BCSoft

BCSoft version: 3.9.0 or higher

PC software for burner control units

Operating instructions

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1 Introduction

1.1 General

The **BCSoft** PC software was developed by Kromschröder to allow service work to be carried out on BCU/PFU units quickly and effectively.

The parameterization of the devices can be carried out very conveniently on a PC. The program can be used to provide support for laboratory and service personnel.

1.2 Mode of operation

BCSoft is used to visualize and parameterize Kromschröder devices:

- Display of the operating states of the burner control unit and burner
- Visualization of process data (plotter function)
- Logging of process data
- Parameterization and management of device configurations
- Evaluation of statistics functions

Data is exchanged between the device and **BCSoft** via a PC adapter. The device must be switched on for data to be transferred. Since the data transfer has no effect on operation of the device, process data can be logged with **BCSoft**.

Devices supported:

- BCU 4xx
- BCU 370
- IC 40
- PFU 7xx
- PFA
- BCU 570
- FCU 5xx

PC adapters supported:

- PCO 200 (USB)
- PCO 300 (BT)
- PC opto-adapter (RS232)

2 Installation

2.1 System requirements

A PC must satisfy the following requirements for **BCSoft** to be run on it:

- PC with 80486 processor or higher
- Win95/98/ME or Win NT4.0, Win2K, Win XP, Vista, Win 7, Win 8.x operating system
- Minimum 32 MB RAM
- 800x600 resolution graphics / small fonts
- Serial COM interface or USB port

2.2 Connecting the PC adapter

BCSoft can be used with various PC adapters. A different procedure is required depending on the PC adapter used:

PCO 200 (USB):

Connect the adapter to the PC and install the driver if necessary (see PCO 200 operating instructions)

PCO 300 (BT):

Pair the PC and PCO 300 using Bluetooth (see PCO 300 operating instructions)

PC opto-adapter (RS232):

No driver installation is required if the adapter is operated on a serial interface. If the adapter is operated on a USB-RS232 converter, the driver for the USB-RS232 converter must first be installed.

Note:

Refer to the BCSoft CD for installation instructions for the various adapters.

2.3 Software installation

- Connect the PC adapter to a device. Switch on the device.
- Place the installation CD in the CD-ROM drive.
- Open the **BCSoft\SETUP.exe** program on the CD to install it.
- Follow the setup instructions. The software package will now be installed on your PC.
- **BCSoft** asks you to configure the interface when you start it for the first time. For this purpose select the (virtual) serial interface you are using and click on *Connect*. Then close the window by clicking on *Close*.
- The communication between **BCSoft** and the connected device will then start automatically. The PC and a connected device will be displayed in the *Devices...* window.
- Double-clicking on the device in the *Devices...* window will start the visualization of the connected device.
- If no device is found, a message will be displayed after approx. 8 seconds (*No device found. Please check connection.*)
- If a connected device cannot be found, check that the PC adapter between the PC and device has been connected correctly. If no communication is possible

despite the PC adapter being connected correctly, check whether the correct (virtual) serial interface has been selected.

- Select the *Options**Interface**SCom2* sub-menu in the *Extras* menu. The interface dialogue will open: Click on *Disconnect*, select the (virtual) serial interface you are using and click on *Connect*. Then click on *Close*.
- Restart reading from the connected device by pressing function key **F3** or clicking on *Scan* in the *Extras* menu.
- The PC and a connected device will be displayed in the *Devices...* window.
- Double-clicking on the device in the *Devices...* window will start the visualization of the connected device.

3 Operation/Interface

When it is started, **BCSoft** automatically connects to the last saved interface and attempts to identify a connected device.

During this process, the *Devices...* window appears.

If a device is found, information about the connected device type and software version (firmware) will be displayed in the *Devices...* window.

Visualization of a connected device can be started by double-clicking on the device found in the *Devices...* window (see 0).

There are 4 different menu entries in the **BCSoft** menu bar:

- ***File (3.1)***
- ***Window (3.2)***
- ***Extras (3.3)***
- ***Info (3.4)***

Individual functions can be selected using the mouse or the keyboard (using hotkeys or function keys).

You can switch between open function windows using **F6**.

Press **ESC** to close the currently active window.

3.1 File menu

The *File* menu contains the following functions:

- ***Open (3.1.1)***
- ***Print (3.1.2)***
- ***Printer settings (3.1.3)***
- ***Close (3.1.4)***

3.1.1 Open

The *Open* menu contains a selection of different file types (graphics files, protocol files, parameter files and statistics files) which can be opened by selecting the corresponding menu item.

3.1.2 Print

When this menu item is selected, the currently active window in **BCSoft** is printed out.

Alternatively, you can also use **CTRL+P** to print out the active window.

3.1.3 Printer settings

A printer can be set up in this menu.

3.1.4 Close

This menu item closes **BCSoft**.

3.2 Window menu

This menu contains the familiar Windows functions for displaying the various open windows in **BCSoft**. Each open window can be selected, bringing it into the foreground.

3.2.1 Cascade

Open windows can be arranged in cascade using this menu item.

3.2.2 Arrange symbols

Minimized windows can be arranged to get a better overview using this menu item.

3.3 Extras menu

Various functions are available in the *Extras* menu:

- *Scan (3.3.1)*
- *Terminal (3.3.2)*
- *BCU/PFU/IC (3.3.3)*
- *DataLogger (3.3.4)*
- *Extra access (3.3.5)*
- *Options\Interface (3.3.6)*
- *Options\Language (3.3.7)*
- *Options\Password (3.3.8)*
- *Options\Change PIN BCU/PFU (BCU 370/PFU/PFS, PFA, FCU, BCU 5xx) (3.3.9)*

3.3.1 Scan

The identity of a connected device can be read using this menu item or function key **F3**. The *Devices...* window will open for this purpose, displaying a found device with details of its type and software version (firmware). If no device is found, the following message will appear: "*No device found. Please check connection*."

3.3.2 Terminal

This menu item is used to open the *Terminal* window. The communication between the PC software and connected device is visualized in this window.

This window has a menu which can be opened by right-clicking on it.xxx This allows you to specifically monitor a telegram for diagnostic purposes:

Click on *Clear* to delete the entire contents of the *Terminal* window.

Click on *Start* to start displaying telegrams.

Click on *Stop* to stop displaying telegrams.

Click on *Save* to save the entire contents of the *Terminal* window.

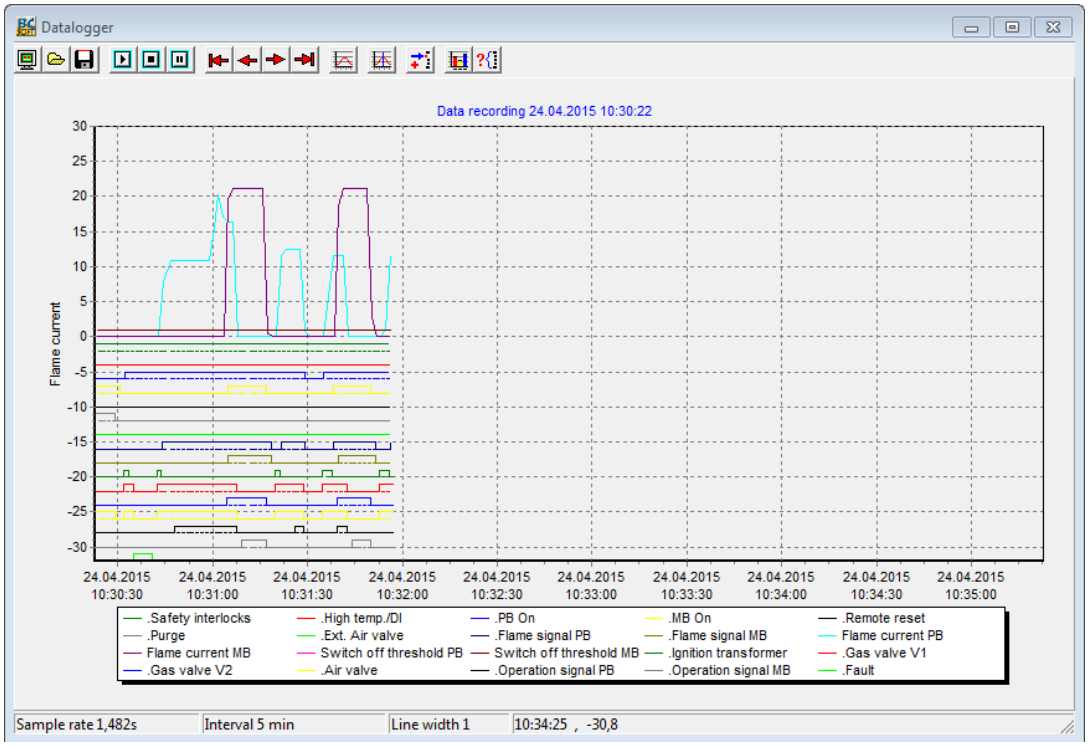
3.3.3 BCU/PFU/IC

If no device is connected, the offline visualization system can be started by double-clicking on it.xxx **No communication takes place.**

If a connected device has been found, this menu item will be disabled.

3.3.4 DataLogger

The menu item is used to open the data logger. The data logger features a large number of functions and can be used either offline or with a device connected to it.



The scanning rate set is displayed in the status bar. The display interval set is indicated beside it.

The line width in use is displayed further to the right.

In the right-hand section, the co-ordinates are displayed when the mouse cursor is moved inside the diagram.

The various functions can be selected using buttons. When the mouse cursor is moved over a button, a brief description of the button's function is displayed.

The following functions are available, working from left to right:

- *Print preview:* displays a preview of how the current diagram will be printed out.
- *Read protocol file:* reads a saved protocol file and displays it as a diagram.
- *Save protocol file:* saves the diagram displayed as a protocol file.
- *Save diagram:* saves the diagram displayed as a bitmap or Windows metafile.
- *Start*: starts data transmission.
- *Stop*: stops data transmission.
- *Break*: interrupts data transmission. Press again to restart data transmission.
- *Scroll 19 pages back*
- *Scroll 1 page back*
- *Scroll 1 page forward*
- *Scroll 10 pages forward*
- *Sample rate*: the scanning rate is set here.
- *Interval*: the display interval is set here.
- *Select data*: starts the data selection dialogue. All connected devices are shown with the values which can be displayed.
- *Start ... Stop*: displays the complete diagram.
- *Min...Max*: scaling the Y-axis.

3.3.5 Extra access*

This menu item enables you to transfer a parameter file prepared by Kromschröder to the connected device. The menu item is displayed dynamically. (3.3.8)

3.3.6 Options\Interface\SCom2 or ChipCom

BCSoft supports the SCom2 and ChipCom protocols. The protocol is changed automatically if the connected device uses a different protocol to the one currently set in **BCSoft**.

This menu item enables you to set the interface you wish to use. You may have to click on *Disconnect* to enable you to make changes.

The following settings can be made:

- *Com port*
- *USB*
- *BT (Bluetooth)*
- *Hardware echo*

If PCO 200 is used, the virtual serial interface must be set in *Com port*. *Hardware echo* must **always** be selected.

If a PC opto-adapter is used, the serial interface must be set in *Com port*.

If the opto-adapter is connected to a USB RS232 converter, select *USB* and enter the virtual serial interface of the converter in *Com port*.

Hardware echo must **always** be selected.

If PCO 300 is used, the *BT* option must be selected. The virtual serial interface of the PCO 300 must be set in *Com port*.

Refer to the operating manual for further instructions about the PCO 300.

Hardware echo is automatically disabled.

When the protocol settings have been made, click on *Connect*.

The dialogue can be closed by clicking on *Close*.

3.3.7 Options\Language

The language in which **BCSoft** is to be operated can be set using this menu item. The following languages are available:

- German
- English
- US English
- French
- Spanish
- Italian

3.3.8 Options\Password

This menu item enables you to access the various user levels in **BCSoft**. The user level is displayed in the header line of **BCSoft**.

The following user levels are available in **BCSoft**:

- *Custom Version* (read-only access to all parameters and statistics).
- *Service Version* (like *Custom Version*, but also authorized to write adjustable parameters and reset statistics).
- *Profi Version* (like *Service Version*, with additional *Extra access* function).
- *Laboratory Version* (like *Profi Version*, but also authorized to write safety parameters) **PC Safety Key required!**

If an invalid password is entered, **BCSoft** will automatic revert to the *Custom Version*.

3.3.9 Options\Change PIN BCU/PFU (depending on device)

This menu item enables you to enter a PIN into the device. The PIN consists of a four-digit number.

Parameters in the BCU 370, PFU/PFS, PFA, BCU 5xx and FCU 5xx can only be changed after entering the PIN. If a PC Safety Key is used in the Laboratory Version, there is no need to enter a PIN.

This menu item is enabled from the *Service Version* user level.

3.4 Info menu

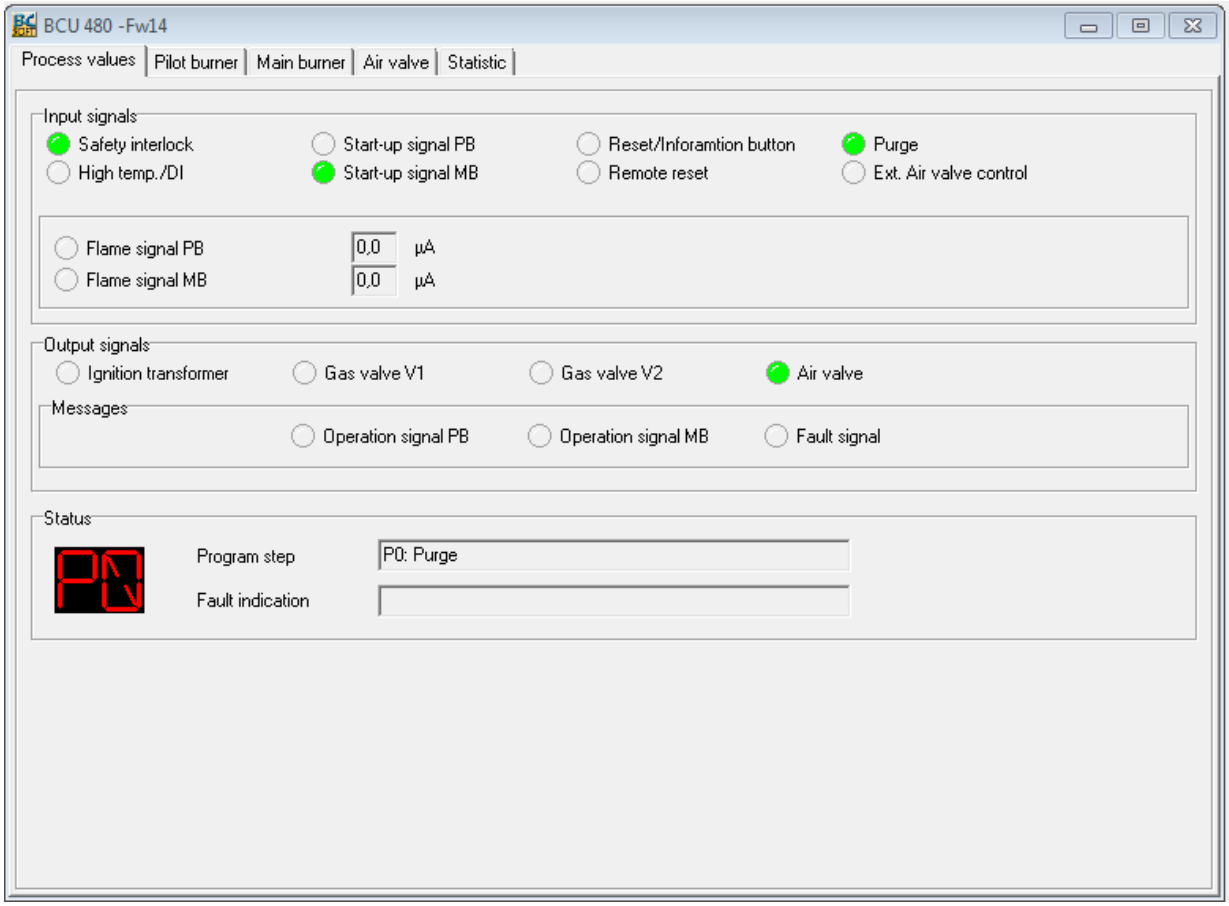
This menu contains information about the manufacturer and the software version.

3.4.1 About

This window contains information about the **BCSoft** version. If you have any questions to the manufacturer about **BCSoft**, you should always quote the version of the software you have installed.

4 Device visualization

A connected device is visualized in a device-specific window.



The first time the various tabs are opened, data is read from the device automatically.

Clicking on *Read* enables the current data to be read from the device.

To change parameters, select the required parameter using the keyboard or mouse and then edit it.

When you move the mouse cursor onto the editing field for a parameter, the parameter limits are displayed.

Click on *Write* (see Options\Password section) to enter changed parameters into the device.

After making changes, always check that the parameters have been saved correctly in the device by reading them again.

Remember that the parameterization will affect the safe functioning of your system.

The parameters set can also be saved in a file (4.3).

4.1 List of device-specific windows

Depending on the device type and construction stage of the connected device, the display will contain tabs for process values, parameters and statistics.

4.1.1 BCU 4xx/PFU to construction stage D (up to firmware 12):

- *Process values (4.2.1)*
- *Adjustable parameters (4.2.8)*
- *Fixed parameters (4.2.9)*
- *Statistics (4.2.3)*
- *Plotter (4.2.10)*

4.1.2 BCU 4xx/PFU from construction stage E (from firmware 13):

- *Process values (4.2.1)*
- *Burner (4.2.11)*
- *Main burner (4.2.11) (* BCU 480 and PFU 798 only)*
- *Air valve (4.2.12) (* not BCU 440 or BCU 460)*
- *Statistics (4.2.3)*

4.1.3 IC 40 of construction stage A (firmware 01)

- *Process values (4.2.1)*
- *Adjustable parameters (4.2.8)*
- *Analog parameters (4.2.20) (* analogue version only)*
- *Works settings (4.2.22)*
- *Statistics (4.2.3)*
- *Initial operation (4.2.23)*

4.1.4 IC 40 of construction stage B (firmware 02):

- *Process values (4.2.1)*
- *Operating behaviour (4.2.19)*

- *Inputs/Outputs (4.2.21)*
- *Works settings (4.2.22)*
- *Statistics (4.2.5)*
- *Statistics customer (4.2.4)*
- *Initial operation (4.2.23)*

4.1.5 PFU/PFS:

- *Process values (4.2.1)*
- *Parameter Burner 1 (4.2.11)*
- *Parameter Burner 2 (4.2.11) (PFU 780)*
- *Parameter Air control (4.2.12) (PFU 760L, 780)*
- *Statistics (4.2.5)*
- *Operator statistics (4.2.4)*
- *Fault history (4.2.7)*
- *Hardware parameters (4.2.17)*

4.1.6 PFA 7xx:

- *Process values (4.2.1)*
- *Parameters Manual operation (4.2.2)*
- *Statistics (4.2.5)*
- *Operator statistics (4.2.4)*
- *Fault history (4.2.7)*
- *Hardware parameters (4.2.17)*

4.1.7 BCU 370:

- *Process values (4.2.1)*
- *Burner (4.2.11)*
- *Control/Air control (4.2.12)*
- *Statistics (4.2.5)*
- *Operator statistics (4.2.4)*
- *Fault history (4.2.7)*

4.1.8 BCU 5xx:

- *Process values (4.2.1)*
- *Parameters Burner (4.2.11)*
- *Parameters Limits (4.2.13)*
- *Parameters Air control (4.2.12)*
- *Parameters TC (4.2.15)*
- *Parameters Common (4.2.16)*
- *Operator statistics (4.2.4)*
- *Statistics All (4.2.5)*
- *Fault history (4.2.7)*
- *Statistics Power module (4.2.6)*
- *Hardware parameters (4.2.17)*

4.1.9 FCU 5xx:

- *Process values (4.2.1)*
- *Parameters Limits (4.2.13)*
- *Parameters Temperature supervision (4.2.14)*
- *Parameters Air control (4.2.12)*
- *Parameters TC (4.2.15)*
- *Parameters Common (4.2.16)*
- *Operator statistics (4.2.4)*
- *Statistics All (4.2.5)*
- *Fault history (4.2.7)*
- *Statistics Power module (4.2.6)*
- *Hardware parameters (4.2.17)*

4.2 Tabs

The various functions of the devices are divided into tabs.

4.2.1 Process values

This tab displays the current status of the device. The status of all inputs and outputs and analogue values are displayed and updated constantly for this purpose. In addition, the current program status and, if a fault has occurred, a fault message will be displayed.

The data displayed is continually updated as long as the tab remains active.

4.2.2 Manual operation (IC 40/PFA only)

Clicking on Manual operation opens a separate window.

This window can be used to enable and disable Manual mode.

Depending on the device, in Manual mode you can either simulate inputs or position the actuator (IC 40) directly. The positions for high-fire rate, intermediate positions and low-fire rate can be transferred straight to the IC 40.

4.2.3 Statistics

This tab contains the statistical data saved in the device relating to the number of faults which have occurred, the operating hours and the operating cycles.

Click on the *Read* button to read and display the statistical data for the connected device.

Clicking on the *Reset* button resets the number of faults which have occurred to 0.

The operating hour and operating cycle counters cannot be reset.

4.2.4 Customer/Operator statistics

This tab contains the statistical data saved in the device relating to the number of faults which have occurred, the operating hours and the operating cycles.

Click on the *Read* button to read and display the statistical data for the connected device.

Clicking on the *Reset* button resets the number of faults which have occurred and the number of operating cycles to 0.

4.2.5 Statistics (overall)

This tab, together with the Customer/Operator statistics tab, contains the statistical data saved in the device relating to the total number of faults which have occurred, the operating hours and the operating cycles.

Click on the *Read* button to read and display the statistical data for the connected device.

The statistical data cannot be reset.

4.2.6 Statistics Power module (BCU 5xx, FCU 5xx)

The statistical data stored in the device for the number of operating cycles by the power module are display in this tab.

Click on the *Read* button to read and display the statistical data for the connected device.

The operating cycle counter cannot be reset.

4.2.7 Fault history

This tab contains the fault history saved in the device. The last 10 faults are display with a time stamp.

Click on *Read* to read and display the fault history for the connected device.

Clicking on *Reset* resets the history.

4.2.8 Adjustable parameters (BCU 4xx/PFU to construction stage D only)

Parameters which have no relevance to safety can be managed and edited in this tab.

4.2.9 Fixed parameters (BCU 4xx/PFU to construction stage D only)

Parameters which are relevant to safety can be managed in this tab.

These parameters have been fixed by Kromschröder and characterize the device's properties.

4.2.10 Plotter (BCU 4xx/PFU to construction stage D only)

The plotter is opened in this tab.

The plotter has the following functions:

- *Select data*: opens the data selection mask.
- *All data*: this option selects all the measured variables that can be selected. Alternatively, individual measurements can be selected.
- *Sample rate*: the sampling rate can be set between 0.5 and 60 seconds here.
- *Temporary file*: this option saves the logged data cyclically in a temporary file (Protocol.tmp). In the event of a PC crash, this means that the data is not lost.
- *Start*: starts the data transfer between the plotter and device.
- *Stop*: stops the data transfer between the plotter and device.
- *Save data*: saves the logged data in a protocol file.
- *Save graphic*: saves the currently displayed diagram as a bitmap or WMF.

4.2.11 Parameters Burner

Depending on the device, there are tabs for burners (1) and main burners (burner 2). These are displayed and hidden dynamically by the system.

The parameters for the burner (safety parameters and parameters which are not relevant to safety) can be managed and edited in the tabs.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

The PIN does not have to be entered for BCU 4xx and PFU 778/798.

4.2.12 Parameters Air control

The parameters for air control/air valve and air flow monitoring can be managed and edited in this tab. Depending on the device's range of functions, the tab is displayed and hidden dynamically by the system.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

The PIN does not have to be entered for BCU 4xx and PFU 778/798.

4.2.13 Parameters Limits (BCU 5xx, FCU 5xx)

Parameters for the limits can be managed and edited in this tab.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

4.2.14 Parameters Temperature supervision (FCU 5xx)

Parameters for temperature monitoring can be managed and edited in this tab. Depending on the device's range of functions, the tab is displayed and hidden dynamically by the system.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

4.2.15 Parameters TC (BCU 5xx, FCU 5xx)

The parameters for the TC can be managed and edited in this tab. Depending on the device's range of functions, the tab is displayed and hidden dynamically by the system.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

4.2.16 Parameters Common (BCU 5xx, FCU 5xx)

Parameters for general configuration can be managed and edited in this tab.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

4.2.17 Hardware parameters

Hardware parameters can be managed in this tab.

These parameters have been fixed by Kromschröder and characterize the device's properties.

4.2.18 Parameters Manual mode (PFA)

Parameters which are relevant to PFA Manual mode can be managed and edited in this tab.

Before entering the parameters, the user is asked to enter the PIN (3.3.9).

4.2.19 Operating behaviour (IC 40)

The parameters for operating characteristics, positions, times and switching points can be managed and edited in this tab.

4.2.20 Analog parameters (IC 40: analogue version only)

Analogue parameters can be managed and edited in this tab.

4.2.21 Inputs/Outputs (IC 40)

Input and output parameters can be managed and edited in this tab.

4.2.22 Works settings (IC 40)

Factory default parameters can be managed in this tab.

These parameters have been fixed by Kromschröder and characterize the device's properties.

4.2.23 Initial operation (IC 40)

The IC 40 can be calibrated in this tab.

4.3 Saving and loading data records

4.3.1 Parameter file

The parameters in a tab can be saved as a parameter file. Click on *Save* for this purpose.

A parameter file can be loaded into the appropriate tab by clicking on *Load* to transfer it into the device if necessary.

Please note the following if the same parameter file is to be loaded into multiple devices in sequence:

After the PC adapter has been connected to a new device, a scan (Extras\Scan or F3 key) must first be conducted. Only then may the parameter file be loaded so that it can be transferred to the connected device.

4.3.2 Protocol file

Use the *Protocol file Save/Print* function in the *Statistics* tab to save the parameters and statistical data in a file. Additional information can be attached to the file using an entry mask.

The *Save/Print* button is enabled when all the tabs have been opened.