

8 PARAMETERIZATION

8.1 Parameterizing options

8.1.1 Parameterization options based on the communication protocols used

Many fieldbuses currently in use do not have sufficient performance for parameterization of the I.S. 1 system.

For fieldbuses with low performance (example: ModBus), the ServiceBus must be used for parameterization.

When using suitable fieldbuses (example: Profibus) the use of the ServiceBus for parameterization is not required.

Parameterizing options

The following parameterization options are possible for the I.S. 1 system:

- Via the display and operating interface of the CPU & Power Module (setting the fieldbus address)
- Via the ServiceBus
- Via various fieldbuses (e.g. with Profibus) with the aid of the GSD file

Possible parameterization interfaces

The parameterizing options are shown in *Fig. 8-1*:

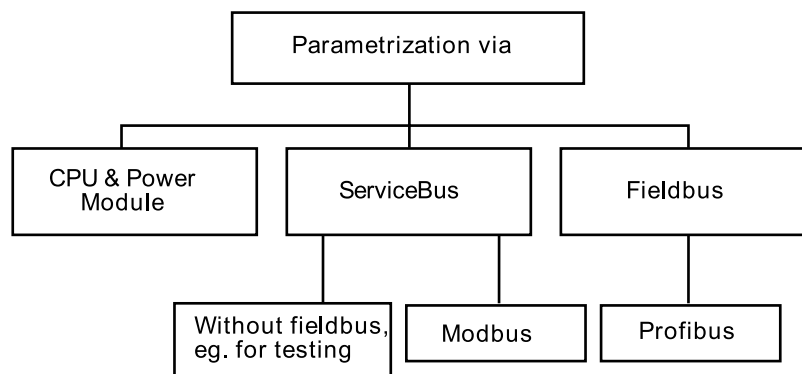


Fig. 8-1 Parameterization options via various interfaces

OPERATING INSTRUCTIONS FOR THE I.S. 1 SYSTEM

8.1.2 Performance of connectable fieldbuses

| Function | Modbus | Profibus DP | ServiceBus |
|---|-----------|---------------------|------------|
| Data transfer with a speed of | 38 kBit/s | 1.5 MBit/s | 9.6 kBit/s |
| Configure I.S. 1 | No | Yes | Yes |
| Load the modules with parameters | No | Yes | Yes |
| Cyclically read/write input and output data | Yes | Yes | No |
| Transfer alarm and diagnostic data | Yes | Yes | Yes |
| Transfer HART commands to/from HART field devices | No | In pre- paration | Yes |
| Read input data, set outputs (forced) for tests | -- | -- | Yes |

Tab. 8-1 Functionality of connectable fieldbuses

8.2 Menu structure and operation of the input keys

The fieldbus address is entered in the CPU & Power Module with the help of the display and the *<up>* and *<down>* keys.

8.2.1 Display and operating keys

The operating panel of the CPU & Power Modules consists of two keys and a display (see Fig. 8-2).

Both keys react differently to long or short pressure.

Holding both keys down for a longer period initiates an additional functionality (*<ENTER>*).

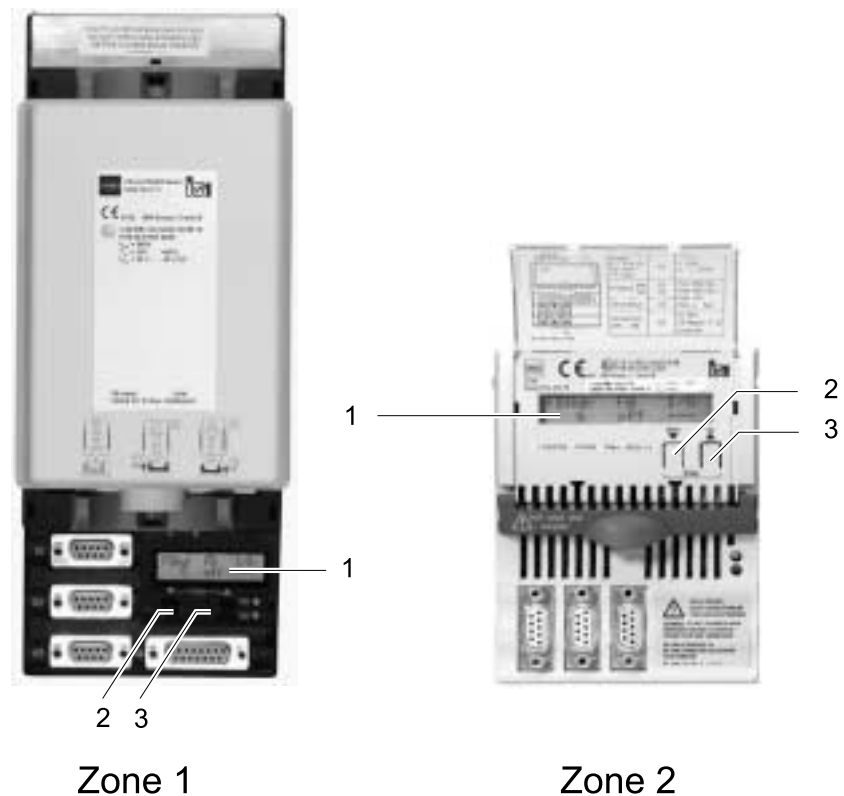


Fig. 8-2 Display and operating keys of the CPU & Power Module for Zone 1 (Type 9440/12) and for Zone 2 (Type 9440/15, at an opened cover)

- 1 Display
- 2 "Down" key
- 3 "Up" key

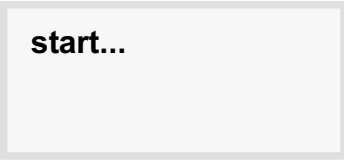
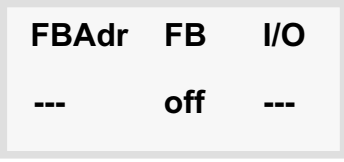
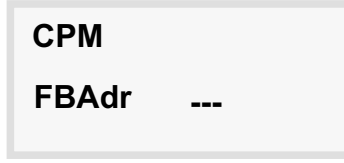
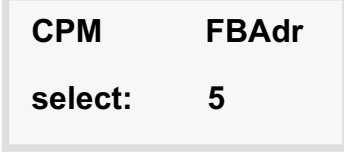
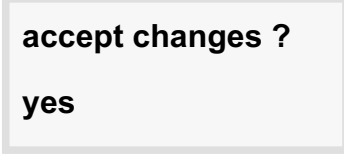
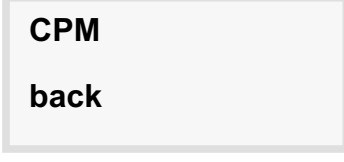
OPERATING INSTRUCTIONS FOR THE I.S. 1 SYSTEM

8.2.2 Function of operating keys

| Input | Function |
|---|--|
| <Up> key short press | <ul style="list-style-type: none">• Modifies an input value or• Modifies a menu item |
| <Up> key long press | <ul style="list-style-type: none">• Automatic up |
| <Down> key short press | <ul style="list-style-type: none">• Modifies an input value or• Modifies a menu item |
| <Down> key long press | <ul style="list-style-type: none">• Automatic down |
| <ENTER> Simultaneous <Up> and <Down> long press | <ul style="list-style-type: none">• Calls up the selected function in the menu or• Toggles from main view to menu |

Tab. 8-2 Function of the CPU & Power Module operating keys

8.2.3 Overview of menu items

| Menu items | Display views | Meaning |
|--------------------|---|---|
| "Startup" |  | Initialization phase |
| "Main view" |  | Displays normal operation in delivery condition. For further information, see Chapter 8.2.4. |
| "Fieldbus address" |  | The fieldbus address can be set using this menu. |
| "Select" |  | Setting the number for the fieldbus address. |
| "Accept" |  | Saving or rejecting the set fieldbus address. |
| "Back" |  | Return to main view. |

Tab. 8-3 Menu items and a selection of the relevant display views

8.2.4 Main view

The main view shows an overview of the various information regarding the system:


- Fieldbus address
- Communication at the fieldbus
- Status of the I/O modules

The diagram shows the main view without a set fieldbus address:

| FBAAdr | FB | I/O |
|--------|-----|-----|
| --- | off | --- |

The status displays here indicate:

- Fieldbus address not yet set (---)
- No connection to fieldbus (off)
- I/O modules are not cyclically addressed

| | |
|---|---|
|  | If no fieldbus address has been set, the configured address must be input. This is the case after the first start-up. Use <ENTER> to go directly to the menu where the fieldbus address can be set (see Chapter 8.3). |
|---|---|

8.2.5 Menu when fieldbus address is first set

The display messages are divided into:

- Power Up (start-up)
- Normal operation (main view)
- Input of fieldbus address

If the fieldbus address is modified, the modifications are confirmed by the query <accept changes yes/no>.

Navigation structure

The navigation structure for setting the fieldbus address is shown in *Fig. 8-3*:

No information is indicated on the display before the power supply has been switched on (see navigation structure, first display (1)).

After it has been switched off, the initialization phase of the CPU & Power Module starts. The "start..." message is indicated on the display (see navigation structure, second display (2)).

The display changes to the subsequent displays when the keys <ENTER>, <up> or <down> are pressed. This change is represented in *Fig. 8-3* by arrows.

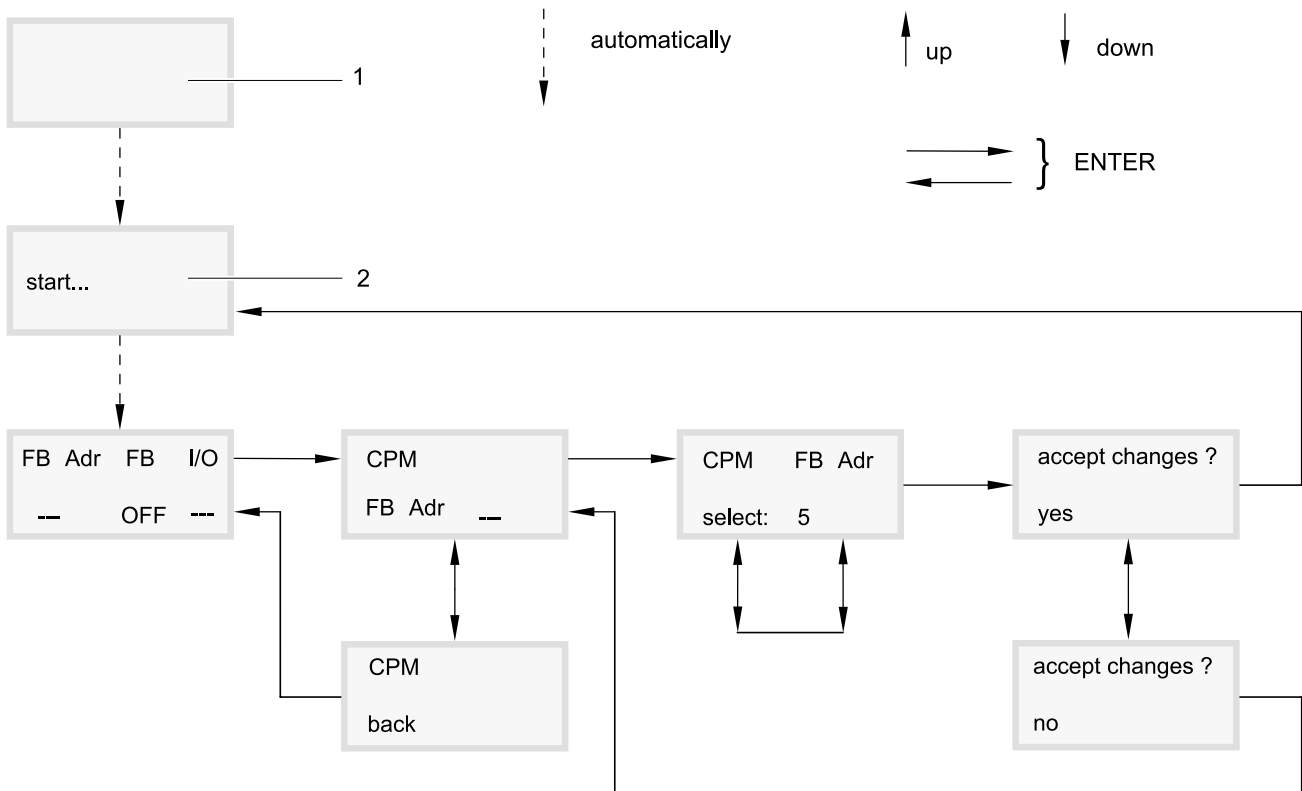


Fig. 8-3 Navigation structure of the CPU & Power Module software

- 1 Display in switched-off state
- 2 Display after the power supply has been switched on, initialization phase

8.3 Setting the fieldbus addresses on the CPU & Power Module



The fieldbus addresses can only be changed when the fieldbus is inactive or disconnected. In this case "FB off" is displayed.

Menu "Fieldbus address"

Starting from the main view (see Chapter 8.2.4) switch to the menu "Fieldbus address":

➤ Press <ENTER>.

The display switches from the main view to the menu "Fieldbus address". One of the three screenshots shown in *Tab. 8-4* will appear on the display:

| Display views in the menu "Fieldbus address" | Meaning |
|--|--|
| <p>CPM FBAdr ---</p> | CPM ready to accept the new fieldbus address. Fieldbus address not yet input (delivery state from factory). |
| <p>CPM FBAdr 0</p> | CPM ready to accept the new fieldbus address. In this example the fieldbus address is "0". |

Tab. 8-4 Display views in the menu "Fieldbus status"

Menu "Select"

To switch from the menu "Fieldbus address" (see *Tab. 8-4*) to the display "Select":

➤ Press *<ENTER>*.

If the fieldbus is inactive or not connected, the menu jumps to the "Select" display. The display shows:

| | |
|----------------|---------------|
| CPM | FB Adr |
| select: | 0 |

Address setting

The fieldbus address can be set by pressing the keys *<up>* or *<down>* briefly. Short presses increase or decrease the address by 1. Long presses automatically increase or decrease the address.

➤ To increase the value, press the key *<up>*.

The number is shown on the display.

➤ To decrease the value, press the key *<down>*.

The number is shown on the display.

When the required number is reached:

➤ Press *<ENTER>*.

The corresponding number is assigned to the fieldbus address and temporarily stored. The menu changes to the "Accept" display. The display shows:

| |
|-------------------------|
| accept changes ? |
| yes |

OPERATING INSTRUCTIONS FOR THE I.S. 1 SYSTEM

Saving the address

If the address is to be saved:

➤ Press *<ENTER>* .

The CPU & Power Module starts up again. After the start-up the main window is displayed with the field address which has been set.

If the fieldbus is active (FB OK), the CPM is not ready to accept a new fieldbus address. The display shows:



CPM FBAdr
no change

The fieldbus must be deactivated in order to enter a new fieldbus address.

Canceling the address modification

If the address is not to be saved:

➤ Press the *<down>* key.

The display shows:



accept changes ?
no

➤ Press *<ENTER>* .

The newly set address will not be saved. The display then shows "---" or the previously set address.

8.4 Parameterization via the ServiceBus

The software package "I.S. Wizard" by R. STAHL offers the user many options for rapidly and simply operating and maintaining I.S. 1 systems and field stations.

The ServiceBus can be used to:

- Configure field stations
- Read back configurations
- Parameterize the CPU & Power Module and I/O modules
- Read inputs, write outputs
- Read and interpret diagnostic data for the three levels:
 - Field station
 - Module
 - Signals
- Read information (e.g. module type, module revision)

8.4.1 Advantages of the PC Software "I.S. Wizard"

Simulation

A complete test of a field station can be carried out without a functioning fieldbus. "I.S. Wizard" can be operated at the ServiceBus simultaneously with the fieldbus (reading access).

Existing systems can be integrated

"I.S. Wizard" permits operation of I.S. 1 field stations together with VOS 200 field stations on a ServiceBus so that even existing VOS 200 systems can be extended with I.S. 1 stations.

ActiveX

Open interfaces with OPC (OLE for process control) and ActiveX permit the integration of I.S. Wizard in control systems or Office applications.

Default values

The CPU & Power Module and I/O modules already have suitable default settings for all parameters. However, the parameters can be modified via the ServiceBus using a laptop or PC.

OPERATING INSTRUCTIONS FOR THE I.S. 1 SYSTEM

8.4.2 Controllability of modules and signals



A detailed description of the software can be found in the "I.S. Wizard" operating instructions.

Individual field stations and modules can be clicked on in the structure tree (Fig. 8-4) down to the signal level.

Clicking on a module icon opens an input form where the module data can be entered.

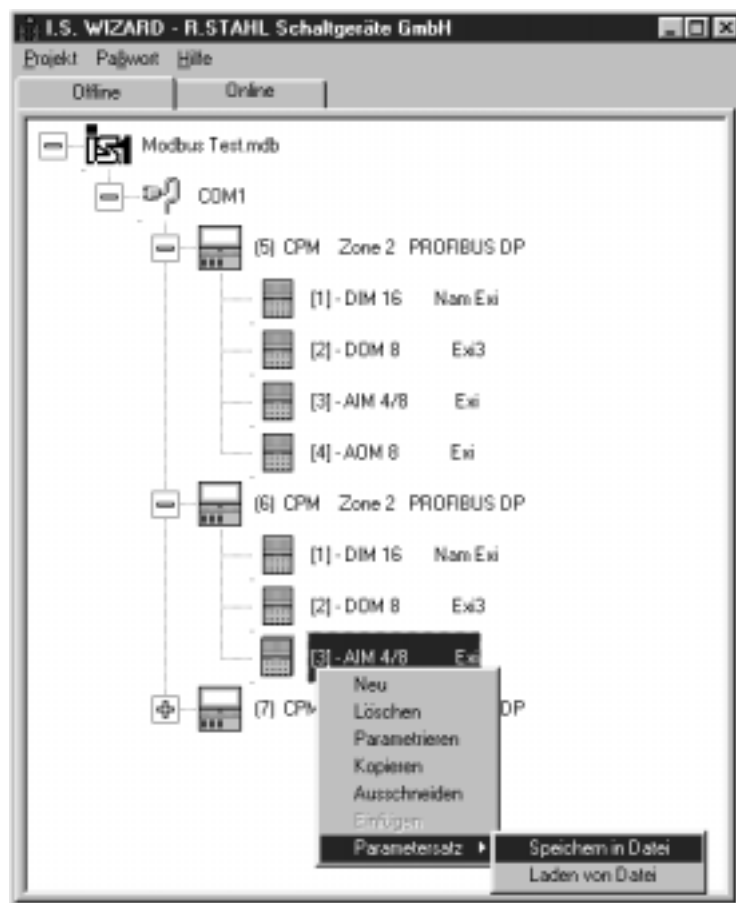



Fig. 8-4 Representation of each individual module using the software "I.S. Wizard"

Additional functions

In addition, the "I.S. Wizard" software provides the following functions:

- Creating new projects
- Activating/deactivating signals
- Modifying and setting parameters
- Printing out the system configuration
- Printing out labels for the modules

8.5 Configuration and parameterization of field stations via Profibus


| | |
|---|---|
|  | <p>Complete descriptions of the configuration and parameterization options can be found in the operating instructions "Profibus DP for I.S. 1".</p> |
|---|---|

The Profibus is a very high performance fieldbus. Because of the high performance of the Profibus, the I.S. 1 field stations connected to the Profibus can be configured and module-specific parameters set via the Profibus master. The necessary data for this is contained in the GSD file. The precise steps for parameterizing the system depend on the field-bus-specific software used.

8.5.1 Requirements

The following components must be available for the configuration and parameterization of a fieldbus via the Profibus:

- Configuration software for Profibus master
- Profibus master
- GSD file (electronic data sheet of the I.S. 1 station)

| | |
|---|---|
|  | <p>If the field station is to be parameterized via the fieldbus interface, the fieldbus address must first be set on the CPU & Power Module. See Chapter 8.3.</p> |
|---|---|

8.5.2 Intended condition of the I.S. 1 system after completing configuration and parameterization

The following criteria must be met after completion of configuration and parameterization:

- All data (configuration, parameters) of the field stations, modules and signals are acquired by the configuration software.
- The I.S. 1 system is not yet started, no data exchange is taking place.

When the Profibus is started-up, the configuration data and parameters are transferred from the Profibus master to the field stations and checked. Only then will the cyclical data exchange for inputs and outputs begin.

OPERATING INSTRUCTIONS FOR THE I.S. 1 SYSTEM
