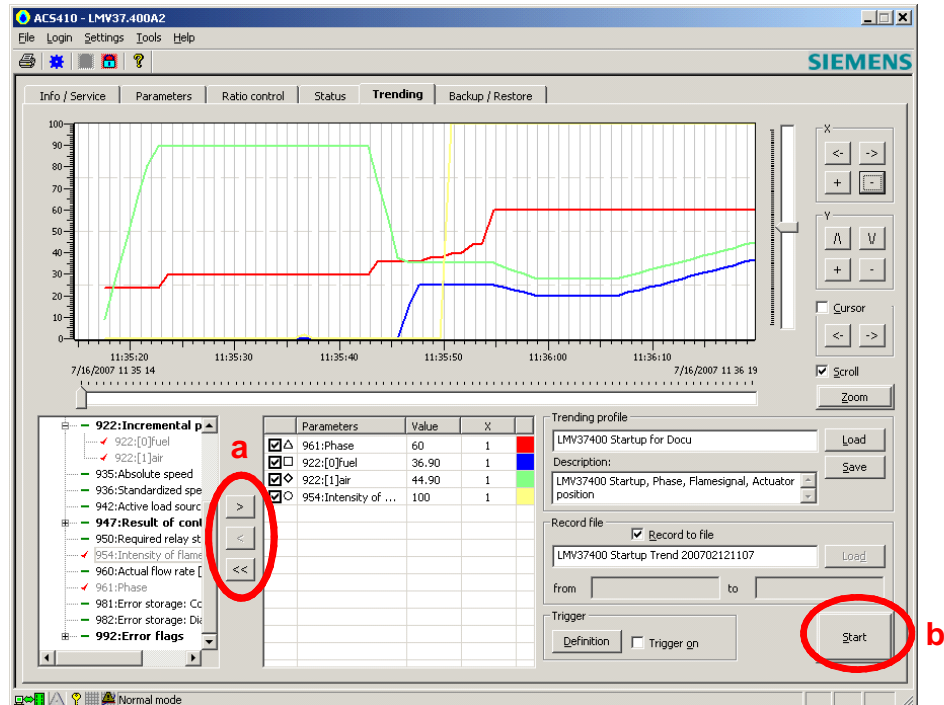


## 12.5 Data recording (Trending)

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



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

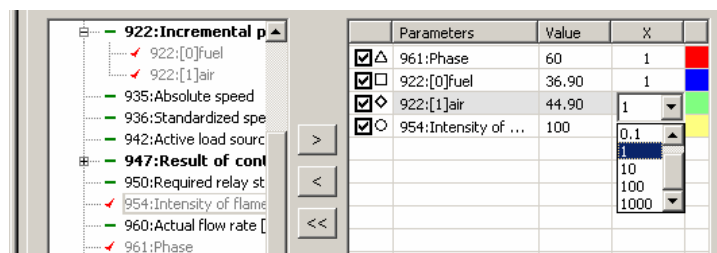


### Selecting the parameters

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 arrow button << (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 choices available 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.



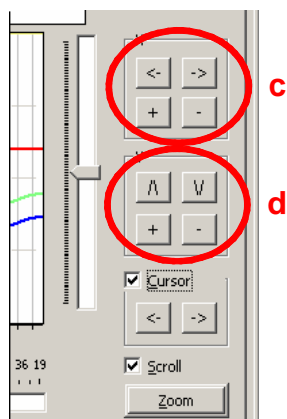
You can select any of the colors offered.

## Starting the graph

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

## Displaying the graph

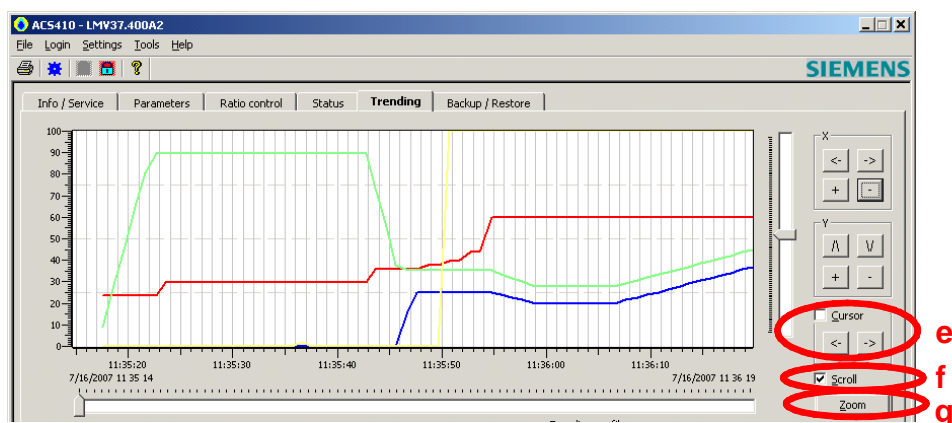
The graph's scale can be changed.



The graph can be shifted in the direction of the **X**-axis (c), either to the left or to the right, by clicking arrow button <- or -> respectively. Using the + and – buttons, the scale along the **X**-axis can be changed.

The graph can be shifted in the direction of the **Y**-axis (d), either upward or downward, by clicking arrow button <- or -> respectively. Using the + and – buttons, the scale along the **Y**-axis can be changed.

Using the scroll bar at the bottom, you can change the vertical position of the display window.



When ticking ☒ the check box at **Cursor** (e), a 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.

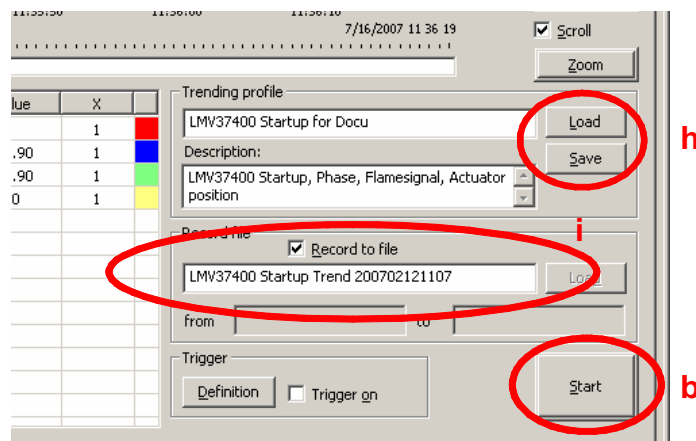
When ticking ☒ the check box at **Scroll** (f), the display runs with current data of the burner control's over the time axis. If the tick is removed, the current display is stopped. If ticked again, the display continues from the respective point. The data for the display are temporarily buffered in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

If you wish to see the display as a full picture, click the **Zoom** button (g). The bottom part of the window with the table and the list will then be hidden and the display set to full picture mode. To reset the action, click again the **Zoom** button (g).

In the case of a change of phase with process parameter "Phase", the display shows intermediate values which, in reality, do not exist.

## Recording data Trending profile

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

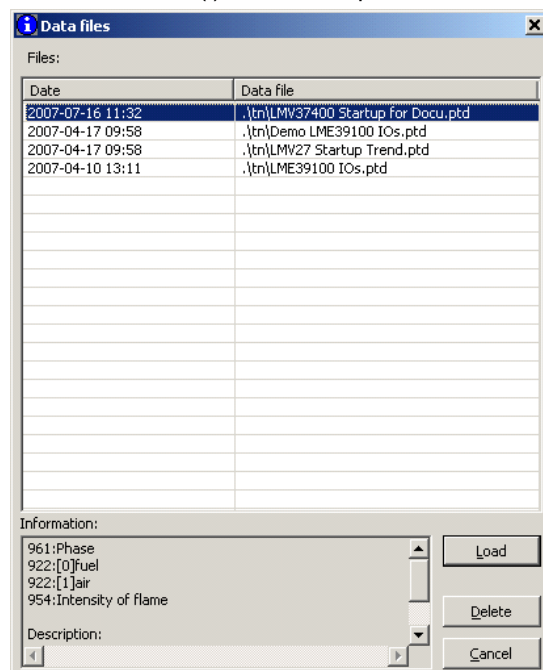


The selected parameters can be saved in the form of a profile file. The trending profile proposes a filename (format of filename: *YYYYMMDDssmmTrend* (year = 4 digits, month and day = 2 digits each, hour and minute = 2 digits each, followed by *Trend*). This filename can be randomly selected or overwritten. 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 filename with extension \*.ptd. Saving in the ACS410 program file takes place in subfolder "tn".



Confirm by clicking the **OK** button.

The **Load** button (i) is used 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

## Data file

The data file is used to file the process data of the selected parameters. In text box **Record 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 filename will be proposed (format of filename: *YYYYMMDDssmmTrend*). This filename can be randomly selected or overwritten. Clicking on the **Start** button (b) starts the recording process. Clicking a second time stops the recording process and saves the file.



Confirm by clicking the **OK** button.

Filing location: In ACS410 program subfolder "tn".

A recording consists of 3 partial files.

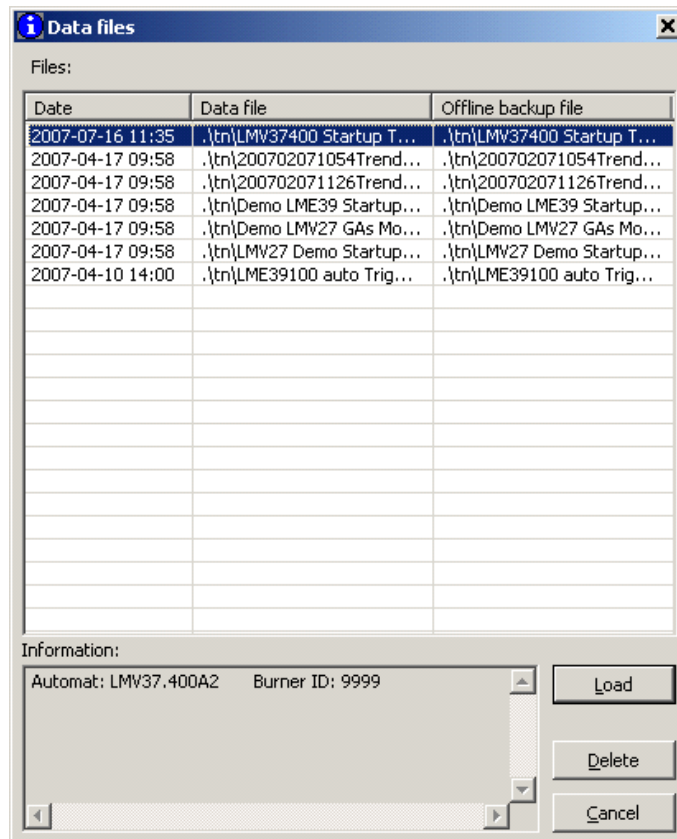
FileNames:

\*.unl – parameter settings of active parameter configuration

\*.dtd – data file

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

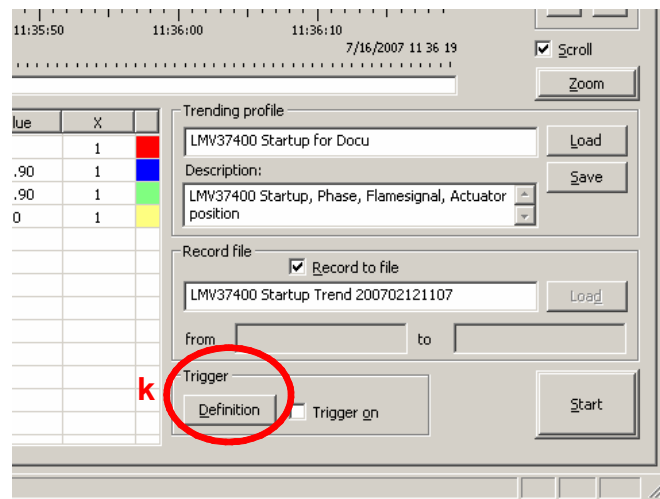
The **Load** button (i) is used to open the selection window of the saved files.



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 identification.

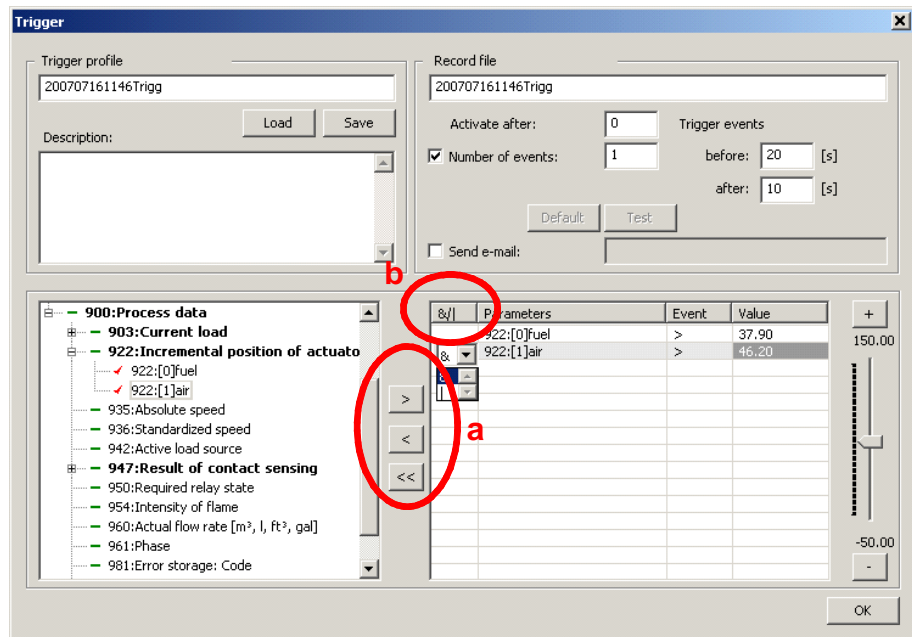
- **Load** Copies the file to the graph
- **Delete** Removes the selected file from the list and deletes it
- **Cancel** Closes the display and the selection window

## Trigger



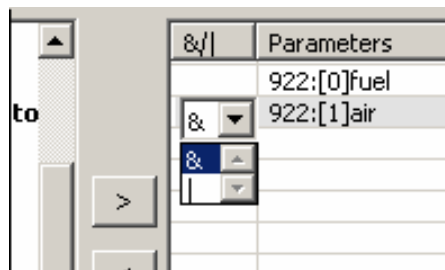
When clicking the **Definition** button (k), you reach the *Trigger* window. There, you can select one or several interconnected parameters for a trigger event, which triggers data recording and / or an e-mail message.

## 12.5.1 Creating a trigger event



From the list on the left, select the required parameters that shall lead to a trigger event. Highlight the parameters with the mouse 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 arrow button << (a) for all parameters. A maximum of 20 parameters can be selected.

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



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.

Example for LME... / LMO...:

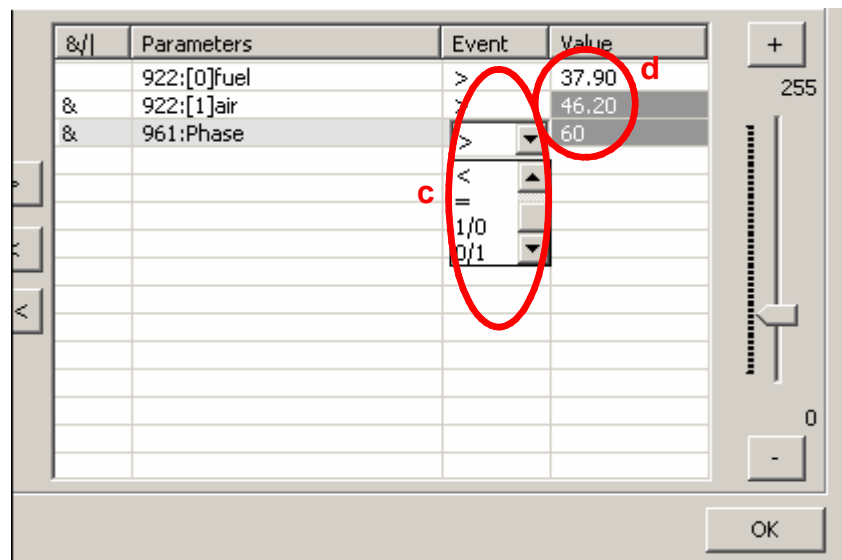
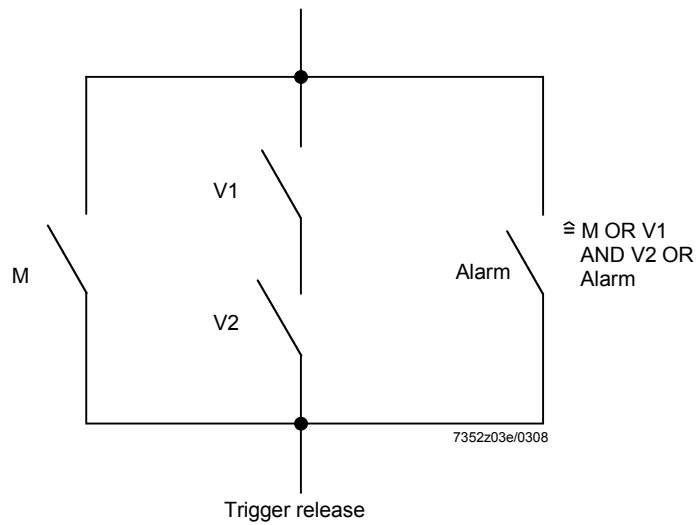
= fan motor (M)

**OR**

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

**OR**

alarm



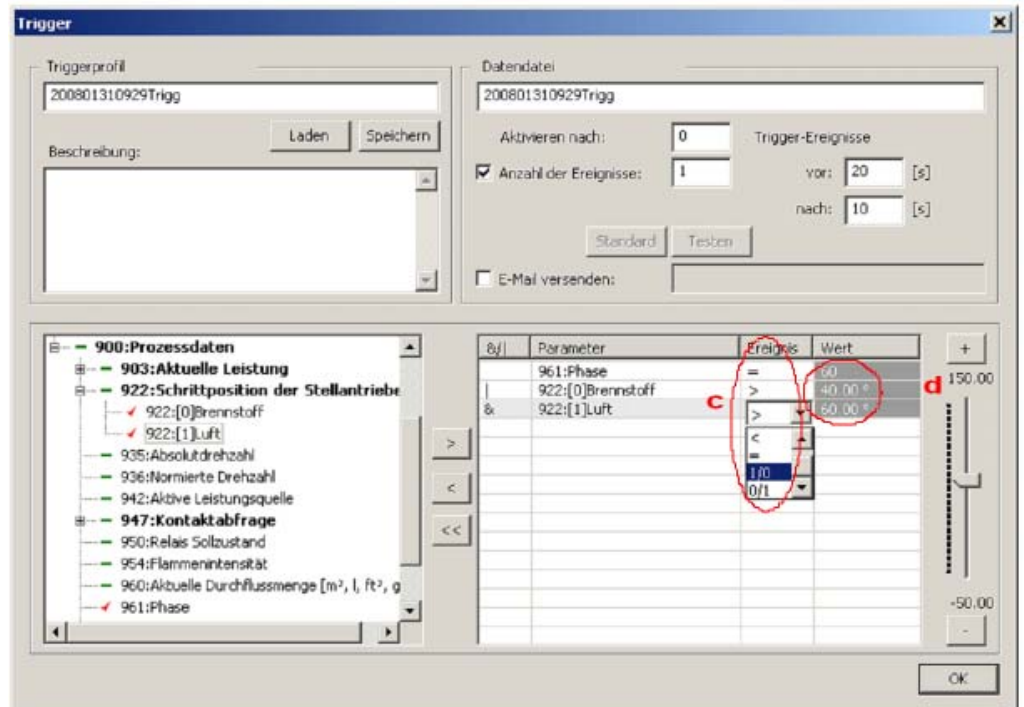
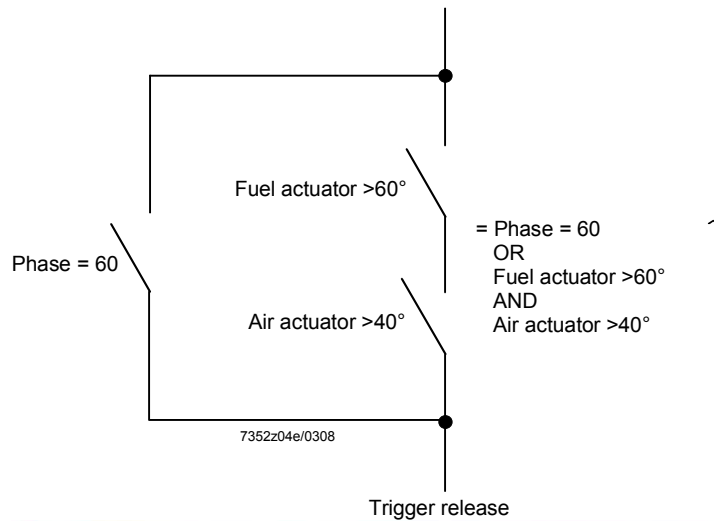
Using **Event** (c), various events can be defined:

- Greater than ">", smaller than "<", or equal to "=" value
- Level change digital value, rising ramp "0 / 1", falling ramp "1 / 0"

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 / 1 (digital values).



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

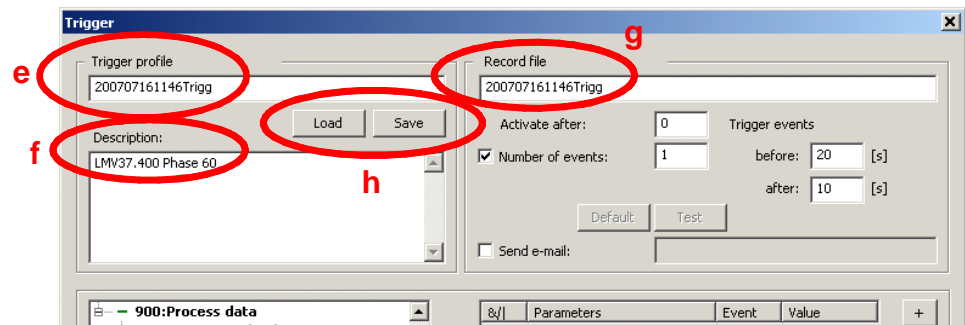


**Event (c)** can be used to define different kinds of events, such as:

- Outside upper limit >, outside lower limit < or equal =
- Level change digital value, rising ramp 0 / 1, falling ramp 1 / 0

**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 to 0 or 1 (for digital values).

## Saving trigger actions

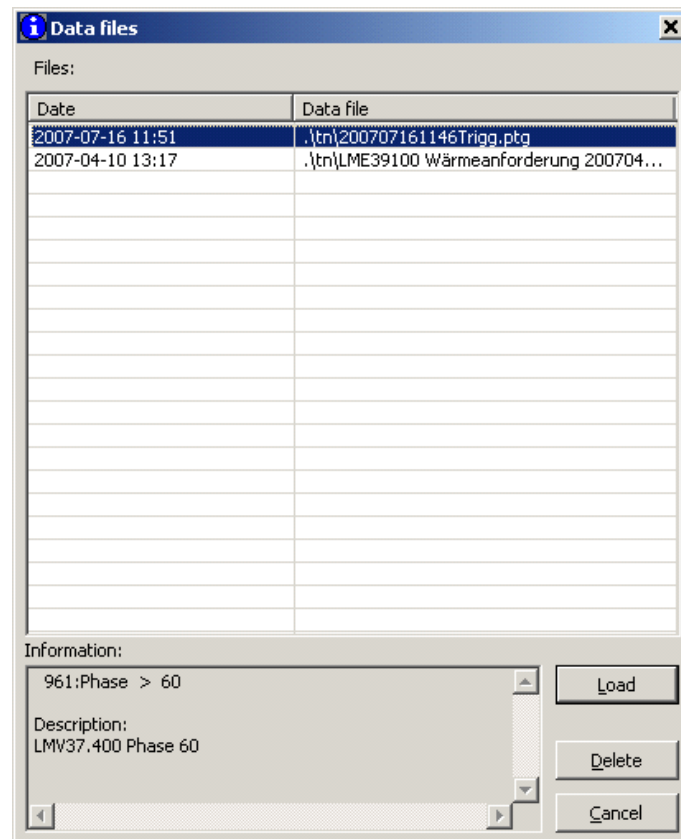


**Trigger profile** (e) offers you the choice of saving the trigger events in a file. The system proposes a filename (format of filename: YYYYMMDDssmmTrend). This filename can be randomly selected or overwritten. Filing location is ACS410 program subfolder "tn", file-name with extension \*.ptg.

Click the **Save** button (h) to save the settings.

In addition, **Description** (f) offers you a text box where you can enter any text which shall be saved together with your trigger settings. This text will make it easier to identify and administer the recordings at a later stage.

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



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

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

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

The screenshot shows a 'Record file' dialog box. Annotations are as follows:
 

- g**: Points to the 'Record file' text box containing '200707161146Trigg'.
- i**: Points to the 'Activate after:' text box containing '0'.
- k**: Points to the 'Number of events:' text box containing '1', which is preceded by a checked checkbox.
- m**: Points to the 'Trigger events' section, which includes 'before: 20 [s]' and 'after: 10 [s]' text boxes.

 Other visible elements include 'Default' and 'Test' buttons, a 'Send e-mail:' checkbox, and a table at the bottom.

&/	Parameters	Event	Value
	961:Phase	>	60

The system proposes a filename (format of filename: *YYYYMMDDssmmTrend*). This filename can be randomly selected or overwritten. 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

Record file: 200708080852Trigg

Activate after: 0

Number of events: ☒ 1

Trigger events: before: 20 [s], after: 10 [s]

**n** ☒ Send e-mail: [ ]

Default Test

&/	Parameters	Event	Value
	961:Phase	=	60
&	922:[0]fuel	>	0.00
&	922:[1]air	>	0.00

150.00

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

- E-mail settings must have been made (refer to section «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
- Tick ☒ in the check box at **Send e-mail (n)** required

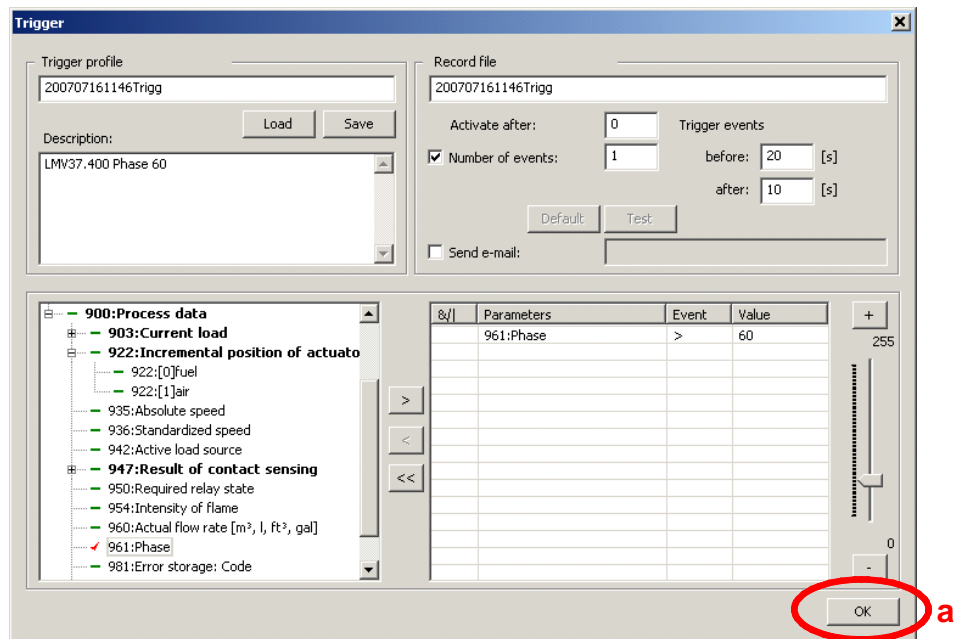


Also note that use of this function leads to further costs for the connections. Check your modem settings (e.g. disconnection during idle operation). Due to the complex transmission path of e-mail messages via the Internet, it is not possible to make certain that e-mail messages forwarded by the ACS410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

Enter the recipient's e-mail address in the text box to the right of **Send e-mail (n)**.

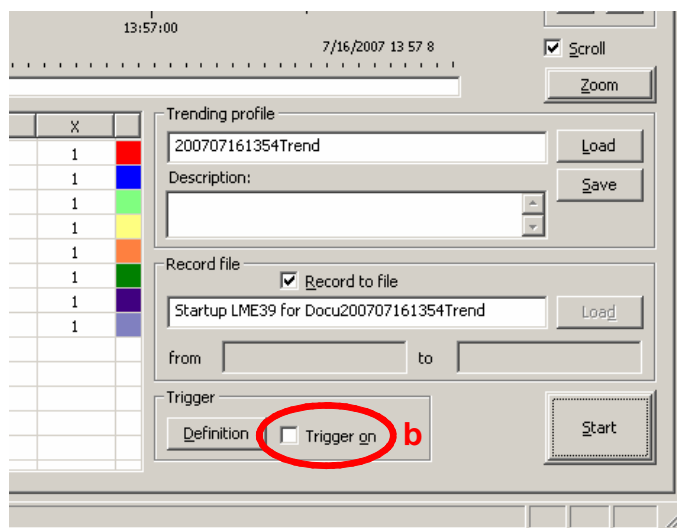
**Test (n)** enables you to check your e-mail connections and to send test e-mail messages.

## 12.5.2 Triggering



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

⇒ You reach the *Trending* window again.



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

⇒ A recording in accordance with your entries made in the *Trigger* window will be started with the next trigger event.

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 the **OK** button.

Filing location is ACS410 program subfolder "*tn*".

A trigger data file consists of 3 partial files:

Filenames:

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

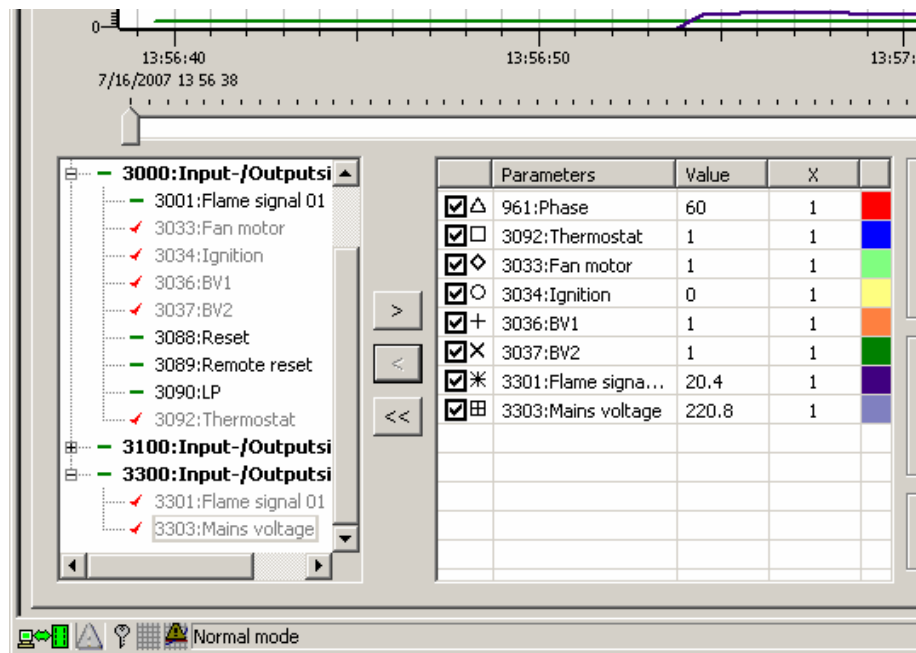
### 12.5.3 Parameter selection LME39...

In the case of burner controls type LME39..., 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.

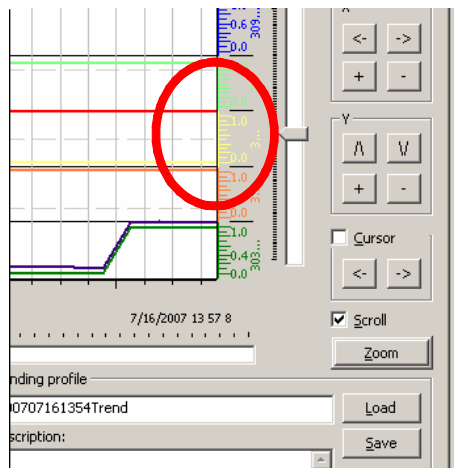
The following table shows the parameters used with the LME39... models.

Parameter no.	Input / output
3002	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
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
3302	Flame signal 02
3303	Mains voltage
3304	Oil preheater temperature



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

Presentation of the digital I/Os in the trending picture.



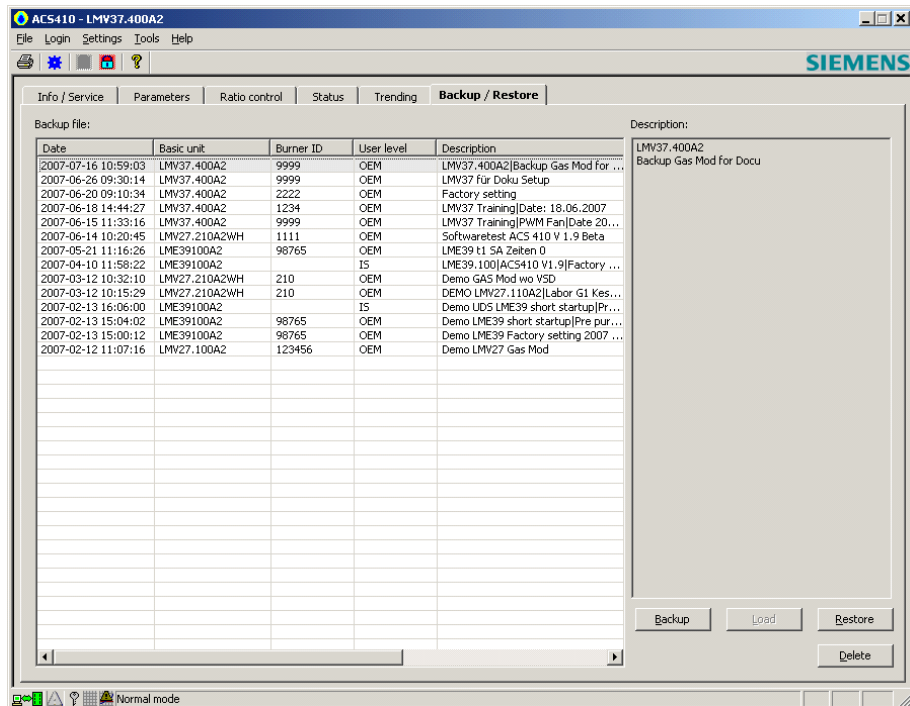
The digital I/Os are arranged above one another in the form of graphs. Each channel is assigned a specific scale in a different color.



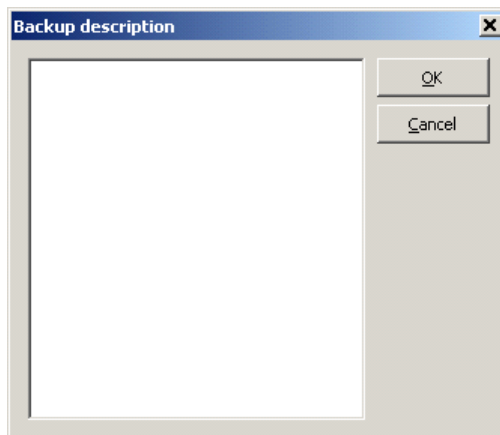
## 12.6 Backup / restore

### Backup

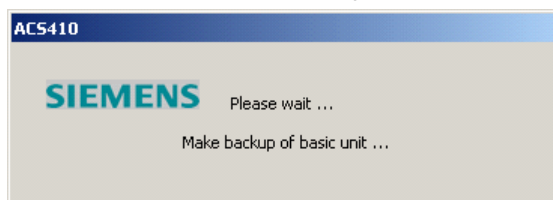
Here, it is possible to save backup files of the connected burner control. This means that the burner control's parameters and settings can be saved (ACS410 program directory in subfolder "bkp").



When clicking the **Backup** button, the window for entering free description text opens.



This entry is saved together with the backup file. Click the **OK** button to start the process.



The status message appears.



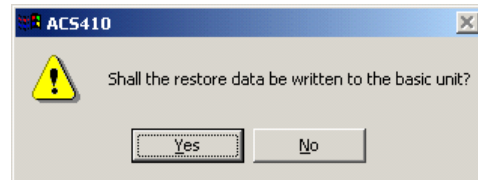
Confirm by clicking the **OK** button.

## Restore

Here, the parameters and settings saved can be restored in the burner control. Prerequisite is that the burner control is in online mode and that the burner's identification accords with the burner identification in the restore file.

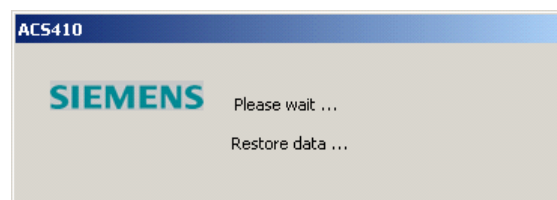
From the *Backup / Restore* window, select the required restore file.

When clicking the **Restore** button, the following window opens:

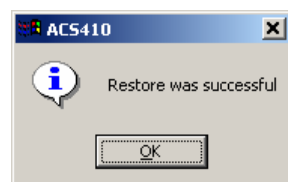


- **Yes** Starts the restore process
- **No** Aborts the restore process

When starting the restore process, the following message appears:

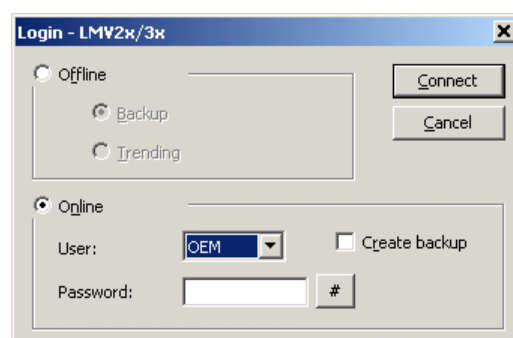


Successful execution of the restore process is reported:



Confirm by clicking the **OK** button.

After successful completion of the restore process, the following *Login* window appears:



Here, the user logs himself on again at the burner control.



If the LMV2... / LMV3... basic unit uses fan motor control, the fan speed must be standardized again after the restore process.

## Copying a parameter set

Using backup / restore, the parameter set can be copied to some other unit. This may become necessary when, for example, a data set shall be copied to a unit that is not parameterized unit.



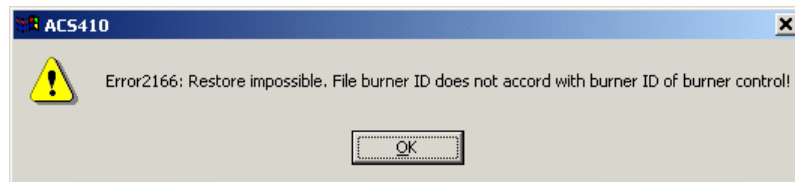
If the ACS410 is not used, all parameter settings are to be verified via an AZL2... / AZL3... display and operator unit, and safe functioning of the plant is to be checked!

If an existing parameter set shall be written to some other unit, follow the procedure described below (only with LMV2... / LMV3...):

**Step 1:** In the basic unit, enter the same burner identification as that of the parameter set that shall be written. For the parameter number used for burner identification, refer to the technical documentation on the basic unit.

**Step 2:** Start the restore process.

If the burner's identification has not been corrected, the following error message appears:



**Step 3:** Set the burner's identification on the basic unit to the correct value and save it.

**Step 4:** Start the restore process.

**Step 5:** Verify all parameters with the help of the AZL2... display and operator unit and check the correct functioning of the plant.

## Restrictions with restore

- **Incompatible parameter sets**

The current software version of the basic unit 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 off-line mode.

The following combinations for the LMV2... / LMV3... basic units are possible:

Basic unit version	Prerequisite for successful backup
V01.30	Backup data set is version V01.20 or V01.30
V01.37 V01.38	Backup data set is version V01.20...V01.38
From V01.40 to V01.70	Backup data set from version V01.40
From V01.80	Backup data set from version V01.30

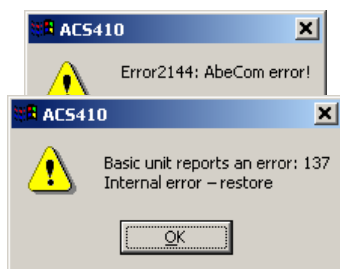
- **Different types of units**

It is not possible to deploy a parameter set from a unit with a different type reference to the basic unit.

- **Burner identification**

The burner identification of the data set to be restored must accord with the burner identification of the basic unit.

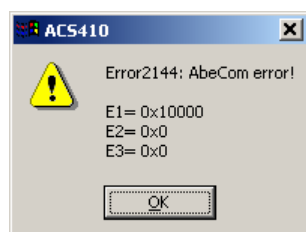
If the aforementioned restrictions are not observed, the following error messages appear:



After confirmation of the messages with **OK**, the restore process is aborted.



If the unit has already locked out, the following error message appears:



## 13 UDS operation

Close the OCI400 communication interface as described in chapter «Connecting 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.



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

Exception:

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

[illegible]

### Example: Report offline backup

# 14 List of error messages

## 14.1 Error messages *Error.....*

Error code	Display	Meaning	Recommended measure
Error2141	AbeCom initialization has failed!	Communication between basic unit and ACS410 is disturbed	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2142	AbeCom-ReqData() has failed!	Communication between basic unit and ACS410 is disturbed	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2143	AbeCom: Order number discrepancy!	Communication between basic unit and ACS410 is disturbed	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2144	AbeCom error!	Communication between basic unit and ACS410 is disturbed	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2145	AbeCom-SendData() has failed!	Communication between basic unit and ACS410 is disturbed	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2146	AbeCom: Time has elapsed – no communication with the basic unit	Communication between ACS410 and basic unit was cut for more than the timeout period	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «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 if the OCI400 is correctly attached to the basic unit – check wiring between OCI400 and ACS410
Error2149	UDS: GetParamTree has failed!	UDS reading error	Check if the OCI400 is correctly attached to the basic unit – 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 <i>Parameter</i> menu, enter a correct value for parameter "Burner identification"
Error2166	Restore not possible. Burner ID of burner control and that of backup file is different	If burner identification of the burner control and that of the backup file is different, execution of the restore process is not possible	Is the selected restore data set the correct one? On the <i>Parameter</i> menu, check the value given for "Burner identification"

Error code	Display	Meaning	Recommended measure
Error2167	Restore not possible. SW version of burner control and 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 basic unit. Refer to the ACS410 compatibility table in section «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 basic unit	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Error2173	User is not authorized to access this function		Log in on the correct user level
Error2174	Communication with the basic unit has been cut!		Log in again in the login dialog
Error2175	No basic unit connected to the OCI	ACS410 cannot receive data from the basic unit	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «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 <i>Parameters</i> menu, repeat the read access by clicking on the <b>Refresh</b> button. Restart of 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 in on 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
Error2208	E-mail subject not entered!	In mask "Settings → E-mail", no text has been entered on the <Subject> line	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 <i>Trigger</i> menu (under Trending → Trigger → <b>Definition</b> button)

Error code	Display	Meaning	Recommended measure
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 <i>Trigger</i> menu does not contain a trigger event. Trigger cannot be activated without this entry	Create at least one trigger event in the <i>Trigger</i> 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 basic unit
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














## 14.2 Error messages in alphabetical order

Error message	Meaning	Recommended measure
ACS version not correct. Use a current version of this program	ACS410 version used is incompatible with the basic unit	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
Burner ID invalid. Valid value required	Thus far, no value has been entered for parameter "Burner identification"	On the <i>Parameter</i> menu, enter a correct value for parameter "Burner identification"
Resetting cannot be started. Another operation requires exclusive access to the basic unit	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
No basic unit found. Check the connection and try again	ACS410 cannot receive data from the basic unit	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
Hard disk is full. Logging and trending cannot be saved		Provide additional storage space on the hard disk
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 basic unit. For this reason, check the correct setting on the basic unit (repeat the process with the help of the ACS410 or connect the AZL2...). If this error message is displayed repeatedly, reinstall the ACS410
Required position could not be approached!	Error occurred during operation of actuators	Repeat the process
Basic unit not connected	ACS410 cannot receive data from the basic unit	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Settings»)
No authorization for this parameter	Change of parameter on the current user level not possible	Log in on the correct user level

Error message	Meaning	Recommended measure
OCI not enabled	Use of a wrong type of OCI4... or technical component problem	Replace the OCI4... Always use approved types of OCI4... as per type summary in section «Data exchange via the OCI410»
OCI not found! Check the OCI410	ACS410 cannot receive data from the OCI410	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Set-tings»)
Serial interface (Port %d) cannot be initialized. Check the cable connection or the port number and try again	Serial interface cannot be initialized	Check wiring between basic unit and OCI4... interface. Restart the ACS410. Check interface settings of the ACS410 (refer to section «Set-tings»)
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
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
UnLockSeq delivers undefined output	Execution of reset was not possible	Repeat the resetting process
Version of basic unit is not suited for use with this ACS410 version	ACS410 version used is incompatible with the basic unit	Use an older ACS410 version. If functionality of the new ACS410 version is required, replace the basic unit

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

## 15 Legend of symbols

	Print: Click this button to open the menu for making the printer settings
	Settings: Click this button to open the menu for making the settings
	Lock: When the burner control is in operation, you can click this switch to start the locking sequence
	Unlock: If the burner control has locked out (lockout position), you can click this switch to start the resetting sequence
	Help: Click this button to open menu <i>Help topics for operating the ACS410 and documentation</i>
	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 <i>Trending</i> window
	Indicating active trigger handling in the <i>Trending</i> window
	Indicating the burner control's current operating state

## 16 Glossary

BCI	<b>B</b> urner <b>C</b> ommunication <b>I</b> nterface
DFÜ	<b>D</b> aten <b>f</b> ern <b>ü</b> bertragung (data exchange via the telephone line (Internet) over longer distances)
DSL	<b>D</b> igital <b>S</b> ubscriber <b>L</b> ine
GSM	<b>G</b> lobal <b>S</b> ystem for <b>M</b> obile Communications
ISDN	<b>I</b> ntegrated <b>S</b> ervices <b>D</b> igital <b>N</b> etwork
LAN	<b>L</b> ocal <b>A</b> rea <b>N</b> etwork
LME...	Microprocessor-based burner controls from Siemens for gas burners of small capacity
LMO...	Advanced microprocessor-based burner controls from Siemens for oil burners
LMV2... LMV3...	Microprocessor-based burner controls from Siemens for gas or oil burners of small to high capacity
MAPI	<b>M</b> essaging <b>A</b> pplication <b>P</b> rogramming <b>I</b> nterface (defined interface used to send e-mails from any Windows software)
OCI400	Optoelectronic interface module for communication with all types of LMO... and LMG... burner controls from Siemens
OCI410...	Interface used between ACS410 and basic unit
Trending	Program section used for the display and recording of activities performed by burner controls
UDS	<b>U</b> nidirektionale <b>S</b> chnittstelle (unidirectional interface)
USB	<b>U</b> niversal <b>S</b> erial <b>B</b> us

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