

Type ME23

Fieldbus gateway bÜS to Industrial Ethernet
Feldbusgateway bÜS zu Industrial Ethernet
Passerelle bus de terrain bÜS vers Ethernet industriel



Operating Instructions

Bedienungsanleitung
Manuel d'utilisation

We reserve the right to make technical changes without notice.
Technische Änderungen vorbehalten.
Sous réserve de modifications techniques.

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Fieldbus gateway bÜS to Industrial Ethernet

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1 THE OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions in a location which is easily accessible to every user and make these instructions available to every new owner of the device.

Important safety information!

Read the operating instructions carefully and thoroughly. Study in particular the chapters entitled [“2 Intended use”](#) and [“3 Basic safety instructions”](#).

- ▶ The operating instructions must be read and understood.

1.1 Symbols



DANGER

Warns of an immediate danger.

- ▶ Failure to observe the warning will result in a fatal or serious injury.



WARNING

Warns of a potentially dangerous situation.

- ▶ Failure to observe the warning may result in serious injuries or death.



CAUTION

Warns of a possible danger.

- ▶ Failure to observe this warning may result in a moderate or minor injury.

NOTE

Warns of damage to property.

- Failure to observe the warning may result in damage to the device or the equipment.



Indicates important additional information, tips and recommendations.



Refers to information in these operating instructions or in other documentation.

- ▶ Designates instructions for risk prevention.
- Designates a procedure which you must carry out.
- ✓ Indicates a result.

1.2 Definition of the term "device"

→ In these instructions, the term "device" always refers to fieldbus gateway bÜS to Industrial Ethernet, Type ME23.

2 INTENDED USE

Non-authorized use of the Type ME23 may be dangerous to people, nearby equipment and the environment.

The fieldbus gateway Type ME23 is used as fieldbus converter between bÜS and Industrial Ethernet.

- Use according to the authorized data, operating conditions and conditions of use specified in the contract documents and operating instructions.

Observe the following when using the device/product:

- Do not use outside.
- Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- Use only when in perfect condition and always ensure proper storage, transportation, installation and operation.
- Use only as intended.

3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not make allowance for any

- contingencies and events which may arise during the assembly, operation, and maintenance.
- local safety regulations – the operator is responsible for observing these regulations, also in relation to the installation personnel.



General hazardous situations.

To prevent injuries:

- ▶ Do not make any internal or external changes on the device and do not subject it to mechanical stress.
- ▶ Secure the system from unintentional actuation.
- ▶ Only trained technicians may perform installation and maintenance work.
- ▶ After an interruption in the power supply, ensure that the process is restarted in a controlled manner.
- ▶ Observe the general rules of technology.

NOTE

Electrostatic sensitive components/modules.

The device contains electronic components which react sensitively to electrostatic discharge (ESD). Contact with electrostatically charged persons or objects are hazardous to these components. In the worst case scenario, they will be destroyed immediately or will fail after start-up.

- Observe the requirements in accordance with EN 61340-5-1 to minimize or avoid the possibility of damage caused by sudden electrostatic discharge.
- Do not touch electronic components while the supply voltage is switched on.

4 GENERAL INFORMATION

4.1 Contact address

Germany

Bürkert Fluid Control Systems
Sales Center
Christian-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. + 49 (0) 7940 - 10 91 111
Fax + 49 (0) 7940 - 10 91 448
E-mail: info@buerkert.com

International

Contact addresses can be found on the final pages of the printed operating instructions.

And also on the Internet at: www.burkert.com

4.2 Warranty

The warranty is only valid if the Type ME23 is used as intended in accordance with the specified application conditions.

4.3 Information on the Internet

The operating instructions and data sheets for Type ME23 can be found on the Internet at: www.burkert.com

5 DESCRIPTION OF THE DEVICE

The fieldbus gateway Type ME23 is used as fieldbus converter between büS and Industrial Ethernet.

Application area:

Process values can be exchanged between participants of fieldbus 1 and fieldbus 2.

Device type	Fieldbus 1	Fieldbus 2
ME23	büS	PROFINET
ME23	büS	EtherNet/IP
ME23	büS	Modbus TCP
ME23	büS	PROFIBUS
ME23	büS	EtherCAT

Table 1: Type ME23 application area



The "Bürkert Communicator" software is required for parameterizing Type ME23.
For description see chapter ["9.2 Configuration and parameterization of the Type ME23"](#).

5.1 Possible combinations

The fieldbus gateway Type ME23 und ME2X - System Control Unit can only be operated within a system in combination with additional modules. For setting up a system comprising several modules, please contact your Bürkert sales office.

In the following, a system in minimum combination is shown as example.

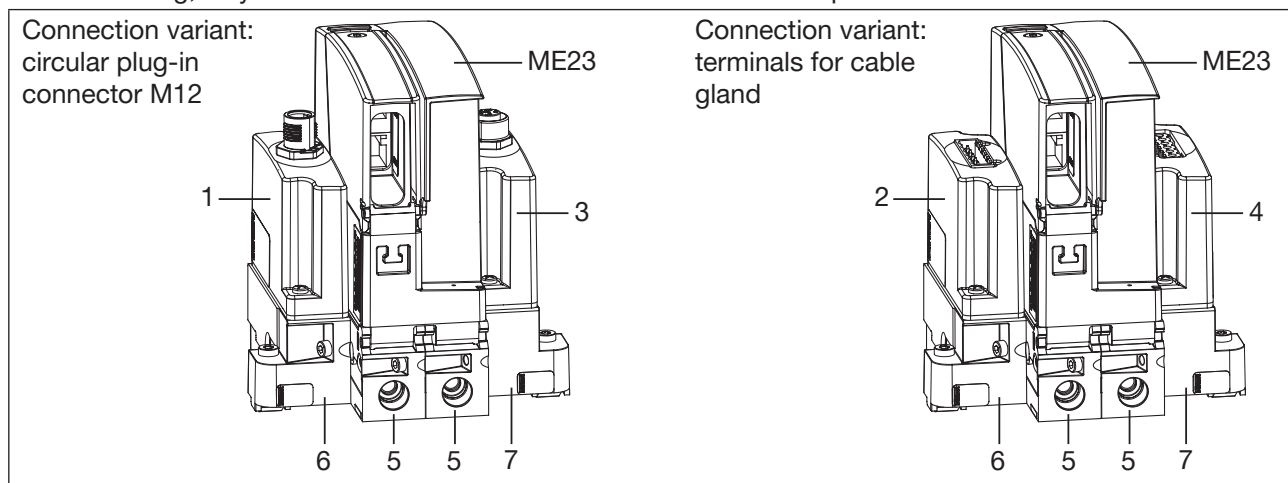


Figure 1: Example of a system: Minimum combination of Type ME23 with additional modules

Module	Designation	Types	Order no.
1	Input module (connection variant: circular plug-in connector M12)	ME29	00564825
2	Input module (connection variant: terminals for cable gland)	ME29	00564826
3	Output module (connection variant: circular plug-in connector M12)	ME29	00564827
4	Output module (connection variant: terminals for cable gland)	ME29	00564828
5	Backplane for Type ME23	BEF1	00564841
6	Backplane, left	BEF1	00564844
7	Backplane, right	BEF1	00564846

Table 2: Modules of a possible combination with Type ME23

6 TECHNICAL DATA

6.1 Conformity

The fieldbus gateway of Type ME23 conforms to the EC Directives according to the Declaration of Conformity (if applicable).

6.2 Standards

The applied standards, which are used to demonstrate compliance with the EC Directives, are listed in the EC type test certificate and/or the EC Declaration of Conformity (if applicable).

6.3 Operating conditions



WARNING

Risk of injury

Malfunction if used outside.

- ▶ Do not use Type ME23 outdoors and avoid heat sources which may cause the permissible temperature range to be exceeded.

Permitted temperatures

Ambient temperature: 0 ... +50 °C

6.4 Specifications Industrial Ethernet

PROFINET IO

Topology recognition	LLDP, SNMP V1, MIB2, physical device
Minimum cycle time	10 ms
IRT	not supported
MRP (Media Redundancy)	MRP client is supported
Additional supported features	DCP, VLAN- and priority tagging, Shared Device
Transmission speed	100 MBit/s
Data transport layer	Ethernet II, IEEE 802.3
PROFINET IO specification	V2.3

AR (Application Relations) The device can simultaneously process up to 2 IO-ARs, 1 Supervisor AR and 1 Supervisor DA AR.

ETHERNET IP

Predefined standard objects

Identity Object (0x01)
Message Router Object (0x02)
Assembly Object (0x04)
Connection Manager (0x06)
DLR Object (0x47)
QoS Object (0x48)
TCP/IP Interface Object (0xF5)
Ethernet Link Object (0xF6)
supported
supported
10 and 100 MBit/s
Half Duplex, Full Duplex, Auto-Negotiation
MDI, MDI-X, Auto-MDIX
Ethernet II, IEEE 802.3
supported
supported
supported
Identity Object Reset Service of Type 0 and 1

DHCP
BOOTP
Transmission speed
Duplex transmission
MDI modes
Data transport layer
Address Conflict Detection (ACD)
DLR (ring topology)
Integrated switch
CIP Reset services

MODBUS TCP

Modbus Function Codes 1, 2, 3, 4, 5, 6, 7, 15, 16, 23
Mode Message Mode: Client, Server
Transmission speed 10 and 100 MBit/s
Data transport layer Ethernet II, IEEE 802.3

EtherCAT

Maximum number of cyclic input and output data 512 bytes in sum
Maximum number of cyclic input data 1024 bytes
Maximum number of cyclic output data 1024 bytes
Acyclic communication (CoE) SDO,
SDO master-slave
SDO slave-slave (depending on master capability)
Complex slave
Type
FMMUs 8
Sync managers 4
Transmission speed 100 Mbit/s
Data transport layer Ethernet II, IEEE 802.3

6.5 Specifications PROFIBUS DPV1

Acyclic communication	DP V1 Class 1 Read/Write DP V1 Class 1 Alarm
Transmission speed	DP V1 Class 2 Read/Write/Data Transport Fixed values ranging from 9,6 kBits/s to 12 MBit/s Auto-detection mode is supported maximum size of the transmitted data: 244 bytes of input data and 244 bytes of output data

6.6 Mechanical data

Housing material: polycarbonate

6.7 Electrical data

Power supply:	18 - 35 V via the backplane BEF1
UL devices:	Power supply unit restricted to Class 2
Power consumption	< 2 W
Interfaces	2 sockets for RJ45 plug-in connector, for connecting to the fieldbus 1 socket for mini USB connector, for factory service only
Degree of protection:	IP 20 according to EN 60529 / IEC 60529 (only if cables, plugs and sockets have been connected correctly)

6.7.1 Electrical configuration

Interfaces ETH1 / ETH 2

The two sockets ETH 1 and ETH 2 for RJ45 plug-in connector are equivalent and are used for the connection to the fieldbus.

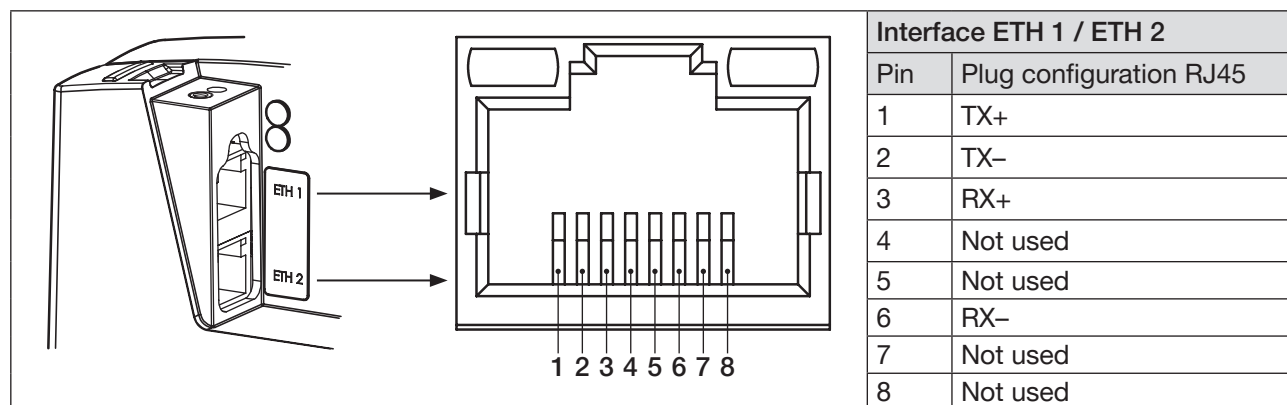


Figure 2: Configuration of interfaces ETH 1 / ETH 2; connection to the fieldbus

NOTE

To ensure electromagnetic compatibility (EMC)

- Only use shielded Ethernet cables.
- Connect the Ethernet cables of all participants via the backplane (Type BEF1) to the top hat rail to discharge the cable shield to ground.

Configuration of plug-in connector D-Sub, 9-pin

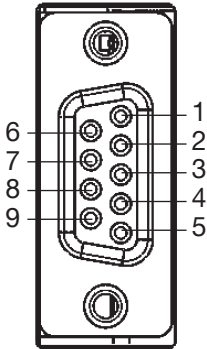
D-Sub, 9-pin	Pin	Signal	Function	Connection
	1	-	Not assigned	-
	2	-	Not assigned	-
	3	RxD/TxD-P	Data line minus (A conductor)	Mandatory
	4	CNTR-P	Repeater directional control	Optional
	5	DGND	Data ground	Mandatory
	6	VP	+5 V supply for bus termination	Optional
	7	-	Not assigned	-
	8	RxD/TxD-N	Data line plus (B conductor)	Mandatory
	9	-	Not assigned	-

Figure 3: Configuration of plug-in connector D-Sub, 9-pin

7 INSTALLATION

7.1 Safety instructions



WARNING

Risk of injury from improper installation.

- ▶ Installation may be carried out only by trained technicians and with the appropriate tools.
- ▶ Secure system against unintentional activation.
- ▶ Following installation, ensure a controlled restart.

7.2 Mount Type ME23 on backplane Type BEF1

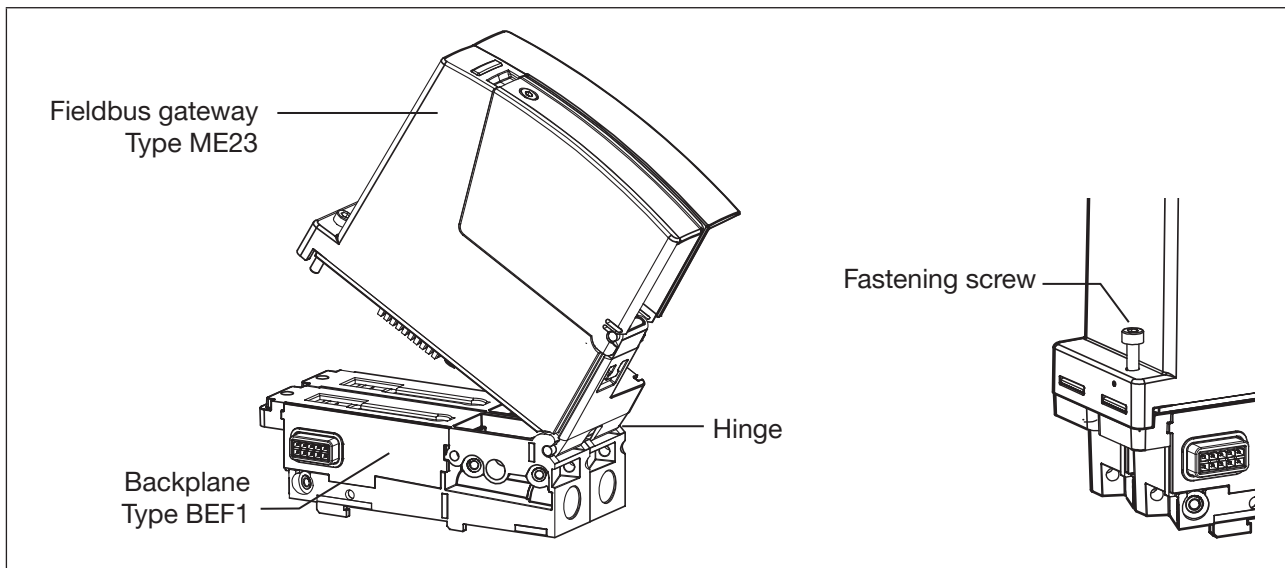


Figure 4: Mount fieldbus gateway Type ME23 on backplane Type BEF1

- Insert hinge part of Type ME23 in counter piece of backplane Type BEF1.
- Press Type ME23 fully on the backplane Type BEF1.
- Tighten fastening screw. Max. torque 1 Nm.

The fieldbus gateway ME23 is now connected to the power supply of the backplane Type BEF1.

NOTE

- ▶ Use power supply unit with adequate power.

7.3 Installation ME29

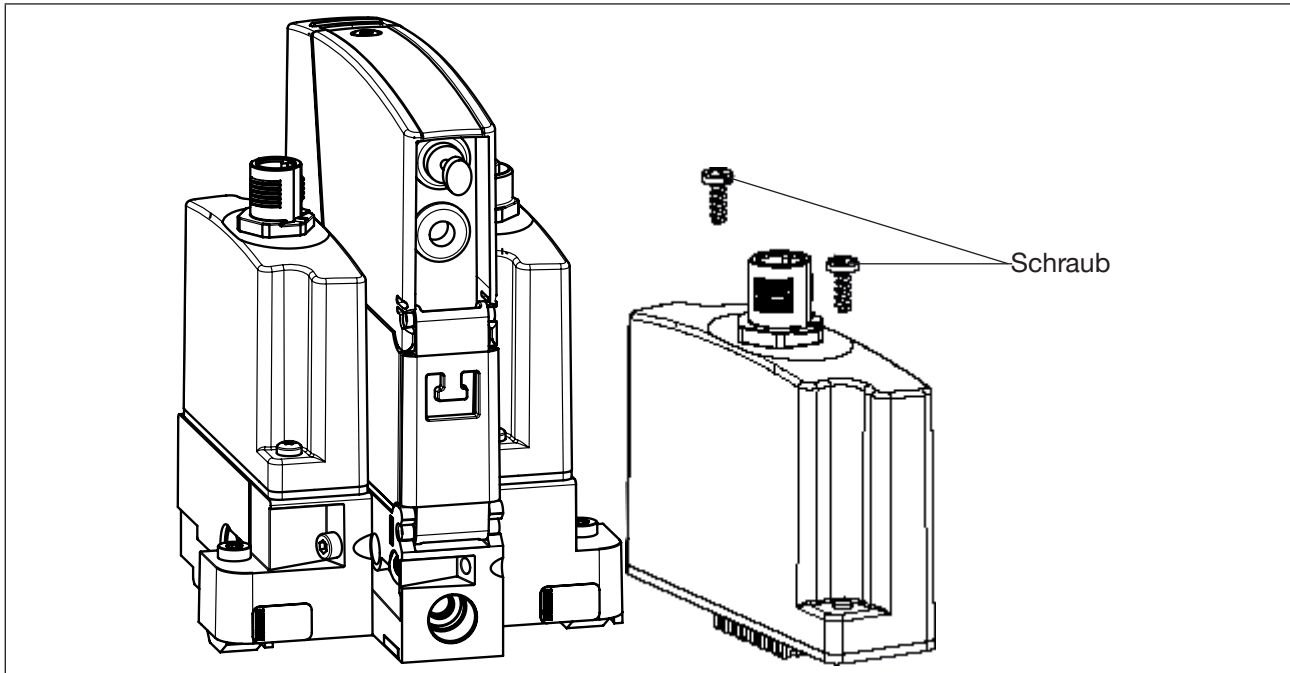


Figure 5: Installation ME29

- Loosen screws on the head side (2 x)
- Unhook module upwards by a 90° movement.
- Loosen backplane screws.
- Pull backplanes apart.

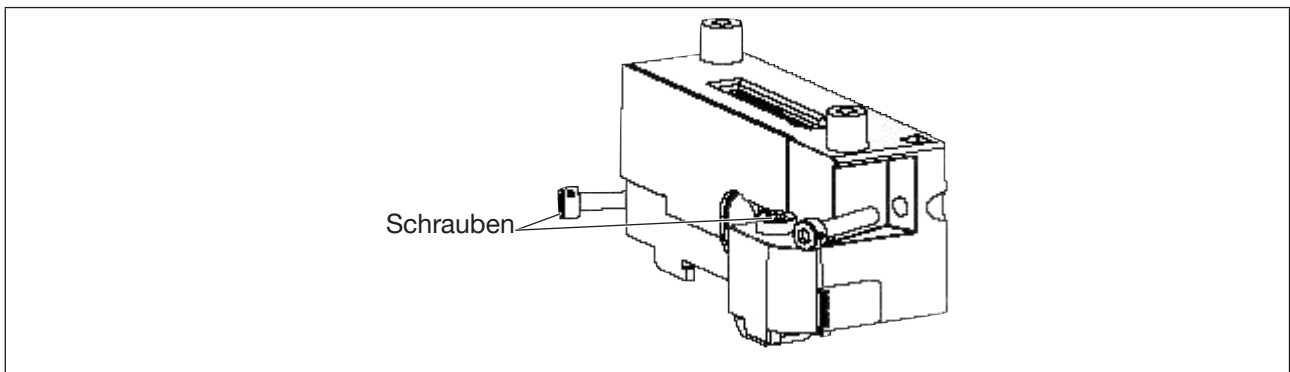


Figure 6: Detach backplanes from each other.

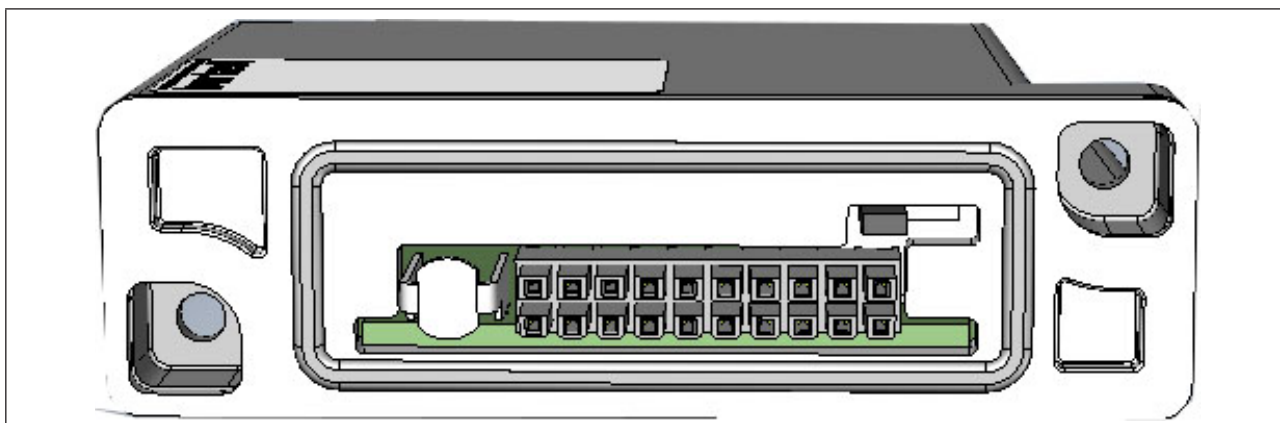


Figure 7: Terminating resistor off

- Connect backplanes to each other.
- Hook in module.
- Place screws on the head side and tighten.
Maximum torque 1 Nm.

7.4 Establish network connection to the bus

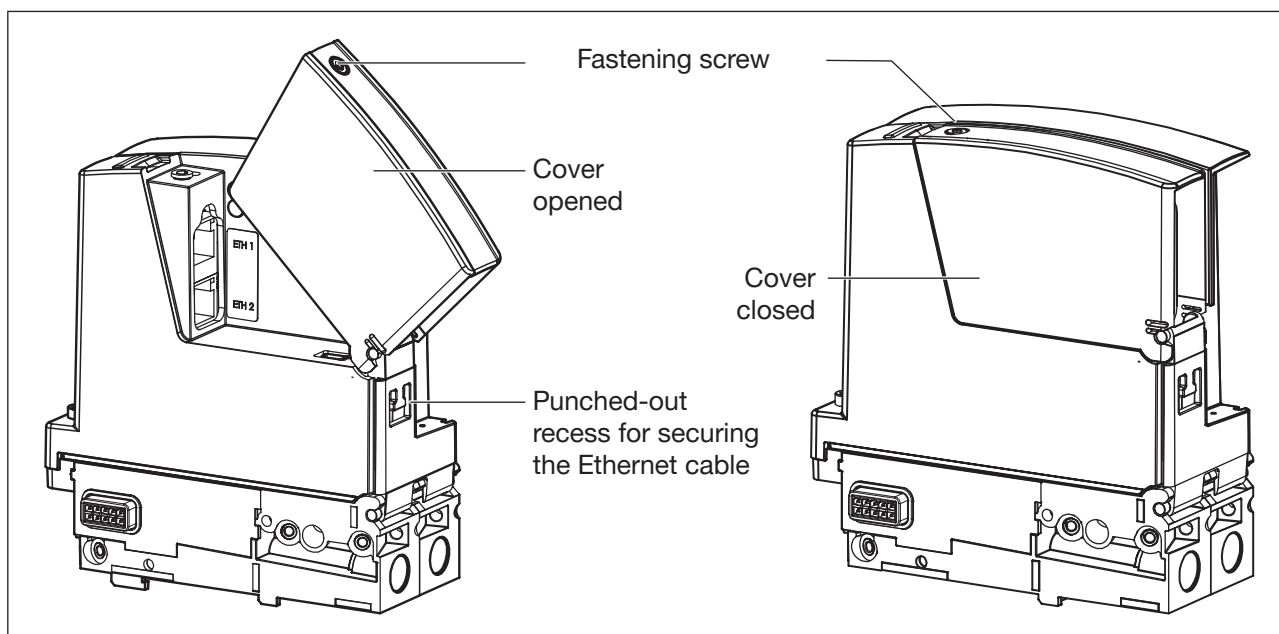


Figure 8: Establish network connection to the fieldbus.

- Unscrew fastening screw on the cover of the Type ME23.
- Open cover.
- Lead the Ethernet cables through the hole at the back of the cover.
- Insert the Ethernet cables in the sockets ETH 1 / ETH 2 (for plug-in connector RJ45).
- Close cover and tighten fastening screw. Max. torque 1 Nm.

The network connection to the fieldbus has now been established.

NOTE**To ensure electromagnetic compatibility (EMC)**

- ▶ Only use shielded Ethernet cables.
- ▶ Connect the Ethernet cables of all participants via the backplane (Type BEF1) to the top hat rail to discharge the cable shield to ground.

Securing the Ethernet cable (strain relief):

For strain relief, a cable clip can be used to secure the Ethernet cables in the punched out recess underneath the cover.

8 START-UP

8.1 Safety instructions



WARNING

Risk of injury from improper operation.

Improper operation may result in injuries as well as damage to the device and the area around it.

- ▶ Before start-up, ensure that the operating personnel are familiar with and completely understand the contents of the operating instructions.
- ▶ Observe the safety instructions and intended use.
- ▶ Only adequately trained personnel may start up the equipment/the device.

8.2 Basic settings

The fieldbus gateway Type ME23 can be delivered with a customized basic configuration ex factory.

The bÜS stick and the "Bürkert Communicator" software, which are available as accessories, are required for changing the basic configuration or for parameterizing additional process values. See chapter ["12 Accessories"](#)



The "Bürkert Communicator" software can also be used for further parameterization of the optionally available software add-on module user-f(x).



For configuration and parameterization refer to the chapter entitled ["10 FUNCTIONS"](#).

Rotary encoding switch Profibus DPV1:

2x hex rotary switches each from 0-F
1-7E valid address
0 and 0xFF -> default address 126
0x7E -0xFE -> invalid -> error message

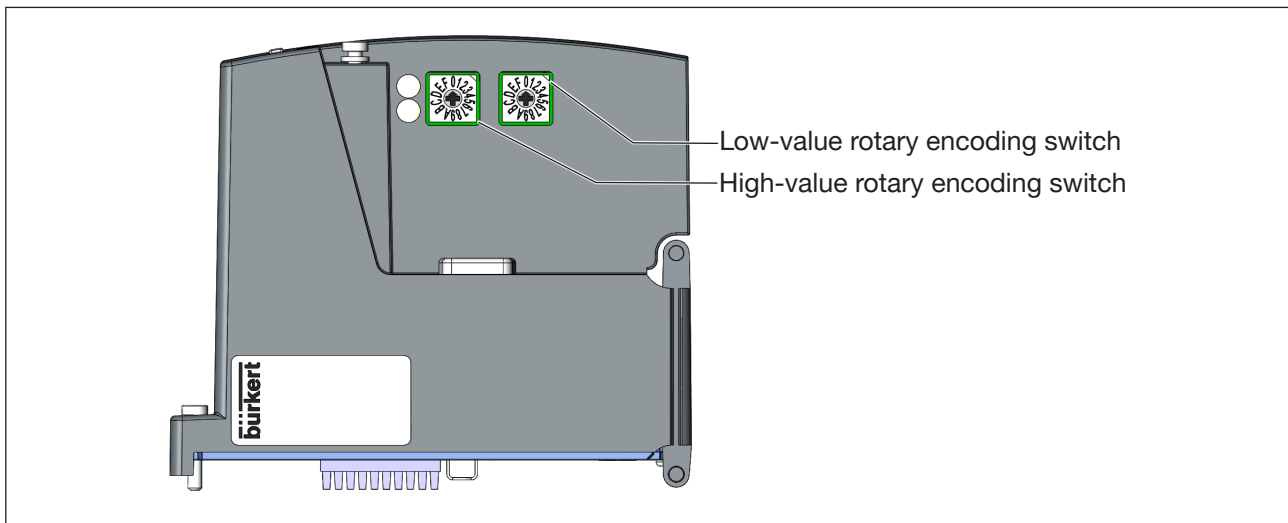


Figure 9: Rotary encoding switch Profibus

Ethernet protocols: Default IP 192.168.0.100

8.3 Webserver

The configuration of the Ethernet device required for integration in the network can be implemented with a web server.

8.3.1 Connection to the web server

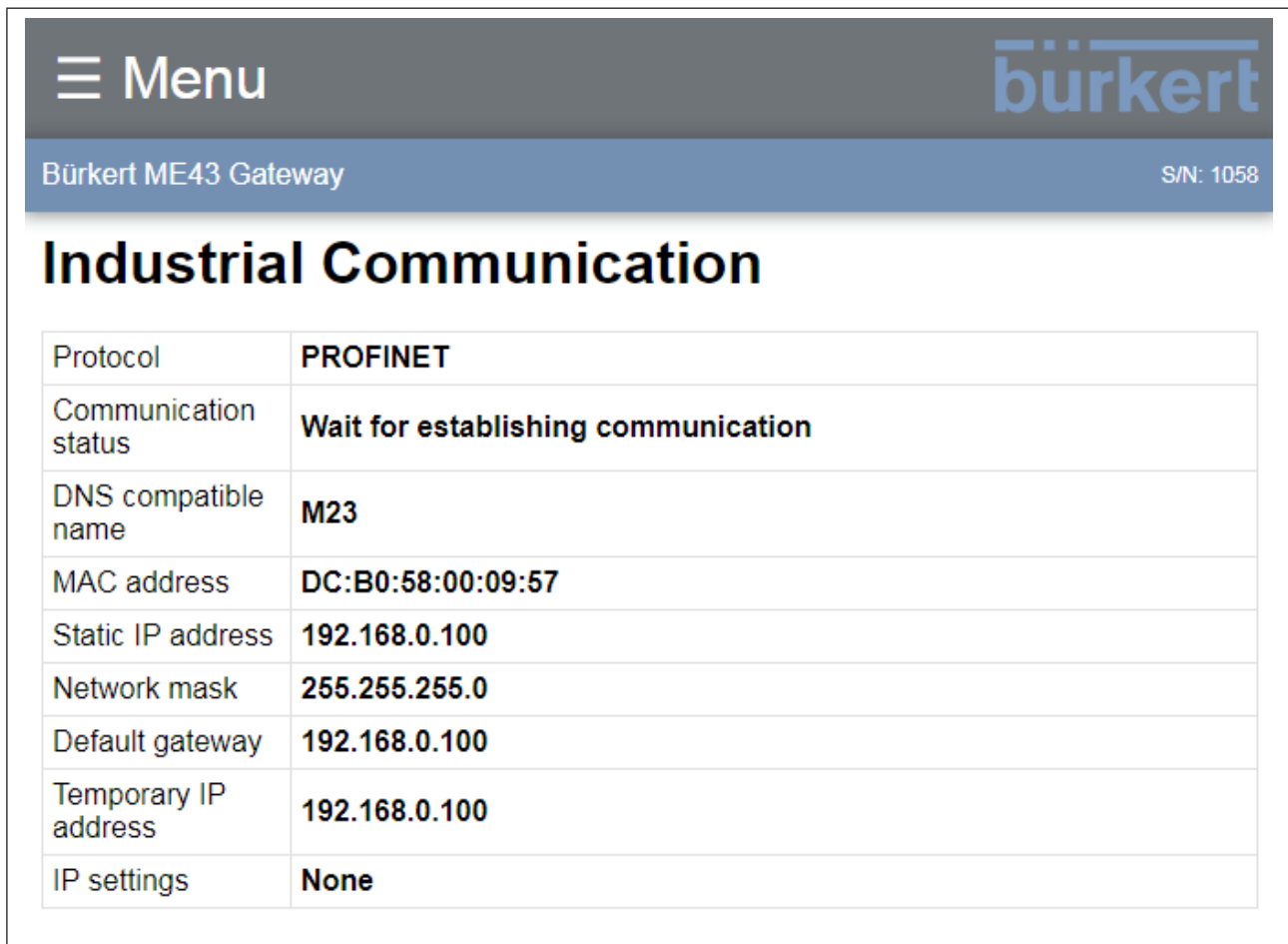
→ Setting IP address in the network card of the PC.

IP-adress: 192.168.0.xxx

For xxx enter any numerical value except 100
 (Ethernet device is delivered with 100 occupied by IP address).

→ Connect the PC to the Ethernet device with a network cable.

8.3.2 Access to the web server



The screenshot shows the web interface of a Bürkert ME43 Gateway. At the top, there is a dark grey header with a 'Menu' button (three horizontal lines) on the left and the 'bürkert' logo on the right. Below the header is a blue bar with the text 'Bürkert ME43 Gateway' on the left and 'S/N: 1058' on the right. The main content area has a title 'Industrial Communication' in large, bold, black font. Below the title is a table with network settings.

Protocol	PROFINET
Communication status	Wait for establishing communication
DNS compatible name	M23
MAC address	DC:B0:58:00:09:57
Static IP address	192.168.0.100
Network mask	255.255.255.0
Default gateway	192.168.0.100
Temporary IP address	192.168.0.100
IP settings	None

Figure 10: Access to the web server via the Default IP

With EtherNet/IP, it is also possible to set DHCP or BOOTP (NOT standard).
The IP address is acquired from a DHCP server.

→ Open an Internet browser.

→ Input Default **192.168.0.100** .

The software for configuration of the Ethernet device is now available on the PC.



Configuration of several devices:

All devices are delivered with the same IP address (192.168.0.100). To ensure that the device can be identified for the configuration, the network may contain only 1 device which has not yet been configured.

- Connect the devices (Ethernet device) in succession, individually to the network and configure.

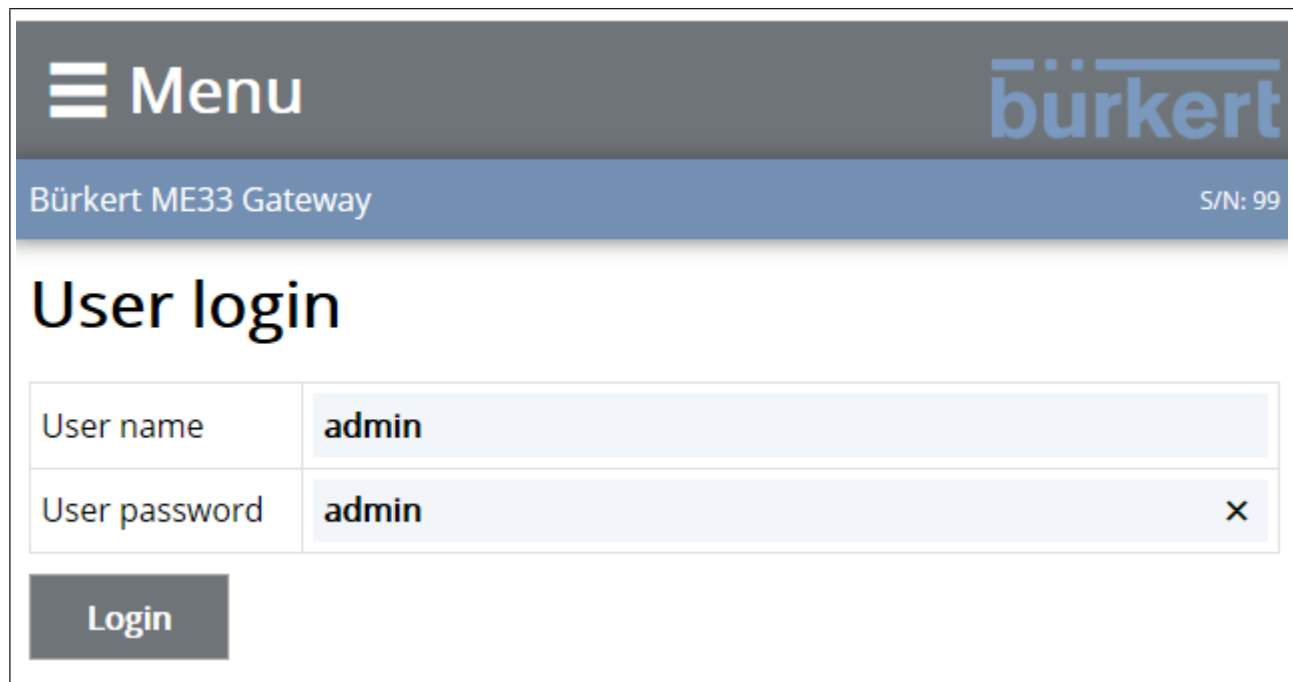
8.3.3 Configuring Ethernet device

Logging into the system:

→ Input user name and password.

Username: **admin**

Password: **admin**



The screenshot shows the web interface for the Bürkert ME33 Gateway. At the top, there is a dark grey header with a 'Menu' icon and the 'bürkert' logo. Below this is a blue banner with the text 'Bürkert ME33 Gateway' and 'S/N: 99' on the right. The main content area is titled 'User login'. It contains a form with two input fields: 'User name' with the value 'admin' and 'User password' with the value 'admin'. A small 'x' icon is visible in the password field. Below the form is a dark grey 'Login' button.

Figure 11: Logging into the system

Configuration:

→ Input device name and IP address for the Ethernet device.
The device name (DNS-compatible name) will be used later for project planning (e.g. in STEP 7).

→ Activate with **Commit changes**.

To accept the changed PROFINET parameters, the voltage must be reset in the Ethernet device.

→ Restart device with **Restart device**.

Menu bürkert	
Bürkert ME43 Gateway S/N: 1058	
Network Configuration	
Protocol	PROFINET ▼
DNS compatible name	M23
Static IP address	192.168.0.100
Network mask	255.255.255.0
Default gateway	192.168.0.100
IP settings	None ▼
<div>Commit changes</div> <div>Restart device</div>	

Figure 12: Configuring Ethernet device

8.4 Setting the bus address on a device with rotary switches for setting the address

When the device is activated, the address, which was set via the rotary switches, is used as a slave address.

Valid addresses are:

- PROFIBUS 0 – 126

If an address was set outside the permitted range, the device will output an error message.

9 OPERATION

9.1 Safety instructions



WARNING

Danger due to improper operation.

Improper operation may result in injuries as well as damage to the device and the area around it.

- ▶ The operating personnel must know and have understood the contents of the operating instructions.
- ▶ Observe the safety instructions and intended use.
- ▶ Only adequately trained personnel may operate the equipment/the device.

9.2 Configuration and parameterization of the Type ME23

The "Bürkert Communicator" software is used for configuration and parameterization of the fieldbus gateway.

The basic configuration and how the most important device-specific parameters for the fieldbus gateway ME23 are set using the "Bürkert Communicator" is described in the following sections of these operating instructions.

See chapter ["10 FUNCTIONS"](#).

The "Bürkert Communicator" software and the general description of the software are available on the Bürkert homepage.



In addition to the "Bürkert Communicator" software, the bÜS stick, which is available as accessory, is required for configuration and parameterization of the fieldbus gateway ME23. See chapter ["12 Accessories"](#).

9.2.1 Configuration

During configuration, the user initially selects the bÜS participant that the fieldbus gateway ME23 is to use for communication with the controller (PLC). After that, he defines which process values are to be converted from Industrial Ethernet to bÜS. For description see ["10.2 Configuration of the fieldbus gateway ME43 23"](#), page 30.

9.2.2 Parameterization

During parameterization, the input and output values of the bÜS participants and of the fieldbus gateway ME23 are assigned to the process values to be converted.

9.3 Display elements

The LED display elements on the fieldbus gateway ME23 provide information on

- the connection to the control
- the device status
- the network connection

Overview:

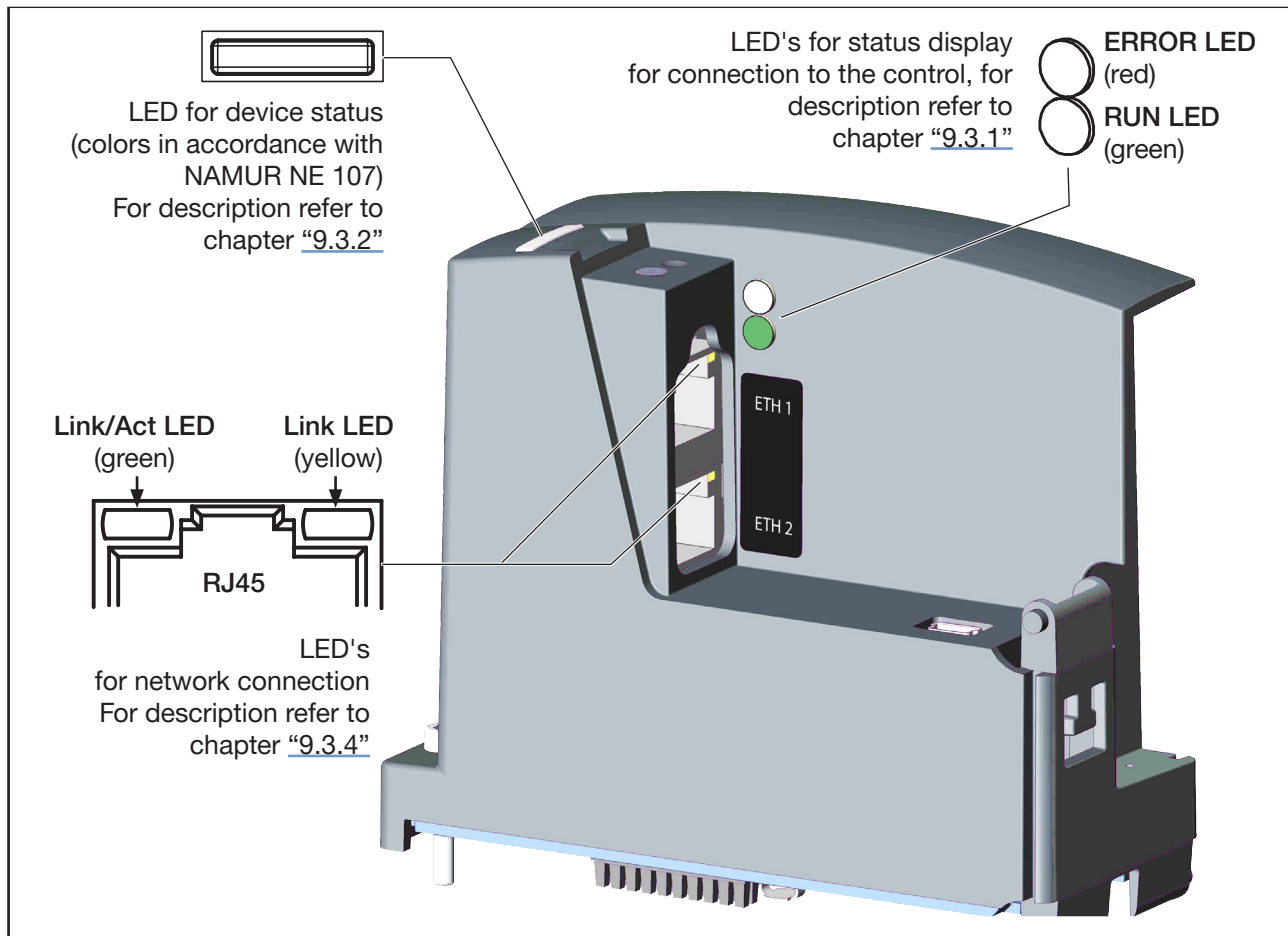


Figure 13: Overview of display elements; fieldbus gateway ME23

9.3.1 LED for connection to the control status display

LED status		Description and cause of error	Procedure
RUN LED	Active	Connection to control active.	-
	Not active	Connection to control not active.	Check cable.
Error LED	Active	Connection to control not active.	Check cable.
	Not active	Connection to control active.	-

Table 3: Description: Displays of the LED's for the connection to the control

9.3.2 NAMUR mode

In NAMUR mode, the LED illuminated ring lights up according to NAMUR NE 107, in the color specified for the device status.

If several device statuses exist simultaneously, the device status with the highest priority is displayed. The priority is determined by the severity of the deviation from standard operation (red = failure = highest priority).

Displays in NAMUR mode:

Status display in accordance with NE 107, edition 2006-06-12			
Color	Color code	Description	Meaning
red	5	Failure, error or fault	Control mode is not possible due to malfunctioning in the device or at its peripheral equipment.
orange	4	Function check	Work is being carried out at the device; control mode is therefore not currently possible.
yellow	3	Out of specification	The ambient conditions or process conditions for the device are outside the specified area. Device internal diagnostics point to problems in the device or with the process properties.
blue	2	Maintenance required	The device is in controlled operation, however function is briefly restricted. → Maintain device.
green	1	Diagnostics active	Device is operating faultlessly. Status changes are shown in color. Messages are transmitted via any connected field bus.

Table 4: Display of device status in NAMUR mode

9.3.3 The Namur status LED flashing rapidly

Rapid flashing indicates that the PC software “Bürkert-Communicator” has been connected or that slow flashing has been requested from the protocol-specific network

9.3.4 LED for network connection

LED status		Description and cause of error	Procedure
Link/Act LED (green)	Active	Rapid flashing: Connection to the higher-level protocol layer (PROFINET, EtherNet/IP or Modbus TCP) has been established. Data is being transmitted. Slow flashing: No connection to the protocol layer has been established. This normally occurs for approx. 20 seconds following a restart.	
	Not active	No connection to the network has been established.	Check cable.
Link LED (yellow)	Active	Connection to the network has been established.	-
	Not active	No connection to the network has been established.	Check cable.

Table 5: Description: Displays of the LED's for network connection

9.4 Removable data storage

The fieldbus gateway Type ME23 has a removable data storage in the size of a micro SD card, on which device-specific data is stored.



The Micro SD card is available as an accessory, see [“12 Accessories”](#).

Upon delivery, the micro SD card is inserted in the device.

Using the micro SD card, it is possible to exchange the specific data of devices having the same Ident number. For example for transmitting the data of a defective device to a new device.

The baud rate, the address and / or the configuration of the process values of the device are, for example, stored on the micro SD card.

If device-specific data is available on the inserted micro SD card during restart, the device will take over this data.

If no device-specific data is available on the micro SD card, the device will store its own data on it.

NOTE

Do not use a standard micro SD card for the device. Please order the micro SD card for the Type ME23 via your Bürkert sales department. See chapter [“12 Accessories”](#).

Replacing the micro SD card

The micro SD card can be found at the bottom side of the device.

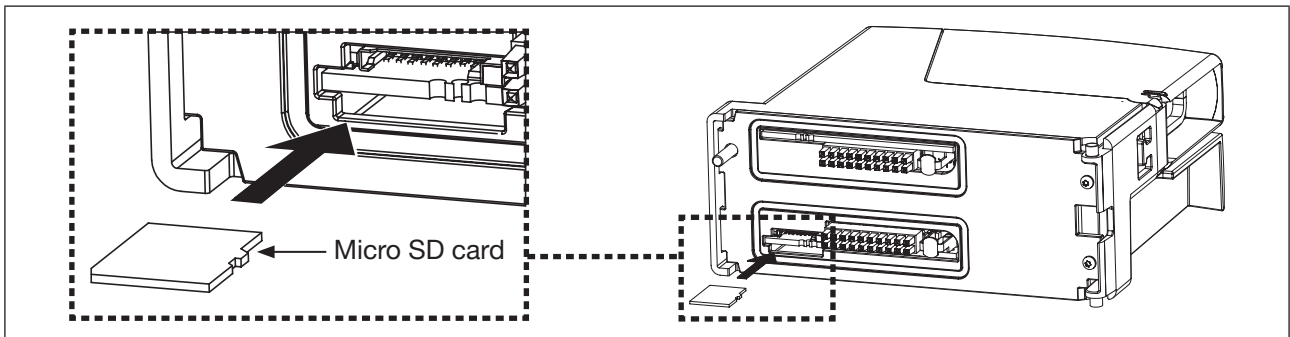


Figure 14: Replacing the micro SD card; fieldbus gateway ME23

Remove the micro SD card:

- Press on the edge of the engaged micro SD card to unlock it.
- Pull micro SD card out.

Insert micro SD card in replacement device:

- ⚠ Make sure you insert the card in the correct orientation.
- Insert the micro SD card in the card holder of the replacement device.
- Make sure that the card clicks in place.

10 FUNCTIONS

10.1 Conversion Industrial Ethernet to bÜS

The function of the fieldbus gateway is to convert the process values between an Industrial Ethernet control and bÜS participants. For this, the fieldbus gateway ME23 must be configured and parameterized.

10.1.1 Theoretical principles for the selection of bÜS devices and process values

Select the bÜS devices that are to communicate with the PLC via the fieldbus gateway ME23:

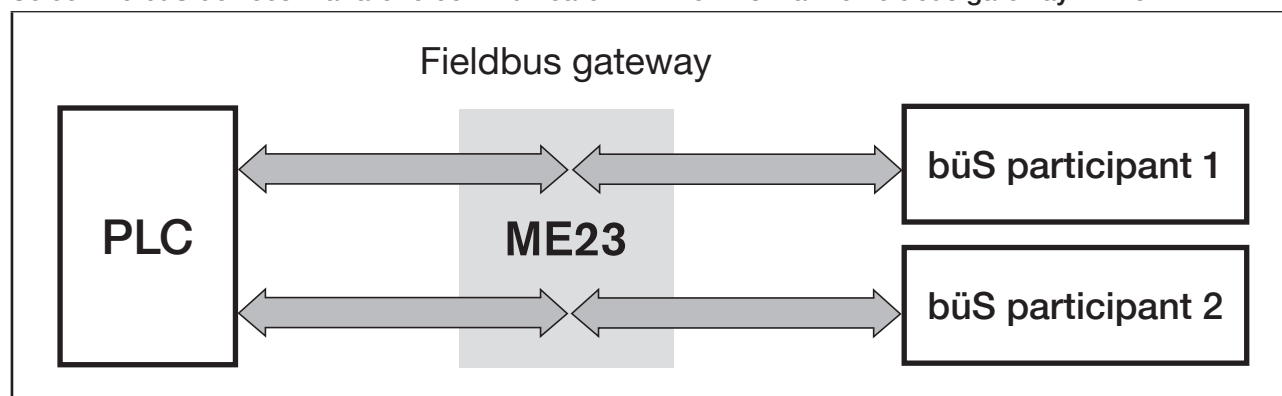


Figure 15: Configuration; selection of the bÜS participants that are to communicate with the PLC

Select which process values are to be converted from "Industrial Ethernet" to "bÜS":

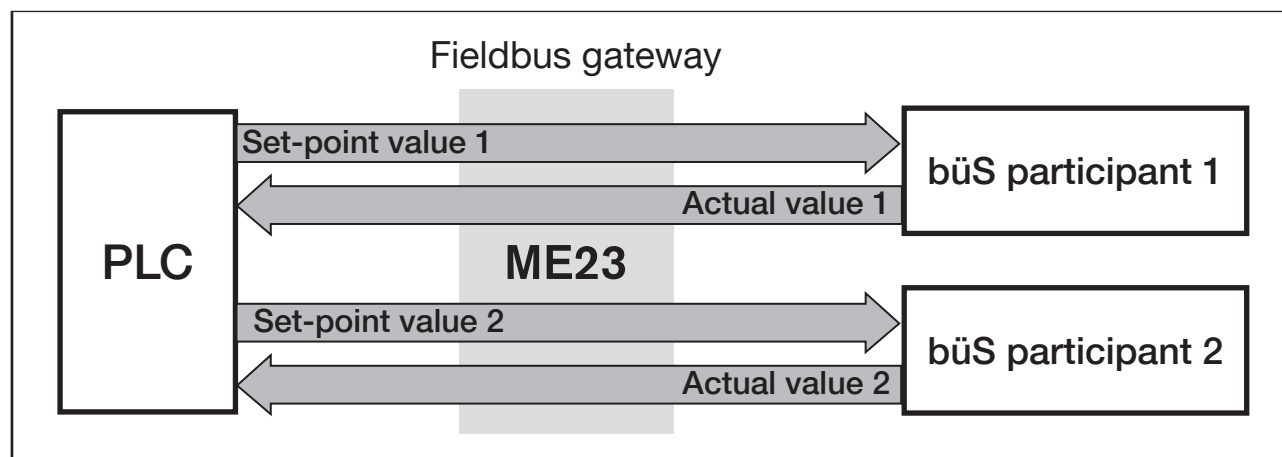


Figure 16: Configuration; selection of the process values that are to be converted from "Industrial Ethernet" to "bÜS".

Define the direction for transmission of the process values (from/to PLC, from/to bÜS participant):



The direction is assigned from the perspective of the fieldbus gateway ME23 in the fieldbus bÜS.

Example:

- Set-point values of a bÜS participant are the output values of the fieldbus gateway ME23.
- Actual values of a bÜS participant are the input values of the fieldbus gateway ME23.

Process output values of the PLC are received in the fieldbus gateway ME23 as process input values using Industrial Ethernet. The process input values are converted and provided as process output values using bÜS.

Vice versa, process output values of the bÜS participant are received as bÜS input values. The process input values are converted and provided as process output values using Industrial Ethernet.

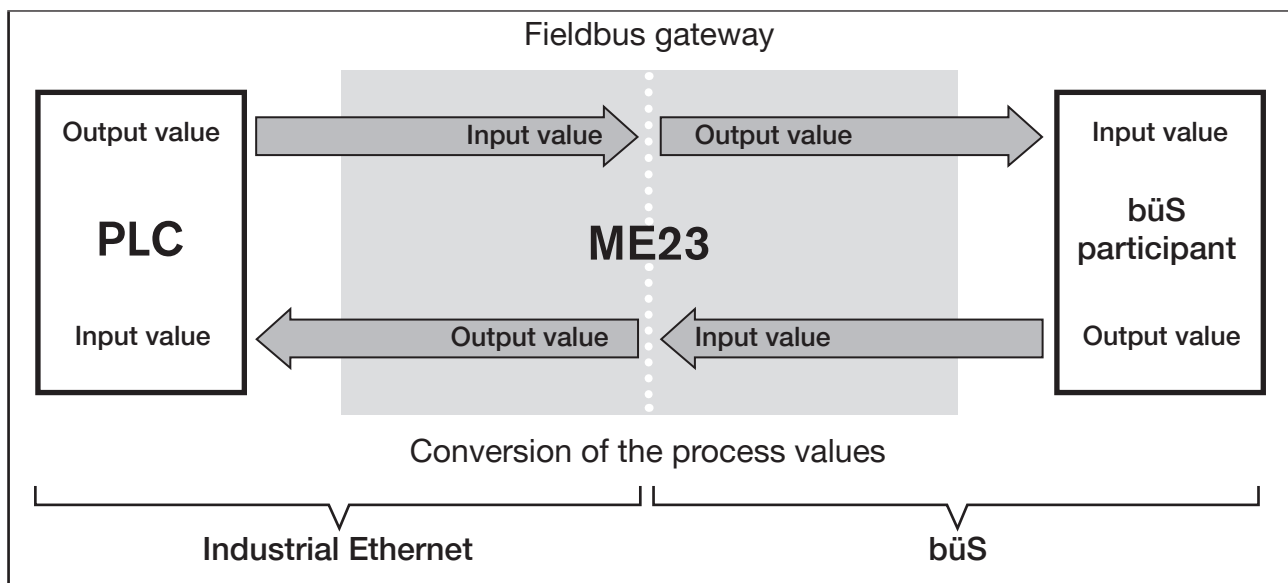


Figure 17: Configuration; principle of direction allocation for process values

Based on the type of conversion, bÜS participants can be addressed directly using their process values and the direction of conversion.

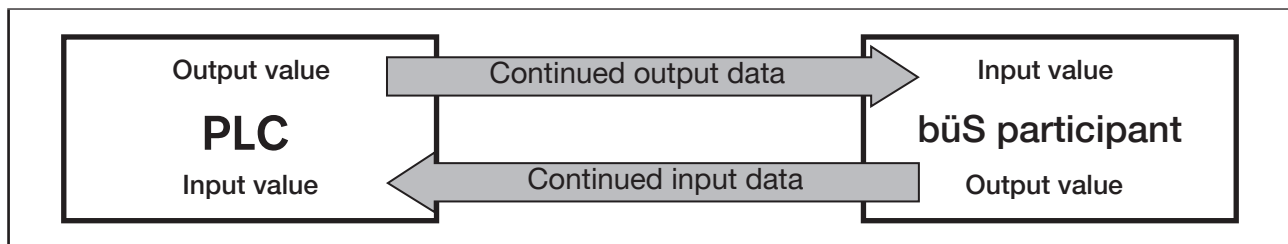


Figure 18: Configuration; type of conversion for process values from the PLC to the bÜS participant

10.2 Configuration of the fieldbus gateway ME43 23



The "Bürkert Communicator" software and the büS stick, which is available as accessory, are required for configuration and parameterization of the fieldbus gateway ME23, refer to chapter ["12 Accessories"](#).

The "Bürkert Communicator" software and a general description of it are available on the Bürkert homepage.







The device can be delivered with a default basic setting in that specific büS participants and process values for the conversion have already been defined.

The configuration of the fieldbus gateway ME23 is carried out in the following steps:

1. Prepare the configuration.
2. Configure the fieldbus gateway ME 43.
Select the büS devices and process values that are to communicate with the PLC via the fieldbus gateway ME23.
Fieldbus-specific address mapping of the objects.
3. büS network configuration.

10.2.1 Preparing the configuration

Establish the connection with the Bürkert Communicator PC software.

- Use the "Bürkert büS stick" to connect to the "Bürkert Communicator"  software.
- Add interface: Select tool  from tool bar.
- Select  **Gateway_01** in the navigation area.
- Open the menu sub-items.
To open the configuration areas, click on .
- Select **Industrial communication** function.
- Select **Parameter** tab.
- Select **Create Gateway configuration**.
- Select fieldbus protocol..

10.2.2 Configuration of fieldbus gateway ME23

→ Select **Create a gateway configuration**.

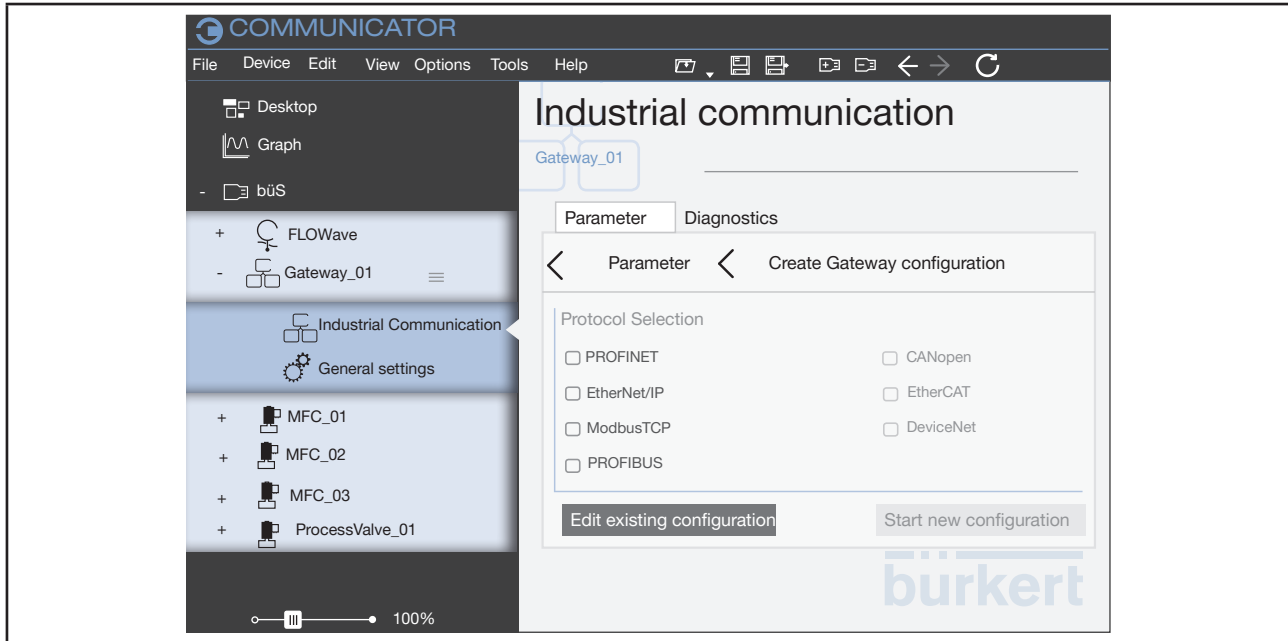


Figure 19: Create Gateway configuration

→ Select target protocol in the window **Protocol Selection**. It is possible to select several protocols.



Multiple selection is possible. The configuration files are prepared for the selected protocols based on the following IO value configuration.

→ **Edit existing configuration** or **Start new configuration**.

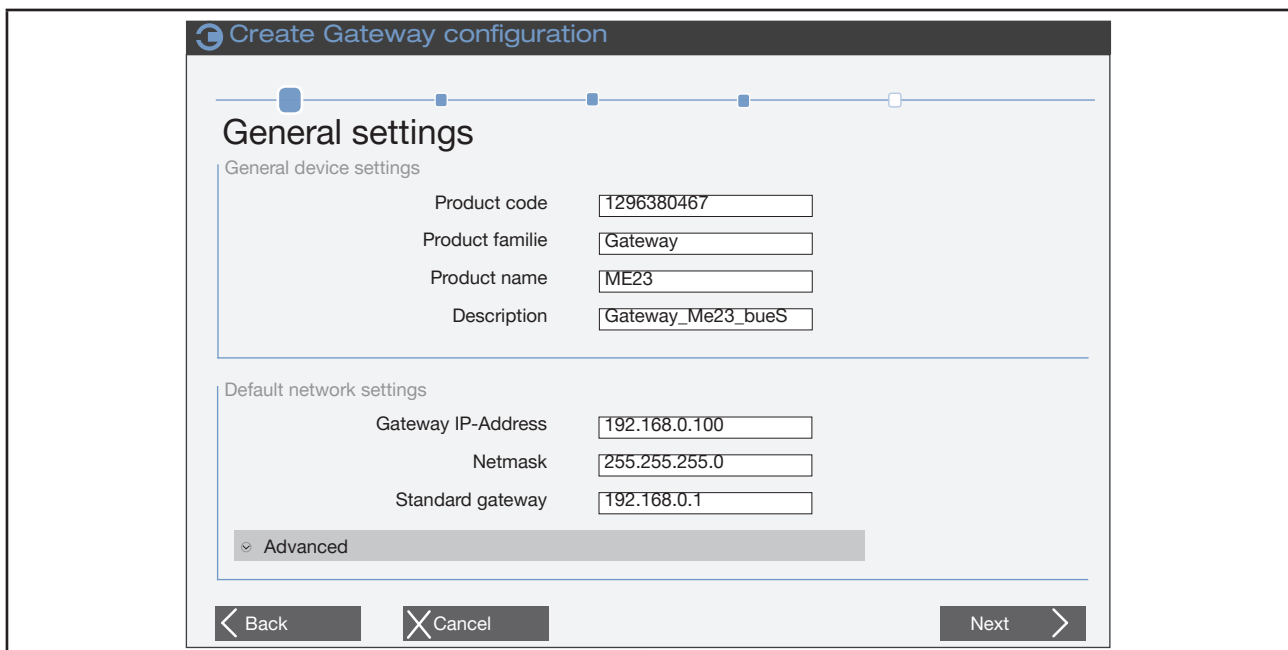


Figure 20: General settings

- Modify general settings for device description file of target system (PLC) (if necessary).
- Select **Next**.
- To display the process values, click on the **+** before **Input values** and **Output values**.

10.2.3 Select process data

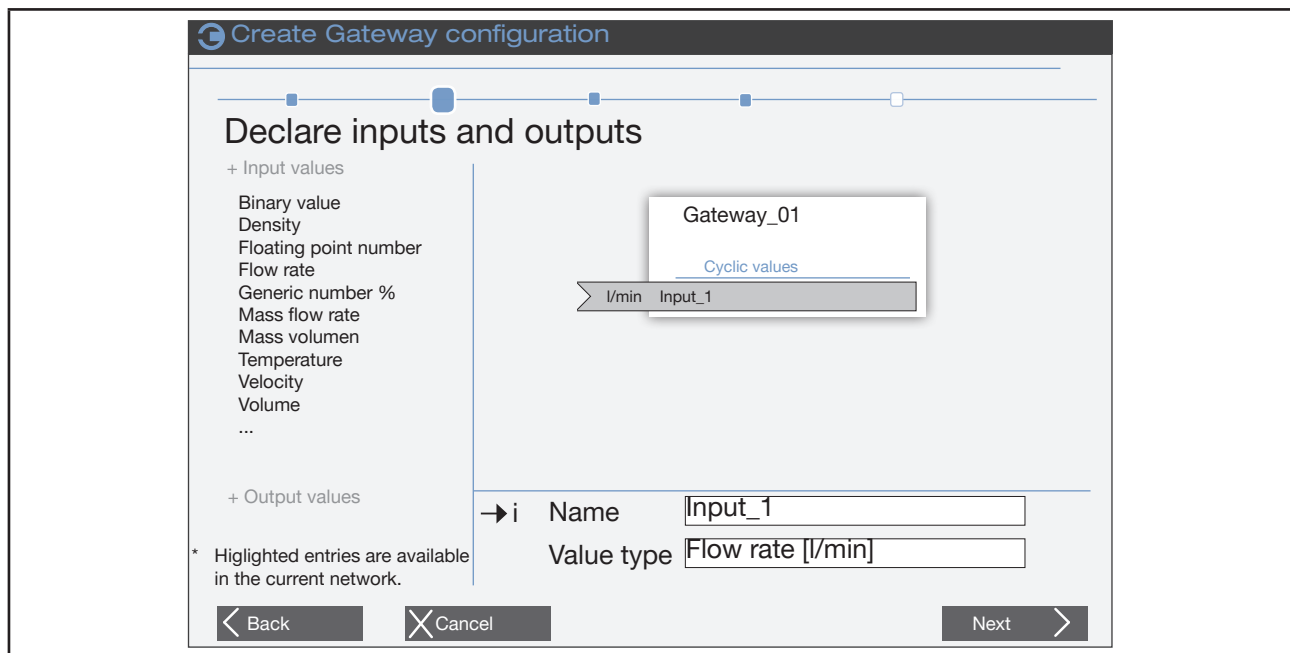


Figure 21: Declare inputs and outputs

Process values available in the bÜS network are highlighted.

- Add process values to the gateway with drag-and-drop or by double-clicking
- Click on the unit with the right mouse button and then on the window **Add multiple..**
- Adjust names. These names appear via the device description file in the target control.
- Add all required values.
Contextualized definition of values
Input values: Values received from the bÜS device and read by the PLC (bÜS device \rightarrow fieldbus gateway \rightarrow PLC)
Output values: Values written by the PLC to the bÜS devices/fieldbus gateway..

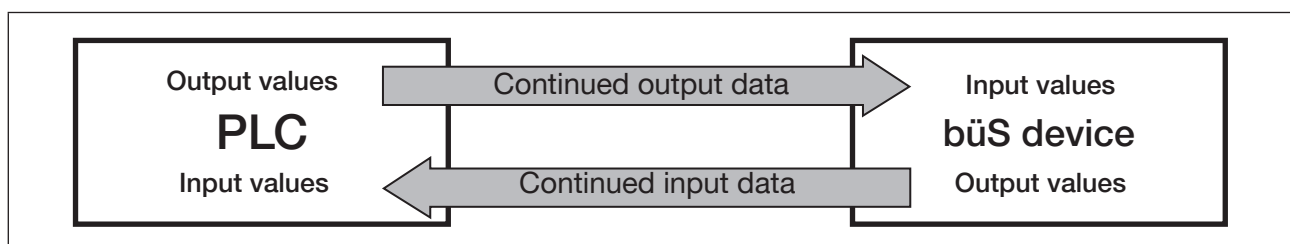


Figure 22: Configuration; type of conversion for process values from the PLC to the bÜS device

- ✓ You have selected the bÜS devices and process values.

→ Using **Next** you can open the menu for the fieldbus-specific address mapping.

Create Gateway configuration

EtherNet/IP settings

Ethernet!P Data

Major Revision Minor Revision

Order number

EtherNet/IP EDS Revision EtherNet/IP Produkt Typ

Addressing

Automatic EtherNet/IP addressing

Cyclic	Name	Index	SubIndex	Assembly	Connection	Class
<input checked="" type="checkbox"/>	Input_1	0x2540	0x01	0x65	1	
<input checked="" type="checkbox"/>	device Status NamurNe107	0x2004	0x01	0x66	2	
<input checked="" type="checkbox"/>	Control Word	0x3C32	0x01	0x67	2	

Figure 23: Fieldbus-specific address mapping

→ Check editable fields and complete if necessary.

→ Click **Start** to automatically run object addressing, can be manually adjusted.

→ Click **Next**.

! If several protocols were selected (see “Figure 19: Create Gateway configuration”), the corresponding protocol-specific settings pages follow.

Create Gateway configuration

Final settings

Select output directory



Output directory

Create new major version ☐

Figure 24: Selecting the output directory

- Save the configuration files and download to the device.
This download runs in the background.
(The device description file is in the subfolder “PLC” under the specified path).
- Click **Finish**.
- Click **OK**, the window is closed and the device automatically restarts.
- ✓ The gateway configuration is completed. The connection between control and gateway is established.
The device description file is in the subfolder “PLC” under the specified path.

10.2.4 büS network configuration

- Use the “Bürkert büS stick” to connect to the “Bürkert Communicator”  software.
- Add interface: Select tool  from tool bar.
- Select interface in the navigation area.
- Select the **büS-Map** tab.

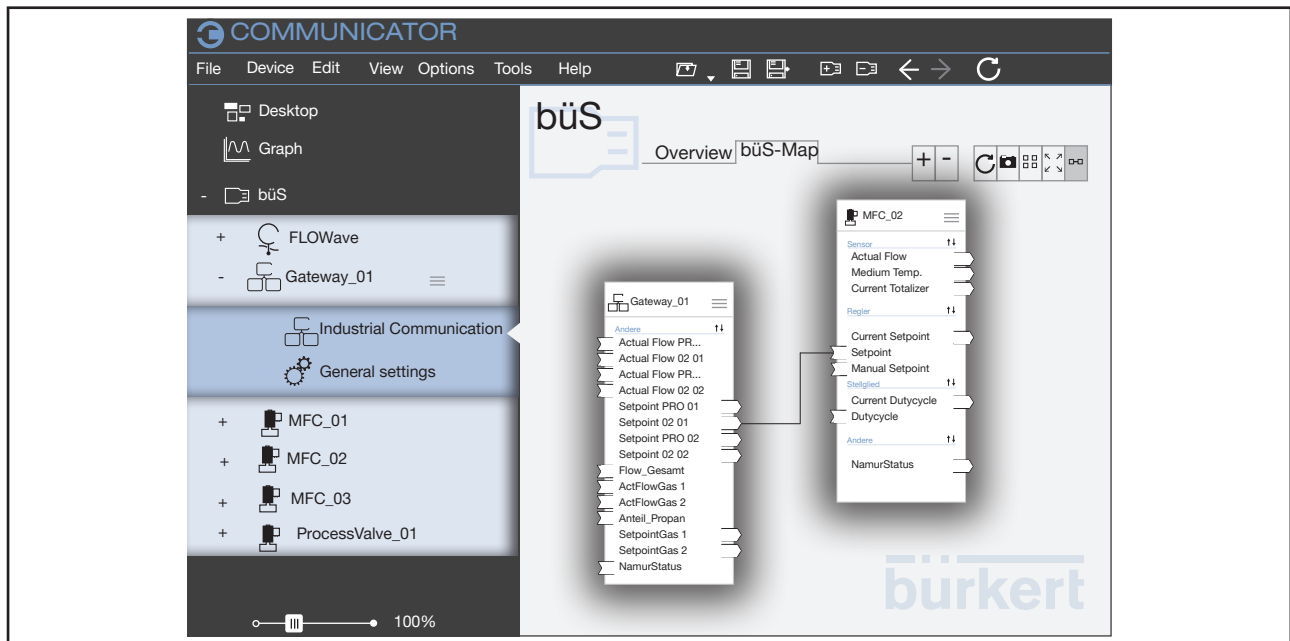






Figure 25: büS-Map

- Parametrize the inputs and outputs with drag-and-drop
(dotted lines mean that there is still no active connection between devices.
Compatible connection points are highlighted in blue).
- Click **Apply changes**.
All configured devices are restarted.
- ✓ You have configured the büS network.

10.3 Download gateway configuration file for device configuration

If, for instance, a configuration file exists from a previous project, the device can be directly configured with it.

- Use the “Bürkert büS stick” to connect to the “Bürkert Communicator”  software.
- Add interface: Select tool  from tool bar.
-  **Gateway_01** in the navigation area.
- Open the menu sub-items, click on .
- Select **Industrial communication** function.
- Select **Parameter** tab.
- Select **Download Gateway configuration file**.

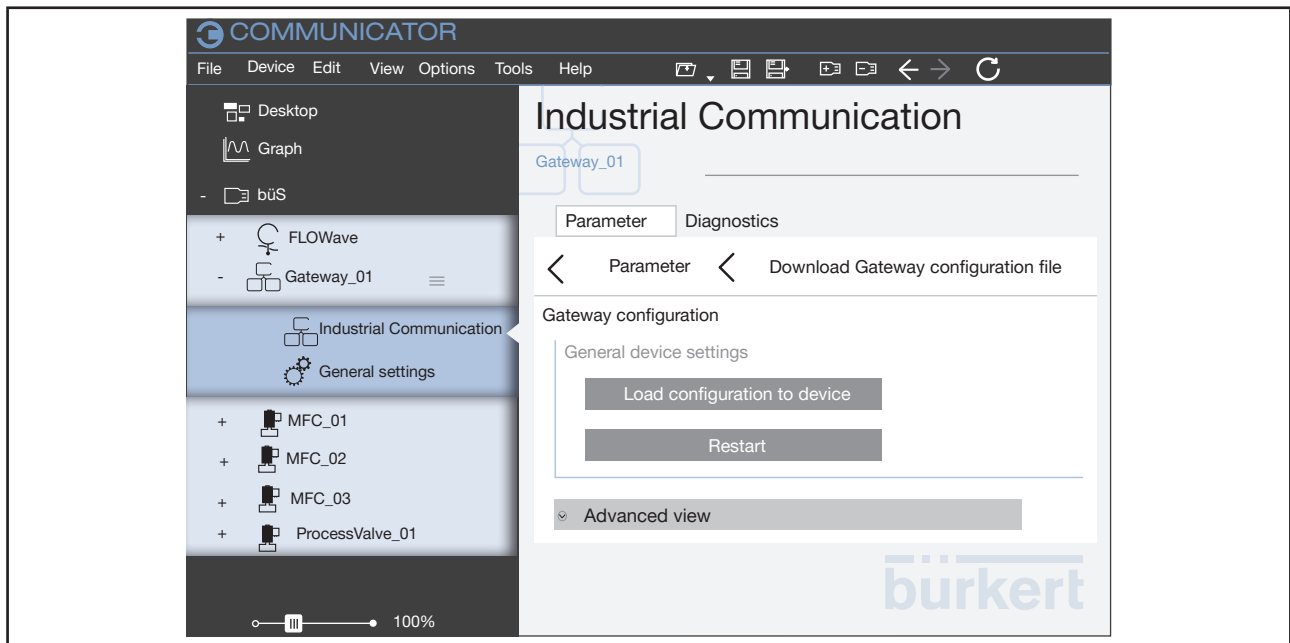


Figure 26: Downloading an existing configuration

- Load device configuration into devices with **Load configuration to device**.
- Specify the name and location of the file.
- Restart device with **Restart**.

✓ You have configured the device with the gateway configuration file.

11 MAINTENANCE

11.1 Safety instructions



WARNING

Risk of injury from improper maintenance.

- ▶ Maintenance may be carried out only by trained technicians and with the appropriate tools.
- ▶ Secure system against unintentional activation.
- ▶ Following maintenance, ensure a controlled restart.

11.2 Replacing the device

To replace the fieldbus gateways ME23, proceed as follows.

1. ⚠ Switch off supply voltage.

2. Remove Ethernet cable.

- If Ethernet cables have been secured at the housing for strain relief, remove securing device.
- Unscrew fastening screw on the cover of the Type ME23.
- Open cover.
- Pull out and remove Ethernet cables from the socket.

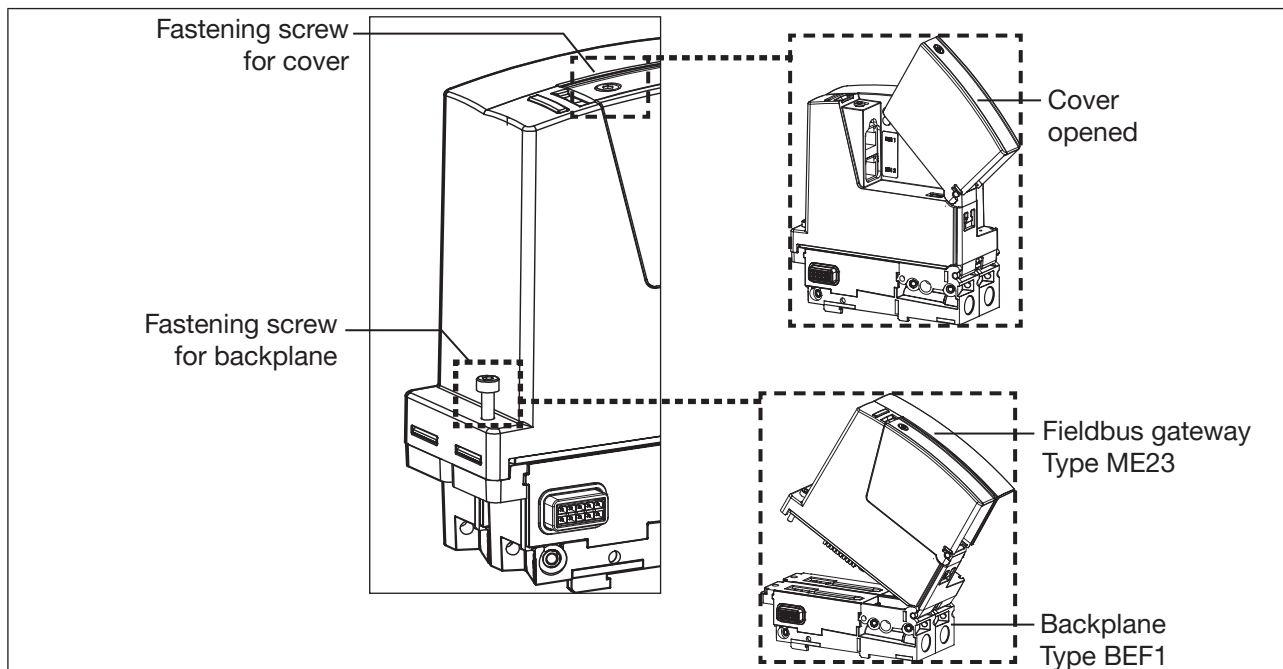


Figure 27: Replacing the device; fieldbus gateway ME23

3. Remove fieldbus gateway Type ME23 from backplane Type BEF1.

- Unscrew fastening screw on the rear of the housing and remove Type ME23.

4. Replacing the micro SD card

The micro SD card can be found at the bottom side of the device.

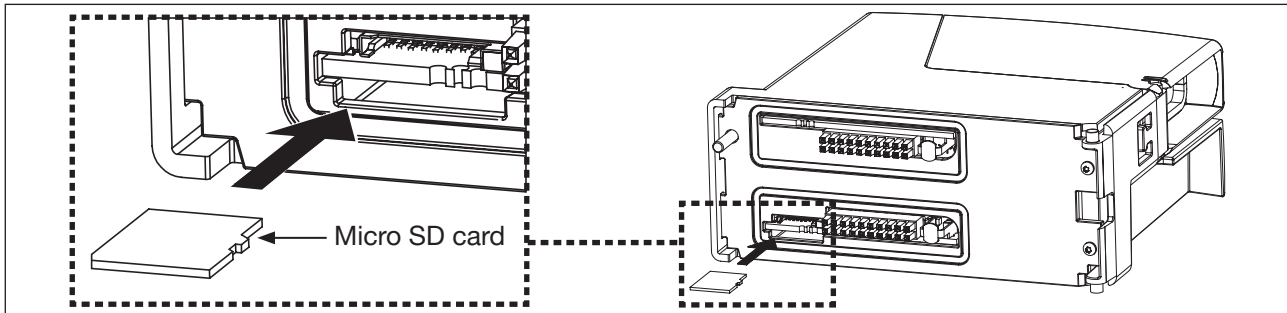


Figure 28: Replacing the micro SD card; fieldbus gateway ME23

Remove the micro SD card:

- Press on the edge of the engaged micro SD card to unlock it.
- Pull micro SD card out.

Insert micro SD card in replacement device:

- ⚠ Make sure you insert the card in the correct orientation.
- Insert the micro SD card in the card holder of the replacement device.
- Make sure that the card clicks in place.

5. Mount replacement device

- Insert hinge part of Type ME23 in counter piece of backplane Type BEF1.
- Press Type ME23 fully on the backplane Type BEF1.
- Tighten fastening screw for backplane. Max. torque 1 Nm.
- Unscrew fastening screw on the cover of the Type ME23.
- Open cover.
- Lead the Ethernet cables through the hole at the back of the cover.
- Insert the Ethernet cables in the sockets ETH 1 / ETH 2 (for plug-in connector RJ45).
- Close cover and tighten fastening screw. Max. torque 1 Nm.
- Apply supply voltage.

Securing the Ethernet cable (strain relief):

For strain relief, a cable clip can be used to secure the Ethernet cables in the punched out recess underneath the cover.

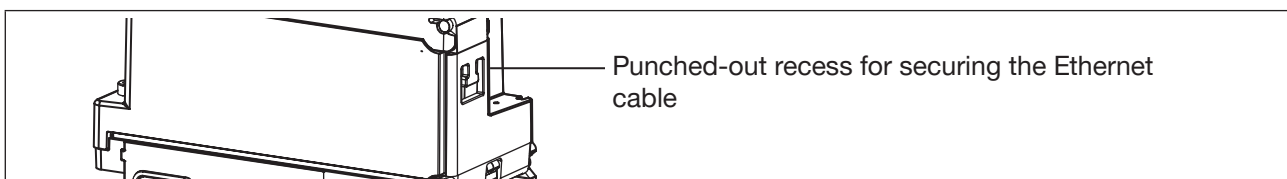


Figure 29: Strain relief for Ethernet cables; fieldbus gateway ME23

11.3 Troubleshooting

Problem	Possible cause	Procedure
The NAMUR-LED goes off periodically.	The power supply collapses periodically – the device implements a reset each time.	Use power supply with adequate power.
	The drop in power in the connecting cable is too great.	Increase cable cross-section. Reduce cable length.
No process values are transmitted between Industrial Ethernet and bÜS.	No cable connection.	Check Ethernet and bÜS cable connection.
	Reading and writing of the values has not been allowed by the PLC in the control object of the participant.	Allow reading and writing of the values in the control object of the participant.
	The process values have been configured incorrectly.	Check configuration of the process values.
	The process values have been allocated incorrectly.	Check allocation of the process values to the bÜS participants.
The process values cannot be allocated to the bÜS participants.	The process values have not been configured.	Check configuration of the process values.
	Takeover of the configuration must be completed by a restart of the participant.	Restart the participant after configuration.
	The process values have been allocated to different classes.	Check allocation to ensure that bÜS participants work with process values of the same class.
	Observe input and output direction as allocation.	Verify that direction of input and output is correct.
An incorrect value is transmitted or value is zero.	The process values have not been allocated or have been allocated to the wrong participants.	Check allocation of the process values.
Replacement device fails to take over values from micro SD card from the defective device.	The device Ident number of the replacement device and the defective device differ.	Values can only be transmitted between devices having the same Ident number.
	The micro SD card is defective. The device was unable to write any values on the micro SD card.	Replace the micro SD card (refer to chapter “ 12 Accessories ”) and retry transmitting the parameters of the defective device to the card (refer to chapter “ 9.4 Removable data storage ”).
Replacement device fails to take over all values from micro SD card from the defective device.	The EDS device description between the replacement device and the defective device differs.	Only the existing values of the defective device can be transferred to the replacement device. New values of the replacement device must be parameterized using the "Bürkert Communicator" software.

Table 6: Troubleshooting

11.4 Status indicators and action to be taken

Status LED indicators based on NAMUR NE 107	Description	Procedure
No color	No power is supplied to the device.	Connect device to power supply.
Flashing rapidly (applies to all colors)	The device was selected using the "Bürkert Communicator" software.	De-select the device using the "Bürkert Communicator" software.
Red	Device defective.	Device requires maintenance – Contact the manufacturer.
	Communication with other bÜS devices not possible.	Integrate device into a network with other bÜS devices.
	Bus error (e. g. short circuit).	Check wiring.
	The device is not connected to the PLC.	Check wiring. Check device description for connecting the device to the PLC.
	Device cannot find the allocated bÜS device.	Check whether the bÜS device is allocated to the device.
Orange	Search for bÜS devices active. Status is terminated after a few seconds.	If the device status persists for more than 4 minutes, perform a restart of the network.
Yellow	Device temperature out of specification, destruction of the device is a possibility.	Operate the device inside the specification.
	Internal device diagnostics point to problems in the device or the process properties.	Take action based on logbook messages.
Blue	Maintenance required	Service device.

Table 7: Action to be taken based on device status indicators

LED status		Description and cause of error	Procedure
	Not active	Connection to control not active.	Check cable.
	Not active	Connection to control active.	-

Table 8: Description: Displays of the LED's for the connection to the control

12 ACCESSORIES



CAUTION!

Risk of injury and/or damage by the use of incorrect parts.

Incorrect accessories and unsuitable spare parts may cause injuries and damage the device and the surrounding area.

► Use original accessories and original spare parts from Bürkert only.

Accessories	Order no.
büS Stick set (including power supply unit) and "Bürkert Communicator" software	00772426
Micro SD card	on request

13 PACKAGING AND TRANSPORT

NOTE!

Transport damage.

Inadequately protected devices may be damaged during transportation.

- Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- Prevent the temperature from exceeding or dropping below the permitted storage temperature.

14 STORAGE

NOTE!

Incorrect storage may damage the device.

- Store the device in a dry and dust-free location.
- Storage temperature: -25...+60 °C.

15 DISPOSAL

NOTE!

Damage to the environment caused by parts contaminated with media.

- Dispose of the device and packaging in an environmentally friendly manner.
- Observe applicable disposal and environmental regulations.



Observe the national waste disposal regulations.

