



I/O module, IP20

- Configurable input and output modules for analogue and digital signals
- Integrated diagnosis possibilities such as wire break, short circuit detection
- Installation and disassembly without tools
- Colour-coded push-in connectors to avoid wiring errors
- Removable terminals with PUSH-IN spring connection

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type ME43 Fieldbus gateway	▶
	Type 8741 Mass Flow Controller (MFC)/ Mass Flow Meter (MFM) for Gases	▶
	Type 8652 AirLINE - the valve island optimised for process automation	▶
	Type 8316 Pressure measuring device	▶
	Type 6027 Direct-acting 2/2 way plunger valve	▶

Type description

Bürkert I/O modules (In/Out) Type ME44 for extending the fieldbus gateway Type ME43 are used both to capture sensor signals and to give set-point values or switching commands.

The analogue modules 4AI (4 analogue inputs) and 4AO (4 analogue outputs) read in analogue sensor signals (e.g. from pressure transmitters) or give analogue set point values (e.g. for a flow controller). The further processing of input signals, e.g. via a fieldbus to a higher field level, or the targeted output of set-point signals is configured via the fieldbus gateway Type ME43.

The digital modules 8DI (8 digital inputs) and 8DO (8 digital outputs) can be used for the feedback of switches (to DI) or the output of switching signals (via DO). Once again, a configuration in Type ME43 specifies how these inputs and outputs are processed or controlled.

The I/O modules of Type ME44 are plugged onto a so-called backplane, which in turn is connected to the gateway Type ME43. Up to 9 modules of Type ME44 can be connected by 3 backplanes to one gateway Type ME43. Electronic modules Type ME43 and ME44 are part of the Bürkert EDIP (Efficient Device Integration Platform) concept. They facilitate the integration of field level devices (e.g. valves or sensors) into the higher control level.

The modules of Types ME43 and ME44 complement the Bürkert EDIP systems. All I/O modules of type ME44 comply with IEC 61131 -2.

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1. General Technical Data

1.1. I/O-Module

Product properties	
Dimensions	Detailed information can be found in chapter "2. Dimensions" on page 6.
Material	
Body	Polycarbonate
Status LED	RGB LED based on NAMUR NE107, status LEDs per channel
Approvals and certificates	
Safety	UL, CE
SPS	IEC 61131-2
EMC	EN 61326-1, EN-61000-6-2, EN-61000-6-4
Environment and installation	
Ambient temperature	-20 °C...+60 °C
Storage temperature	-30 °C...+80 °C
Degree of protection	IP20 acc. to EN 60529 / IEC 60529
Height above sea level (environment)	Max. 2000 m

1.2. 4AI-Module (Analogue input module)

Product properties	
Configurable input (AI as DI)	AI can also be used as DI (configuration via Software Tool Communicator ►)
Diagnosis	Detection of error conditions (at 3.5 mA and 22 mA according to NAMUR NE43) Detection of an interruption in current input (open loop)
Safety	Reverse polarity protection, protection against over voltage (up to at least ±30 V)
Electrical data	
Electrical version	Current input or voltage input
Operating voltage	24 V DC +20 %/ - 15 % (via Backplane BPX3)
Conductor connection cross sections	0.20...1.5 mm ²
Operating mode	0...20 mA 4...20 mA 0...10 V 0...5 V 0...2 V
Accuracy	±0.1 % Full Scale Range (FSR) Temperature coefficient: Current input: ±35 ppm FSR/K Voltage input: ±40 ppm FSR/K
Input impedance	Current measurement at 25 °C ≤ 110 Ohm Voltage measurement at 25 °C ≥ 115 kOhm
Maximum sensor supply	50 mA per channel
Max. current of module	25 mA
Electrical isolation	For system bus on backplane, no separation between the inputs, all channels have a common reference potential

1.3. 4AO-Module (Analogue output module)

Product properties	
Diagnosis	Short-circuit detection for voltage output (max. 16 mA) Detection of an interruption in current input (open loop)
Safety	Protection against over voltage (up to at least ± 30 V)
Electrical data	
Electrical version	Current output or voltage output
Operating voltage	24 V DC +20 %/ -15 % (via Backplane BPX3)
Conductor connection cross sections	0.20...1.5 mm ²
Operating mode	0...20 mA 4...20 mA 0...10 V 0...5 V 0...2 V
Loop impedance	<900 Ohm for current output
Accuracy	± 0.1 % FSR Temperature coefficient: 14 ppm FSR/K Zero-Scale Error: +0.22 % FSR
Max. current per output channel	50 mA at 900 Ohm load and current output (with smaller load the current also decreases)
Electrical isolation	For system bus on backplane, no separation between the inputs, all channels have a common reference potential

1.4. 8DI-Module (Digital input module)

Product properties	
Diagnosis	Open-circuit detection with 2-wire sensors, short-circuit detection with 3-wire sensors
Safety	Protection against over voltage (up to at least ± 30 V)
Electrical data	
Electrical version	2-wire sensor, 3-wire sensor, mechanical limit switches (all inputs can be configured as frequency inputs)
Operating voltage	24 V DC +20 %/ -15 % (via Backplane BPX3)
Conductor connection cross sections	0.20...1.5 mm ²
Switching threshold	$V_{OFF} = 0...5$ V $V_{ON} = 10...30$ V
Input current of V_{ON} , typ. 24 V DC	Max. 5.7 mA per channel
Input type	Type1 and Type3 acc. to IEC 61131-2
Number of frequency inputs	8
Frequency inputs	Max. to 2.5 kHz
Input impedance	>4 kOhm
Sampling time/sampling frequency	1 ms...4 s /0.25 Hz...1 kHz
Max. sensor power supply	8x 30 mA
Max. current consumption of module	30 mA
Electrical isolation	No, all channels have a common reference potential

1.5. 8DO-Module (Digital output module, P activated)

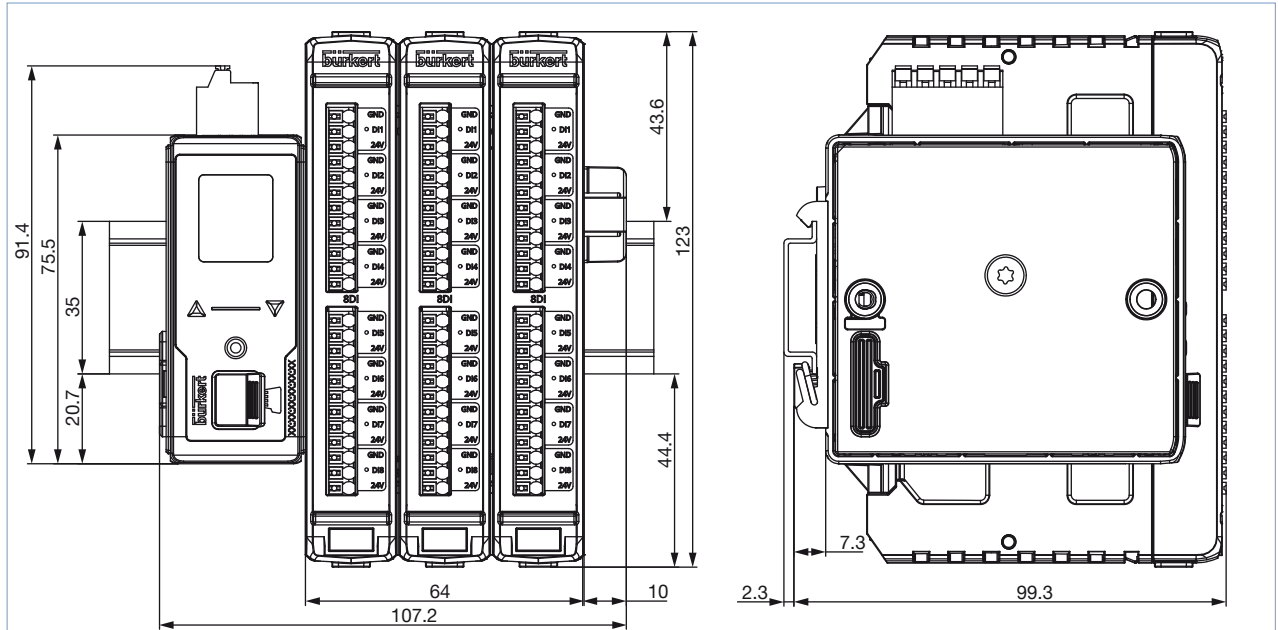
Product properties	
Diagnosis	Short-circuit detection
Safety	Protection against over voltage (up to at least ± 30 V)
Electrical data	
Electrical version	Voltage output
Operating voltage	24 V DC +20 % / - 15 % (via Backplane BPX3)
Conductor connection cross sections	0.20...1.5 mm ²
Operating mode	ON/OFF Switching signal with configured limit in ME43 PWM (Pulse Width Modulation) PFM (Pulse Frequency Modulation)
Running frequency	20 kHz configurable
Max. AUX current consumption	8 x 750 mA
Max. module current consumption	30 mA
Electrical isolation	For system bus on backplane, no separation between the inputs, all channels have a common reference potential

2. Dimensions

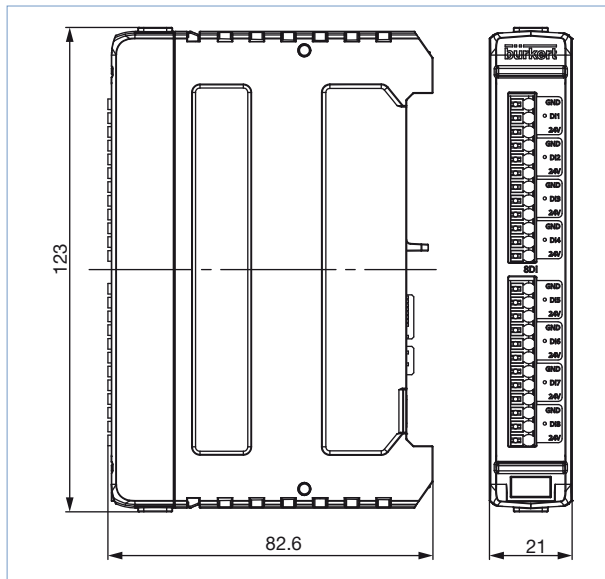
Note:

Dimensions in mm

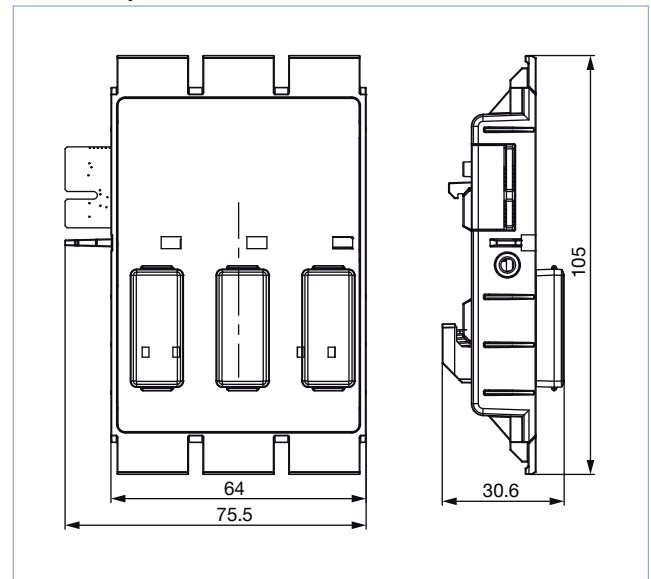
3 IO modules on 3-fold backplane to gateway Type ME43



IO module



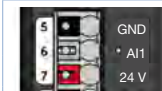
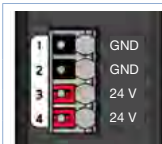
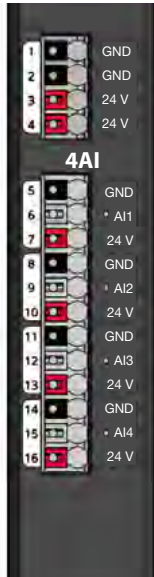
3-fold backplane



3. Device/Process connections

3.1. Electrical assignment and circuit diagram for 4AI module

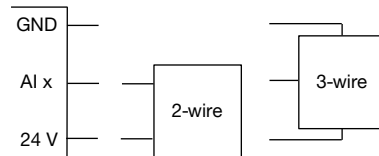
AUX-Power is used for the power supply of the AI channels. A second AUX-Power connection can be used to supply another module.



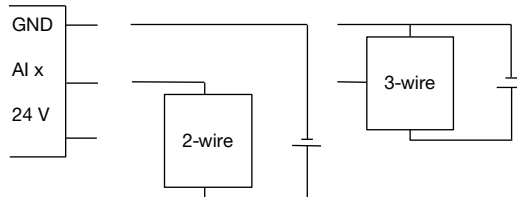
Pin assignment for AUX Power	Outer circuitry
GND	Ground
GND	Ground
24 V	AUX power supply voltage 24 V $\pm 20\%$ / - 15 %
24 V	AUX power supply voltage 24 V $\pm 20\%$ / - 15 %
Pin assignment for analogue inputs	Outer circuitry
GND	Ground
AI1-AI4	Analogue input+
24 V	Supply voltage 24 V $\pm 20\%$ / - 15 %

Circuit diagram:

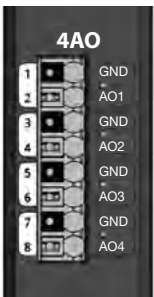
Internally powered (sensor is supplied via this module)



Externally powered (sensor is not supplied via module, but from another source)

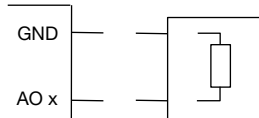


3.2. Electrical assignment and circuit diagram for 4AO module

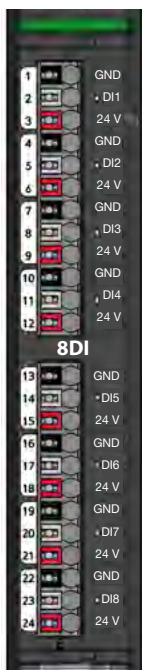


Pin assignment for analogue inputs	Outer circuitry
GND	Ground
AO1-AO4	Analogue output+

Circuit diagram:



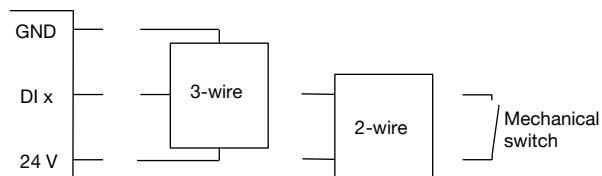
3.3. Electrical assignment and circuit diagram for 8DI module



Pin assignment of analogue inputs

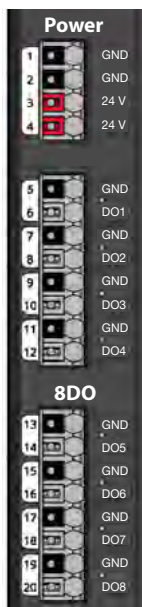
Pin assignment of analogue inputs	Outer circuitry
GND	Ground
DI1-DI8	Digital input
24 V	Power supply 24 V $\pm 20\%$ / - 15 %

Circuit diagram:



3.4. Electrical assignment and circuit diagram for 8DO module

AUX-Power is used for the power supply of the DO channels. A second AUX-Power connection can be used to supply another module.



Pin assignment for AUX Power

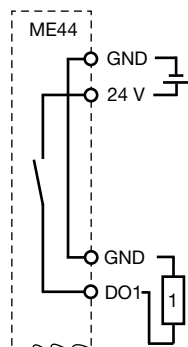
Pin assignment for AUX Power	Outer circuitry
GND	Ground
GND	Ground
24 V	AUX power supply voltage 24 V $\pm 20\%$ / - 15 %
24 V	AUX power supply voltage 24 V $\pm 20\%$ / - 15 %



Pin assignment of digital outputs

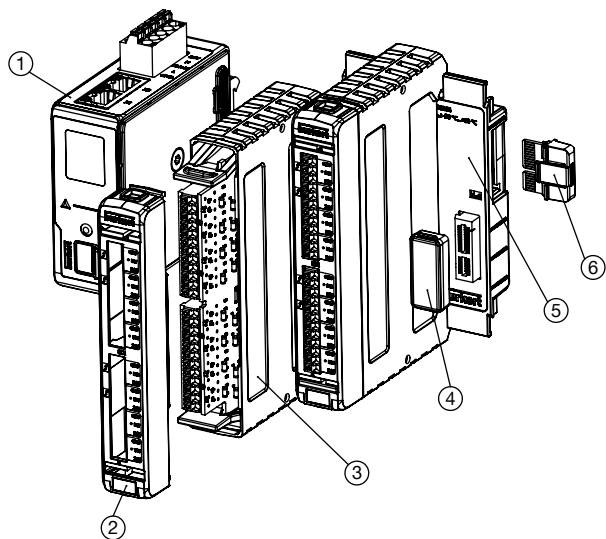
Pin assignment of digital outputs	Outer circuitry
GND	Ground
DO1-DO8	Digital output+

Circuit diagram:



4. Product design and assembly

4.1. Product assembly



No.	Designation
1	Fieldbus gateway ME43
2	Connection panel of ME44
3	I/O-Module ME44
4	Cover for module slot of backplane
5	Backplane (3-fold) BPX3
6	Termination resistor

5. Ordering information

5.1. Bürkert eShop – Easy ordering and quick delivery



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5.3. Ordering chart

Description	Article no.
8 x digital inputs: 8DI module (ME44)	354316 
8 x digital outputs: 8DO module (ME44)	354317 
4 x analogue inputs: 4AI module (ME44)	354321 
4 x analogue outputs: 4AO module (ME44)	354325 
Backplane System Connect Type BPX3	307510 

5.4. Ordering chart accessories

Description	Article no.
Termination resistor (ready to plug in)	303833 
Power supply unit Type 1573 for DIN rail, 100...240 V AC / 24 V DC, 1.25 A, NEC Class 2 (UL 1310)	772438 
Power supply unit Type 1573 for DIN rail, 100...240 V AC / 24 V DC, 1 A, NEC Class 2 (UL 1310)	772361 
Power supply unit Type 1573 for DIN rail, 100...240 V AC / 24 V DC, 2 A, NEC Class 2 (UL 1310)	772362 
Power supply unit Type 1573 for DIN rail, 100...240 V AC / 24 V DC, 4 A	772363 
Micro SD card	774087 
büS stick set 1 (incl. cable (M12), stick with integrated terminating resistor, power supply and software) ^{1,3)}	772426 
büS stick set 2 (incl. cable (M12)), stick with integrated terminating resistor ^{1,3)}	772551 
Software Bürkert Communicator	LINK ►

1) For space reasons, M12 single connectors may not be suitable for simultaneous use on the same side of a Y-distributor. In this case, please use a commercially available overmolded cable.

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