

# Type ME24

## I/O-Module



## Quickstart

English    Deutsch    Français

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Technische Änderungen vorbehalten.  
Sous réserve de modifications techniques.

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Operating Instructions 1705/0€\_ÖWÖP\_00810Í Í H/ Original DE

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## 1 THE QUICKSTART

The quickstart contains the most important information and notes regarding the use of the product. A detailed description of the device can be found in the operating instructions for Type ME24.

Keep the quickstart in a location which is easily accessible to every user, and make these instructions available to every new owner of the product.

### Important safety information.

Read the Quickstart carefully and thoroughly. Study in particular the chapters entitled *Basic safety instructions* and *Authorized use*.

- ▶ The Quickstart must be read and understood.



The operating instructions can be found on the Internet at: [www.buerkert.com](http://www.buerkert.com)

## 1.1 Definition of term

In these instructions, the term “product“ always refers to the I/O module, Type ME24.

## 1.2 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.



Important 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.

## 2 AUTHORIZED USE

Non-authorized use of the Type ME24 may be dangerous to people, nearby equipment, and the environment.

The I/O module Type ME24 collects, converts and compares physical measurement data from external sensors or receives switching commands from bÜS participants via the bÜS interface. This measurement data or these switching commands are relayed to external actuators or to bÜS participants via the bÜS interface.

- ▶ 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 product

- ▶ 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 product 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 or modules.

The product 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@de.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](http://www.burkert.com)

### 4.2 Warranty

The warranty is only valid if the Type ME24 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 ME24 can be found on the Internet at:

[www.burkert.com](http://www.burkert.com)

## 5 TECHNICAL DATA

### 5.1 Conformity

The Type ME24 I/O module conforms to the EC directives according to the EC Declaration of Conformity (if applicable).

### 5.2 Standards

The applied standards, which verify conformity with the EC Directives, can be found on the EC-Type Examination Certificate and / or the EC Declaration of Conformity (if applicable).

### 5.3 Operating conditions



#### WARNING!

Risk of injury.

- ▶ Avoid heat sources which may cause the permissible temperature range to be exceeded.

#### Permitted temperatures

Ambient temperature: 0–+50 °C

## 5.4 Mechanical data

Dimensions:

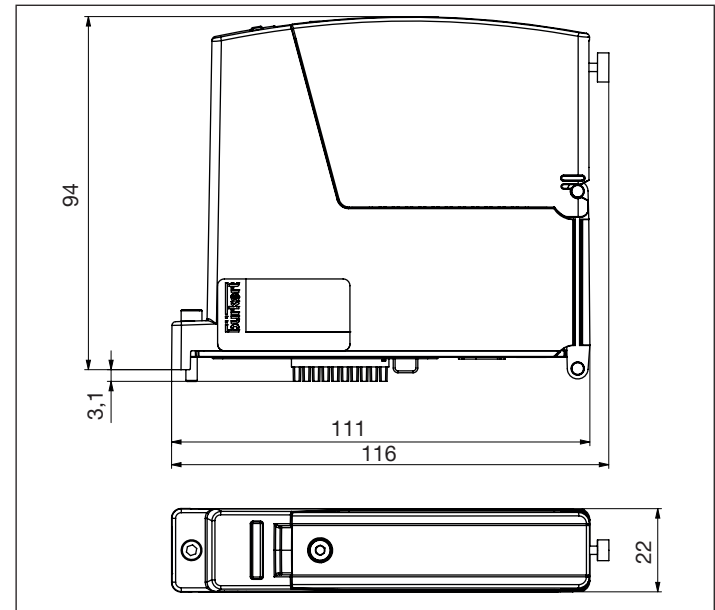


Fig. 1: Dimensions

Housing material: Polycarbonate

## 5.5 Electrical data

Supply voltage:	20–30 V via the backplane BEF1
UL devices:	Power supply unit restricted to Class 2
Power consumption:	< 3 W If the outputs are supplied via büS, the total current is limited internally to 2 A: max. 48 W
Degree of protection:	IP65 according to EN 60529 / IEC 60529 (only if cables, plugs and sockets have been connected correctly)

### 5.5.1 Electrical properties of the inputs and outputs

2AO, 2DO	
Analog output AO	<ul style="list-style-type: none"> <li>• Current output: 4–20 mA</li> <li>• Galvanic isolation</li> <li>• Protection against DC reverse polarity</li> <li>• Resolution: 6 <math>\mu</math>A</li> <li>• Maximum loop impedance (at current output 22 mA) 1350 <math>\Omega</math> at 35 V DC 850 <math>\Omega</math> at 24 V DC 300 <math>\Omega</math> at 12 V DC</li> <li>• Detection of open loop</li> </ul>

Digital output DO	<ul style="list-style-type: none"> <li>• Transistor output</li> <li>• Galvanic isolation</li> <li>• Max. 2500 Hz</li> <li>• Max. 0.7 A per channel Max. 1 A per module</li> <li>• Operating mode (signals): On-Off Threshold value PWM PFM</li> <li>• Overload detection</li> </ul>
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Tab. 1: Electrical properties 2AO, 2DO

4DO PWM 20 kHz	
Digital output DO	<ul style="list-style-type: none"> <li>• Transistor output: open drain output</li> <li>• Max. 20,000 Hz</li> <li>• Max. 0.7 A per channel Max. 1.8 A per module</li> <li>• Operating mode (signals): On-Off Threshold value PWM PFM</li> <li>• Overload detection</li> </ul>

Tab. 2: Electrical properties 4DO PWM 20 kHz



## Type ME24

### Installation

2AI, 2DI	
Analog input AI	<ul style="list-style-type: none"> <li>• Current input or voltage input: 4–20 mA 0–20 mA 0–10 V 0–5 V 0–2 V</li> <li>• Galvanic isolation</li> <li>• Protection against DC reverse polarity</li> <li>• Detection of open loop (at voltage input)</li> <li>• Input impedance for current measurement: 110 Ω voltage measurement: 120 kΩ</li> </ul>
Digital input DI	<ul style="list-style-type: none"> <li>• Voltage input: 0–35 V DC</li> <li>• Galvanic isolation</li> <li>• Protection against DC reverse polarity</li> <li>• Frequency: 0.5–2500 Hz</li> <li>• Input impedance approx. 3–5 kΩ at voltage of 5–35 V</li> <li>• Switching threshold: <math>V_{ON} = 5–35 V</math> <math>V_{OFF} &lt; 2 V DC</math></li> </ul>

Tab. 3: Electrical properties 2AI, 2DI

## 6 INSTALLATION



### 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.

### 6.1 Mount Type ME24 on backplane Type BEF1

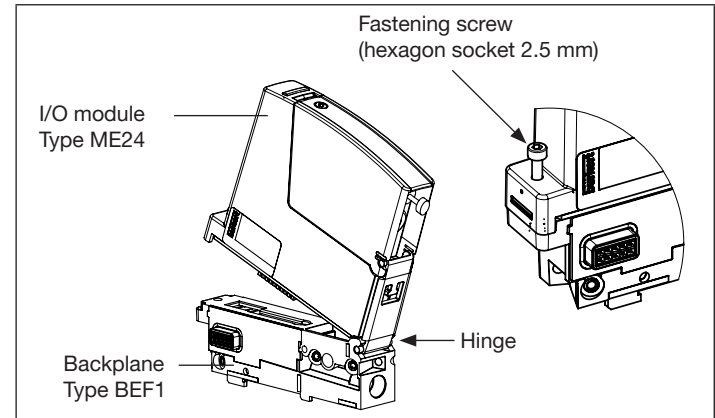


Fig. 2: Mount I/O module Type ME24 on backplane Type BEF1

- Insert hinge part of Type ME24 in counter piece of backplane Type BEF1.
- Press Type ME24 fully on the backplane.
- Tighten fastening screw (hexagon socket 2.5 mm). Max. torque 1 Nm.
- ✓ The Type ME 24 is now connected to the supply voltage on the backplane Type BEF1.

**NOTE!**

- ▶ Use power supply with adequate power.

**6.2 Connect external sensors and actuators**

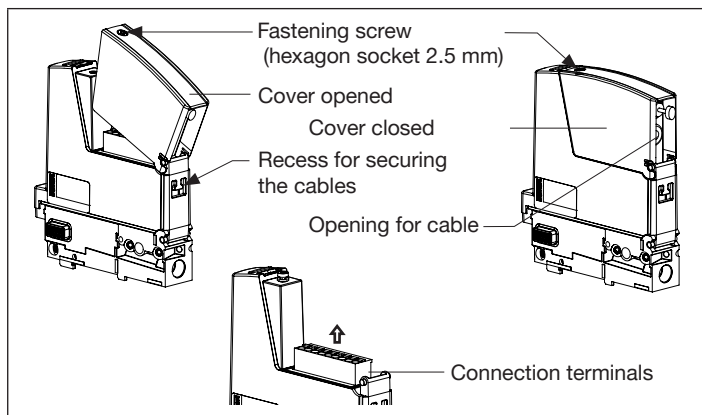


Fig. 3: Connect external sensors and actuators

- Unscrew fastening screw at the cover of Type ME24 (hexagon socket 2.5 mm).
- Open and remove cover.
- Pull out connection terminals.
- Insert cables of the external sensors and actuators through the opening on the back of the cover.
- Connect wires of the external sensors and actuators to the connection terminals (plug configuration see chapter [„6.3 Plug configuration and wiring“](#)).
- Reconnect connection terminal.
- Close cover and tighten fastening screw. Max. torque 1 Nm.

- Fixing the cables for external sensors and actuators (strain relief):
- To relieve the strain, fix the cables to the recess with a cable clip.

### 6.3 Plug configuration and wiring

#### ME24 models 2AO, 2DO, f(x)

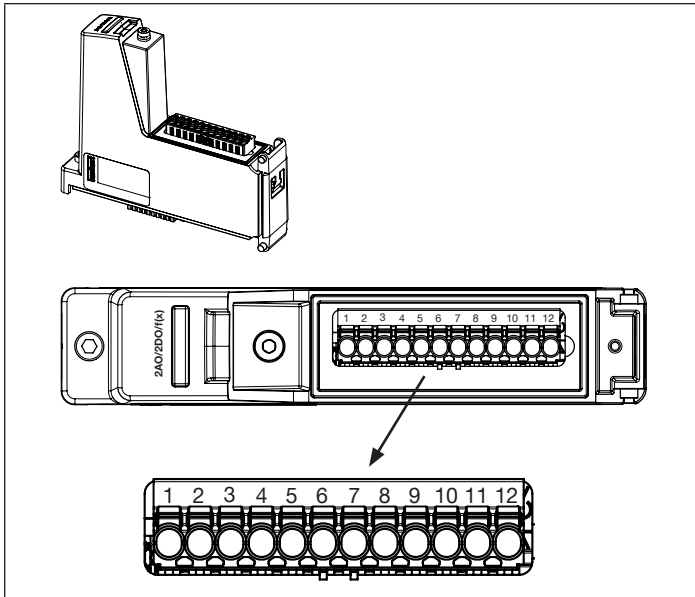


Fig. 4: Configuration 2AO, 2DO, f(x)

Pin	2AO, 2DO, f(x)	
	Plug configuration	External circuit
1	+	20–30 V / 2 A max. OUTPUT no galvanic isolation
2	–	
3	AO1+	+ (4–20 mA) output galvanically isolated
4	AO1–	– (4–20 mA) output galvanically isolated
5	FE	Shielding
6	AO2+	+ (4–20 mA) output galvanically isolated
7	AO2–	– (4–20 mA) output galvanically isolated
8	DO1+	+ NPN galvanically isolated
9	DO1–	– NPN galvanically isolated
10	FE	Shielding
11	DO2+	+ NPN galvanically isolated
12	DO2–	– NPN galvanically isolated

Tab. 4: Configuration 2AO, 2DO, f(x)

2AO, 2DO, f(x): 2-wire

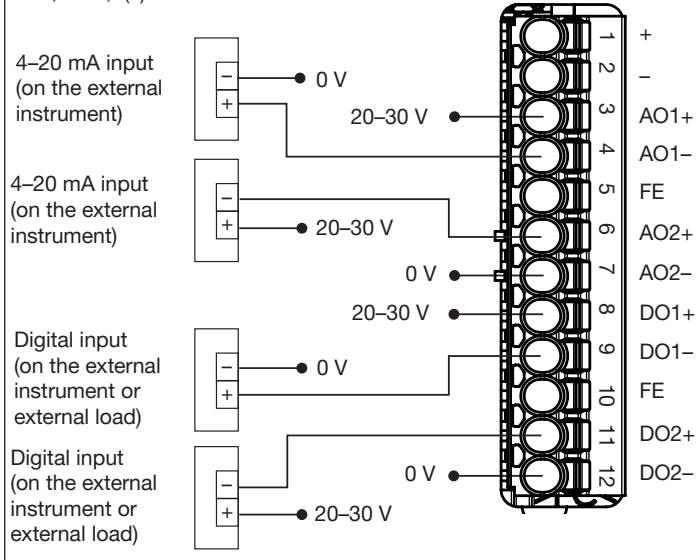


Fig. 5: External circuit 2AO, 2DO, f(x), 2-wire

2AO, 2DO, f(x): 3-wire

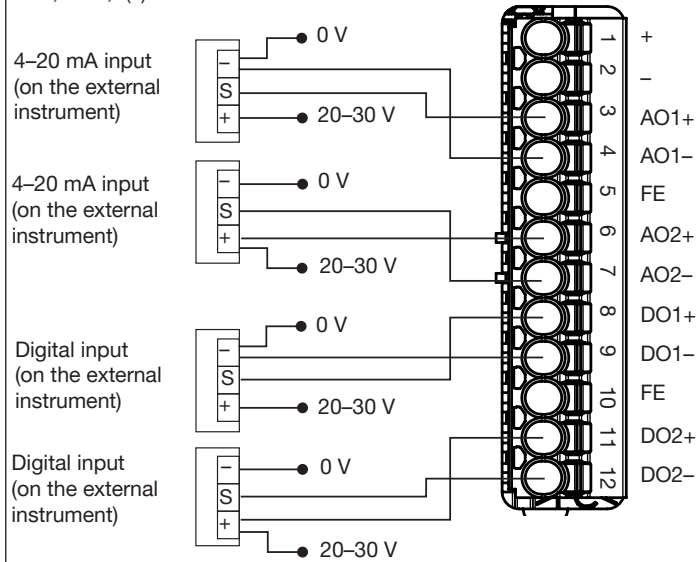


Fig. 6: External circuit 2AO, 2DO, f(x), 3-wire

ME24 models 4DO PWM 20 kHz

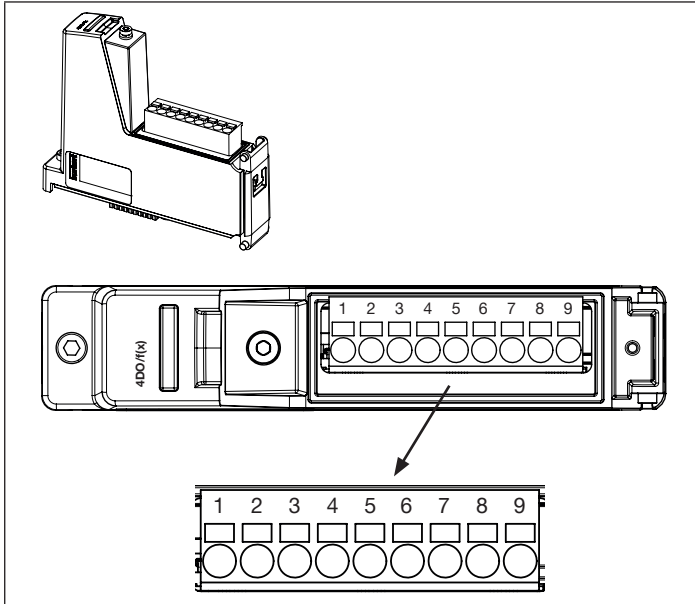


Fig. 7: Configuration 4DO PWM 20 kHz

4DO PWM 20 kHz		
Pin	Plug configuration	External circuit
1	+	20–30 V / 2 A max. total current no galvanic isolation
2	DO1–	Open drain
3	+	20–30 V / 2 A max. total current no galvanic isolation
4	DO2–	Open drain
5	+	20–30 V / 2 A max. total current no galvanic isolation
6	DO3–	Open drain
7	+	20–30 V / 2 A max. total current no galvanic isolation
8	DO4–	Open drain
9	FE	Shielding

Tab. 5: Configuration 4DO PWM 20 kHz

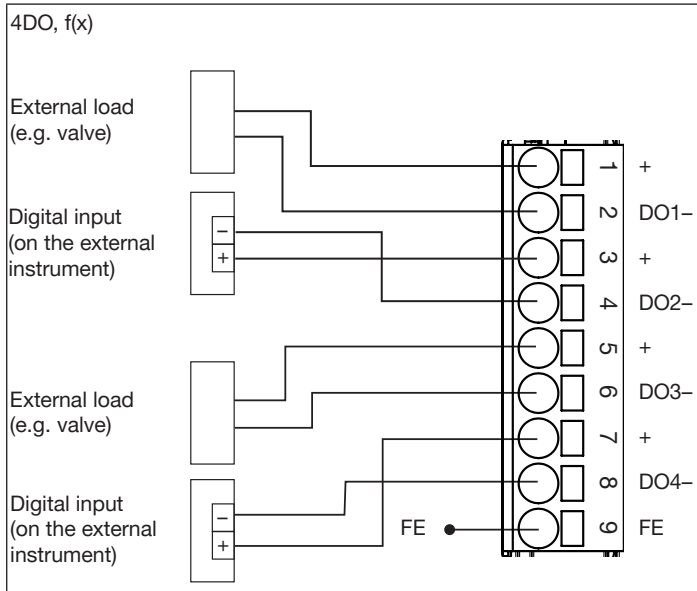


Fig. 8: External circuit 4DO PWM 20 kHz

**ME24 models 2AI, 2DI**

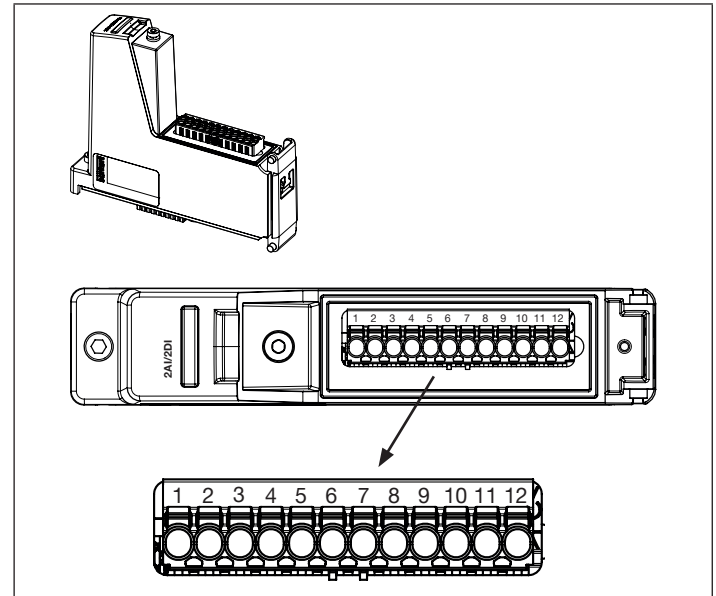


Fig. 9: Configuration 2AI, 2DI

## Type ME24

### Installation

2AI, 2DI		
Pin	Plug configuration	External circuit
1	+	20–30 V / 2 A max. OUTPUT no galvanic isolation
2	–	
3	AI1+	+ (0/4–20 mA, 0 - 2/5/10 V) Input galvanically isolated
4	AI1–	– (0/4–20 mA, 0 - 2/5/10 V) Input galvanically isolated"
5	FE	Shielding
6	AI2+	+ (0/4–20 mA, 0 - 2/5/10 V) Input galvanically isolated
7	AI2–	– (0/4–20 mA, 0 - 2/5/10 V) Input galvanically isolated
8	DI1+	+ (ON: 5–35 V, OFF: <2 V) Input galvanically isolated
9	DI1–	– (ON: 5–35 V, OFF: <2 V) Input galvanically isolated
10	FE	Shielding
11	DI2+	+ (ON: 5–35 V, OFF: <2 V) Input galvanically isolated
12	DI2–	– (ON: 5–35 V; OFF: <2 V) Input galvanically isolated

Tab. 6: Configuration 2AI, 2DI

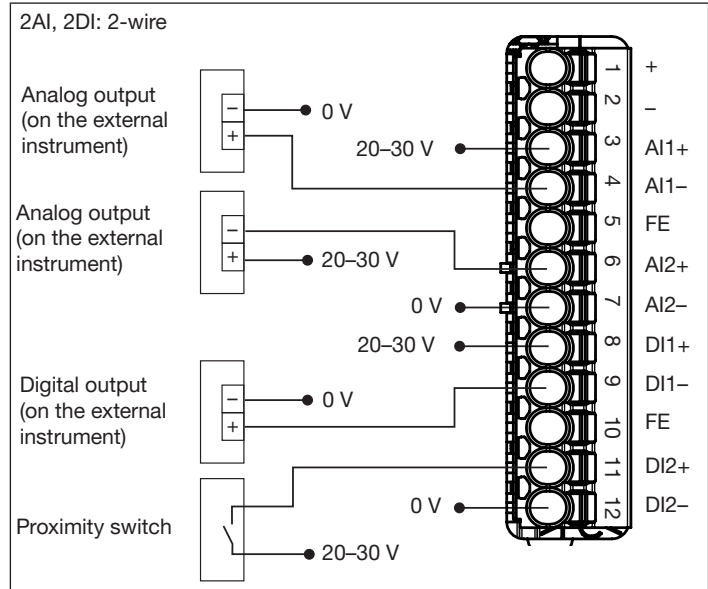


Fig. 10: External configuration 2AI, 2DI, 2-wire

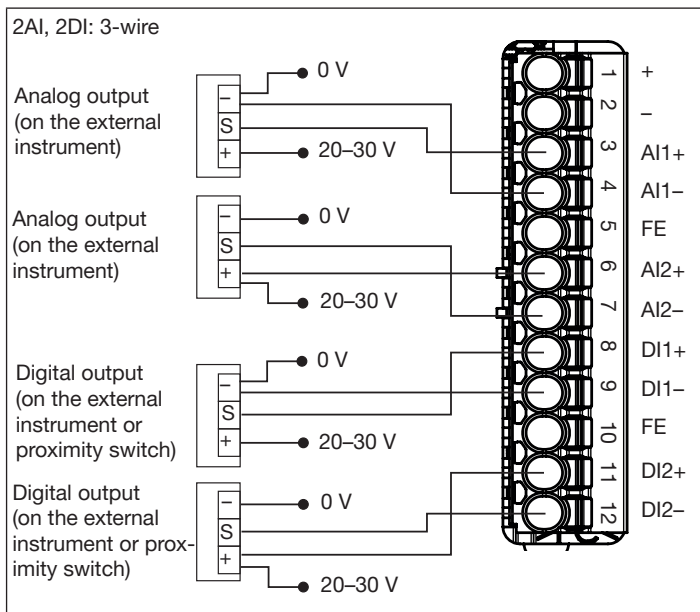


Fig. 11: External configuration 2AI, 2DI, 3-wire

## 7 START-UP



### 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.

### 7.1 Configuration of Type ME24

The configuration can be carried out using the display of the connected system or at the PC using the “Bürkert Communicator” software.



The configuration using the display of the system can be found in the operating instructions for Type ME24.

The “Bürkert Communicator” and the related general description are available on the Bürkert homepage.





The bÜS stick, which is available as accessory, is required for configuration using the “Bürkert Communicator”. See Chapter „9 Accessories“.

## 8 DISASSEMBLY



### WARNING!

Risk of injury from improper disassembly.

- ▶ Disassembly may be carried out only by trained technicians and with the appropriate tools.

### Detaching sensors and actuators:

- If required, remove the cable fixing.
- Unscrew fastening screw at the cover of Type ME24 (hexagon socket 2.5 mm).
- Open and remove cover.
- Remove connection terminal.
- Disconnect the wires from the connection terminals and pull out the cable.
- Reconnect connection terminal.
- Close cover and tighten fastening screw at the cover. Max. torque 1 Nm.

### Removing ME24:

- Unscrew fastening screw for Backplane (hexagon socket 2.5 mm).
- Remove Type ME24 from Backplane.
- Detach type ME24 from the hinge.

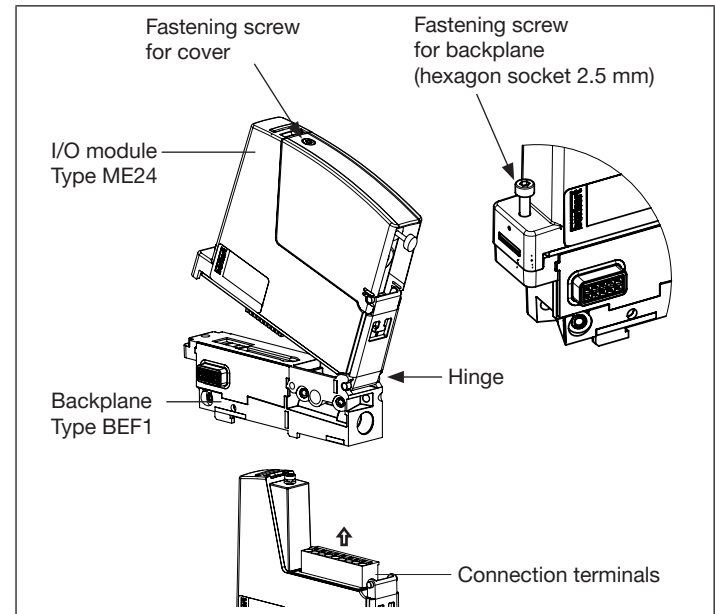


Fig. 12: Disassembly

## 9 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 with cable (socket M12)	00772551
büS stick set (including power supply unit) and "Bürkert Communicator" software	00772426
Micro SD card	00919877
Micro SIM card	00919902

## 10 TRANSPORT, STORAGE, DISPOSAL

### 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.

#### Incorrect storage may damage the device.

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature:  $-40\text{ °C}$ – $+60\text{ °C}$ .

#### 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.



[www.burkert.com](http://www.burkert.com)