bürkert
FLUID CONTROL SYSTEMS

Type 8619

8619 multiCELL WM AC
8619 multiCELL WM DC
8619 multiCELL

Modular transmitter/controller
Modularer Transmitter/Controller
Transmetteur/contrôleur modulaire

Quickstart

(from software version B.02.00 / Gültig ab Software-
version B.02.00 / À partir de la version logicielle B.02.00)

MAN 1000333498 EN Version: D Status: RL (released | freigegeben) printed: 26.09.2023

1 ABOUT THE QUICKSTART

The Quickstart describes the entire life cycle of the device. Please keep it in a safe place, accessible to all users and any new owners.

This Quickstart contains important safety information.

Failure to comply with these instructions can lead to hazardous situations.

▶ When the symbol ⚠ is marked inside or outside the device, carefully read the Operating Instructions.

▶ Whatever the version of the device, this Quickstart must be read and understood.

The Quickstart describes the main steps to be carried out when installing, commissioning and programming the device.

Refer to the corresponding Operating Instructions to get a complete description of the device.

> The Operating Instructions for Type 8619 can be found on internet under:
> country.burkert.com → Type 8619

1.1 Symbols used

⚠ **DANGER**

Warns against an imminent danger.

▶ Failure to observe this warning can result in death or in serious injury.

⚠ **WARNING**

Warns against a potentially dangerous situation.

▶ Failure to observe this warning can result in serious injury or even death.

⚠ **CAUTION**

Warns against a possible risk.

▶ Failure to observe this warning can result in substantial or minor injuries.

NOTICE

Warns against material damage.

> Advice or important recommendations.

> Refers to information contained in this Quickstart or in other documents.

▶ Indicates an instruction to be carried out to avoid a danger, a warning or a possible risk.

→ Indicates a procedure to be carried out.

1.2 Definition of the word "device"

The word "device" used in the Quickstart refers to the controller/transmitter:

• Type 8619 multiCELL, i.e. the panel-mounted versions,

• Type 8619 multiCELL WM AC, i.e. the wall-mounted versions with an AC operating voltage,

• Type 8619 multiCELL WM DC, i.e. the wall-mounted versions with a DC operating voltage,

1.3 Definition of the word "Industrial Ethernet"

The term "Industrial Ethernet" as used in the Quickstart, refers to the devices that communicate with the industrial network protocols Modbus TCP, PROFINET or EtherNet/IP.

1.4 Validity of the Quickstart

The Quickstart is valid for the devices from software version B.02.00.

→ On the device, check the software version in the menu "Information -> Versions -> M0: Main -> Firmware".

2 INTENDED USE

Use of this device that does not comply with the instructions could present risks to people, nearby installations and the environment.

The device is intended, depending on the modules fitted and the measurement sensors connected, for the acquisition, processing, transmission and regulation of physical parameters such as pH/ORP, conductivity, temperature, flow rate... .

▶ Use the device only in combination foreign devices or foreign components recommended or approved by Bürkert.

▶ Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, the effects of climatic conditions.

▶ Use the device in compliance with the characteristics and commissioning and use conditions specified in the contractual documents and in the Operating Instructions.

▶ Never use the device for security applications.

▶ Store, transport, install and operate the device properly.

▶ Only operate a device in perfect working order.

▶ Only use the device as intended.

3 BASIC SAFETY INFORMATION

This safety information does not take into account any contingencies or occurrences that may arise during installation, use and maintenance of the device.

The operating company is responsible for the respect of the local safety regulations including for the staff safety.

⚠ **Risk of injury due to electrical voltage.**

▶ If a 12...36 V DC wall-mounted version is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.

▶ Before carrying out work on the system, disconnect the electrical power for all the conductors and isolate it.

▶ All equipment connected to the device must be double insulated in relation to the mains according to the standards UL/EN 61010-1.

▶ Observe all applicable accident protection and safety regulations for electrical equipment.

Various dangerous situations.

To avoid injury:

▶ Do not use the device in explosive atmospheres.

▶ Do not use the device in an environment incompatible with the materials it is made of.

▶ Do not subject the device to mechanical loads.

▶ Do not make any modifications to the device.

▶ Prevent any unintentional power supply switch-on.

▶ Only qualified and skilled staff can carry out the installation and maintenance work.

▶ Guarantee a defined or controlled restarting of the process, after a power supply interruption.

▶ Observe the general technical rules.

NOTICE

Elements/components sensitive to electrostatic discharges

This device contains electronic components sensitive to electrostatic discharges. They may be damaged if they are touched by an electrostatically charged person or object. In the worst case scenario, these components are instantly destroyed or go out of order as soon as they are activated.

▶ To minimise or even avoid all damage due to an electrostatic discharge, take all the precautions described in standard EN 61340-5-1.

▶ Also ensure that you do not touch any of the live electrical components.

4 GENERAL INFORMATION

4.1 Manufacturer's address and international contacts

To contact the manufacturer of the device, use following address:

Burkert SAS

Rue du Giessen

BP 21

F-67220 TRIEMBACH-AU-VAL

You may also contact your local Burkert sales office.

The addresses of our international sales offices are available on the internet at: country.burkert.com

4.2 Warranty conditions

The condition governing the legal warranty is the conforming use of the device in observance of the operating conditions specified in the Operating Instructions.

4.3 Information on the internet

You can find the Operating Instructions and technical data sheets regarding the Type 8619 at: country.burkert.com

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5 DESCRIPTION OF THE TYPE LABEL
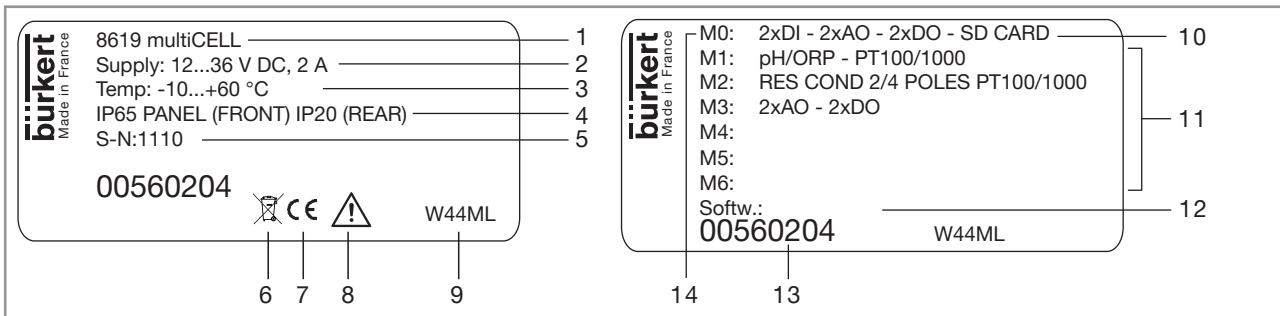
Fig. 1:   Description of a Type label (example)

1. Type of the device

2. Electrical power supply

3. Ambient temperature range

4. Protection rating

5. Serial number

6. Disposal information

7. Conformity marking

8. Warning: Before using the device, take into account the technical specifications given in the Operating Instructions.

9. Manufacturing code

10. Device fitted with a memory card reader

11. Characteristics of the extension modules

12. Software options

13. Article number

14. Properties of the main board "M0"

5.1   Additional markings (only for an Ethernet version)

EtherNet/IP™
PROFI NET®
Modbus TCP
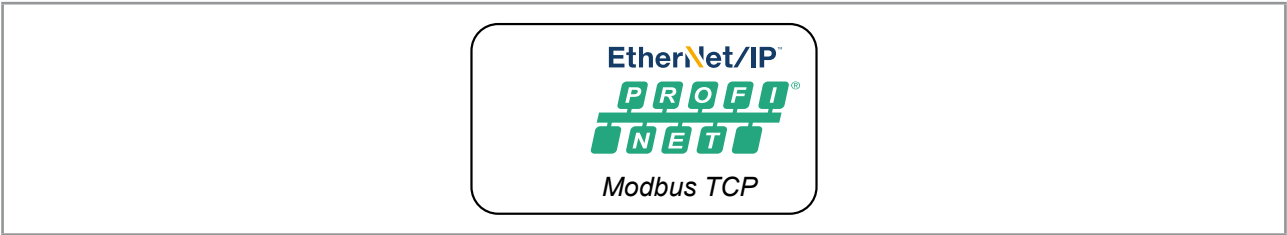
Fig. 2:   Marking with the protocols (example)

DC-B0-58-FF-FF-FF
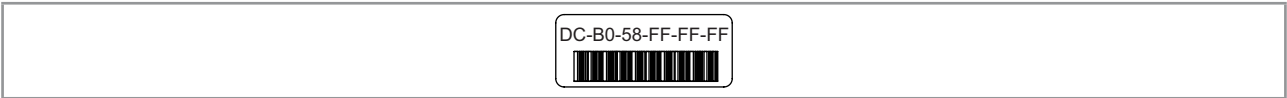
Fig. 3:   Marking with the MAC address of the device (example)

5.2   Symbols on the device

Symbol	Description
⎓	Direct current
∿	Alternating current
⏚	Earth terminal
⏚	Protective conductor terminal

6 TECHNICAL DATA

6.1 Conditions of use of the 8619 multiCELL

Ambient temperature • without extension modules • with extension modules	• –10...+70 °C[1] • –10...+60 °C[1] [1] *If a memory card is used, observe the operating temperatures given by the manufacturer of the memory card*
Air humidity	< 85 %, not condensing
Use	Indoor and outdoor ▶ Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions
IP-Code	• IP65[2] according to IEC / EN 60529, NEMA4X on front, if the device is mounted in an electrical enclosure and if the electrical enclosure is tightly closed • IP20[2] according to IEC / EN 60529 inside the electrical enclosure [2] *not evaluated by UL*
Operating condition	Continuous operation
Mobility of the device	Fixed device
Degree of pollution	Degree 2 according to UL/EN 61010-1
Installation category	Category I according to UL/EN 61010-1
Maximum height above sea level	2000 m

English

6.2   Conditions of use of the 8619 multiCELL WM DC

Ambient temperature • without extension modules • with extension modules	• –10...+75 °C[3] • –10...+60 °C[3] [3] *If a memory card is used, observe the operating temperatures given by the manufacturer of the memory card.*
Air humidity	< 85 %, not condensing
Use	Indoor and outdoor ▶ Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions
IP-Code	IP65[4] and IP67[4], according to IEC / EN 60529, if the following conditions are met: • Body of each cable gland tightened to a torque of 5.5 Nm ± 20 % (4.06 lbf·ft ± 20 %) at the factory. • Cable glands blanked off or wired. • Nut of each cable gland tightened to a torque of 4.5 Nm ± 20 % (3.32 lbf·ft ± 20 %). • Housing tightly closed. • The 4 screws for the cover are tightened crosswise to a torque of 1.4 Nm ± 20 % (1.03 lbf·ft ± 20 %). [4] *not evaluated by UL*
Operating condition	Continuous operation
Mobility of the device	Fixed device
Degree of pollution	Degree 2 according to UL/EN 61010-1
Installation category	Category I according to UL/EN 61010-1
Maximum height above sea level	2000 m

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6.3 Conditions of use of the 8619 multiCELL WM AC

⚠ Observe the maximum permissible load as a function of the ambient temperature.
See the derating curves in Fig. 6 chapter 6.9.

Ambient temperature	–10...+70 °C[5]. Refer to the derating curves Fig. 6 chapter 6.9. *[5] If a memory card is used, observe the operating temperatures given by the manufacturer of the memory card.*
Air humidity	< 85 %, not condensing
Use	Indoor and outdoor ▸ Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, against the effects of climatic conditions
IP-Code	IP65[6] and IP67[6] according to IEC / EN 60529, if the following conditions are met: • Body of each cable gland tightened to a torque of 5.5 Nm ± 20 % (4.06 lbf·ft ± 20 %) at the factory. • Cable glands blanked off or wired. • Nut of each cable gland tightened to a torque of 4.5 Nm ± 20 % (3.32 lbf·ft ± 20 %). • Housing tightly closed. • The 4 screws for the cover are tightened crosswise to a torque of 1.4 Nm ± 20 % (1.03 lbf·ft ± 20 %). *[6] not evaluated by UL*
Operating condition	Continuous
Mobility of the device	Device fixed
Degree of pollution	Degree 3 according to UL/EN 61010-1 if the following conditions are met: • Housing tightly closed. • The 4 screws of the cover are tightened crosswise to a torque of 1.4 Nm ± 20 % (1.03 lbf·ft ± 20 %).
Installation category	Category II according to UL/EN 61010-1
Maximum height above sea level	2000 m

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6.4 Standards and directives

The device complies with the relevant EU harmonisation legislation. In addition, the device also complies with the requirements of the laws of the United Kingdom.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity/UK Declaration of Conformity.

UL certification

Finished devices with variable key PU01 or PU02 are UL-certified devices and comply also with the following standards:

• UL 61010-1

• CAN/CSA-C22.2 n°61010-1

Identification on the device	Certification	Variable key
® C US	UL-recognized	PU01
C US LISTED Measuring Equipment E237737	UL-listed	PU02

For Ethernet versions, the device is certified by the following certification bodies:

• ODVA for EtherNet/IP protocol,

• PI for PROFINET protocol.

6.5 Material data

Table 1:   Materials in contact with the ambient air

Component	Material	
	8619 multiCELL	8619 multiCELL WM AC or 8619 multiCELL WM DC
Panel-mounting housing and fastener	PPO	-
Wall-mounting housing, wall-mounting fastening plate, cable glands, protective cap (for LCD display), hinge stiffener.	-	PA66
Protective blank (for a slot without connection terminal)	PA66	
Seal	Silicone	
Front panel and keys	PC/silicone	
Terminal support plate	Stainless steel 304	
Terminal blocks	PBT, contacts in gold-plated copper alloy	
Port for an RJ45 connector	Housing: copper alloy and thermoplastic Contacts: gold-plated	
Ground screw + spring washer	Stainless steel 316 (A4)	

Component	Material	
	8619 multiCELL	8619 multiCELL WM AC or 8619 multiCELL WM DC
Protective cap for the 110...240 V AC power supply terminal board	-	Stainless steel 304
4 cover screws	-	PVC

Fig. 4:   Component materials of the 8619 multiCELL
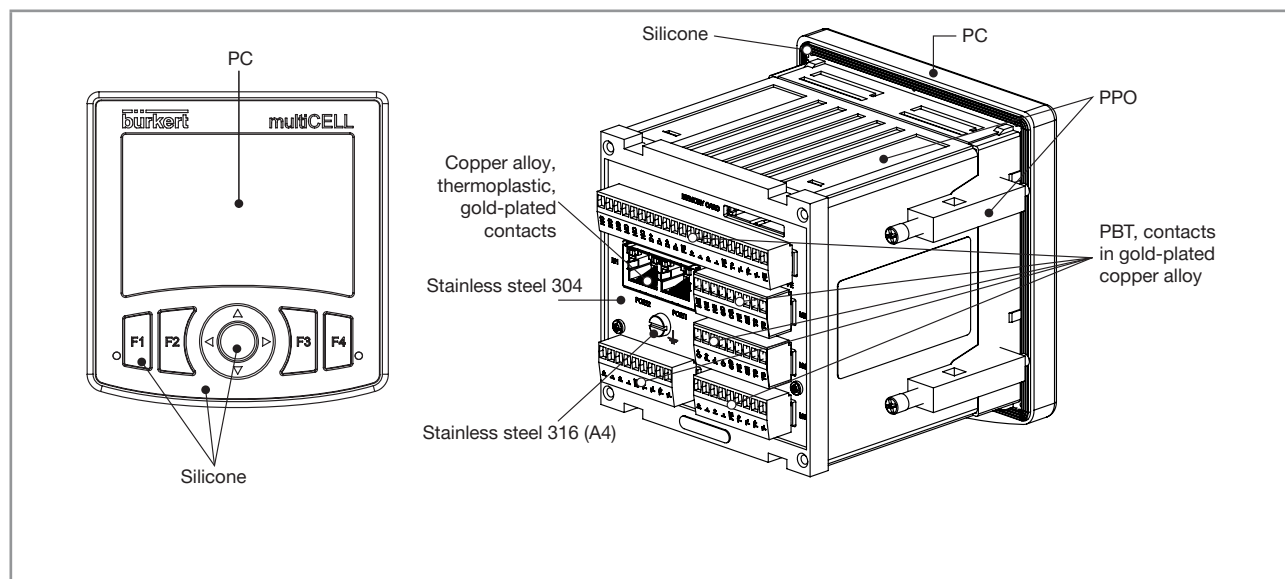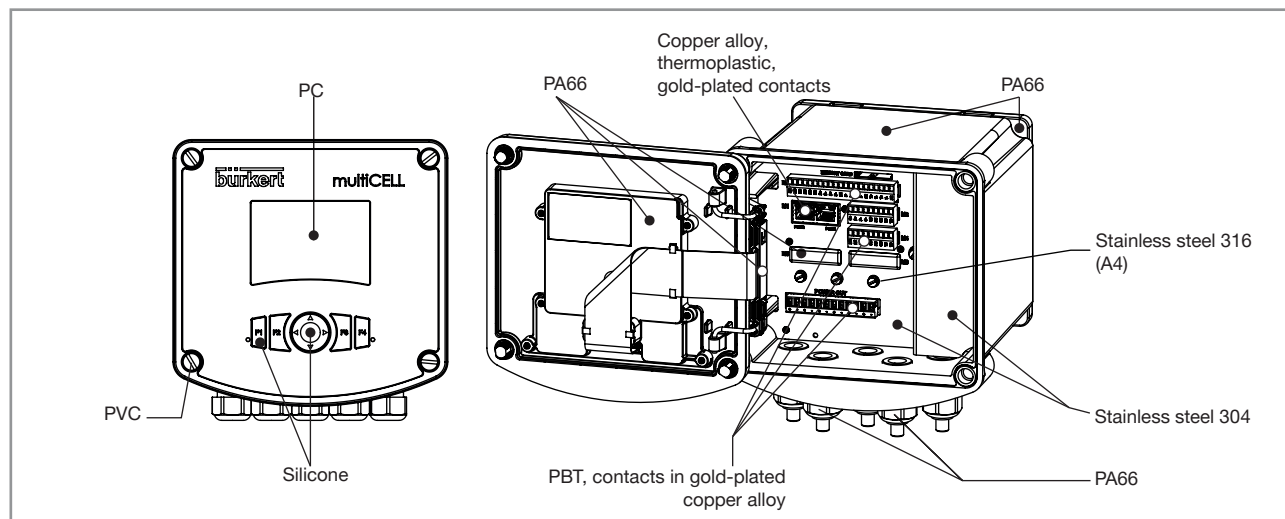

Fig. 5:   Component materials of the 8619 multiCELL WM

6.6   Dimensions

Please refer to the technical data sheets of the device, available at: country.burkert.com

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6.7   Electrical specifications of the 8619 multiCELL

Operating voltage	• 12...36 V DC • Filtered and regulated • Tolerance: ±10 % • Maximal consumption: 2 A • Limited power source according to UL/EN 62368-1, Appendix Q • or limited energy circuit according to UL/EN 61010-1, Paragraph 9.4 • SELV/PELV with UL-approved overcurrent protection designed according to UL/EN 61010-1, Table 18
Own consumption (without extension modules, outputs not connected)	1.5 VA
Power distribution ("PWR OUT")	• 12...36 V DC, 1.8 A max. • Protected against polarity reversal
All digital inputs ("DI")	• Switching threshold V_{on}: 5...36 V DC • Switching threshold V_{off}: < 2 V DC • Input impedance: 3 kΩ • Galvanically isolated • Protected against polarity reversal and voltage spikes • Frequency: 0.5...2500 Hz
All analogue outputs ("AO")	• 4...20 mA current • Uncertainty: ±0.5 % of the measured value • Any connection mode, in sink or source mode • Galvanically isolated • Protected against polarity reversal • Max. loop impedance 860 Ω at 30 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC

All digital outputs ("DO")	• Transistor
	• Any connection mode, in NPN or PNP mode
	• Galvanically isolated
	• Protected against short circuits
	• Max. voltage: 36 V DC
	• Max. frequency 2000 Hz
	• Maximum current consumption allowed:
	  - Max. 700 mA if 1 DO per module is activated
	  - Max. 1 A if the 2 DOs per module are activated
	  - Max. 4 A for an Ethernet version if the device has 4 output modules

6.8 Electrical specifications of the 8619 multiCELL WM DC

Operating voltage	• 12...36 V DC • Filtered and regulated • Tolerance: ±10 % • Maximal consumption: 2 A • Limited power source according to UL/EN 62368-1, Appendix Q • or limited energy circuit according to UL/EN 61010-1, Paragraph 9.4 • SELV/PELV with UL-approved overcurrent protection designed according to UL/EN 61010-1, Table 18
Own consumption (without extension module, outputs not connected)	2 VA
Power distribution (POWER OUT module)	• Protected against polarity reversal • 12...36 V DC, 1.8 A max.
All digital inputs ("DI")	• Switching threshold V_{on}: 5...36 V DC • Switching threshold V_{off}: < 2 V DC • Input impedance: 3 kΩ • Galvanically isolated • Protected against polarity reversal and voltage spikes • Frequency: 0.5...2500 Hz
All analogue outputs ("AO")	• 4...20 mA current • Uncertainty: ±0.5 % of the measured value • Any connection mode, in sink or source mode • Galvanically isolated • Protected against polarity reversal • Max. loop impedance 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC

All digital outputs ("DO")	• Transistor
	• Any connection mode, in NPN or PNP mode
	• Galvanically isolated
	• Protected against short circuits
	• Max. voltage: 36 V DC
	• Max. frequency 2000 Hz
	• Maximum current consumption allowed:
	  - Max. 700 mA if 1 DO per module is activated
	  - Max. 1 A if the 2 DOs per module are activated
	  - Max. 4 A for an Ethernet version if the device has 4 output modules

6.9   Electrical specifications of the 8619 multiCELL WM AC

Electrical supply 110...240 V AC	
• Tolerance	• –10...+10 %
• Frequency	• 50...60 Hz
• Max. current	• 550 mA
• Integrated protection	• Delayed 3.15 A fuse, 250 V AC, (breaking capacity = 1500 A at 250 V AC, 10 kA at 125 V AC), certified IEC 60127, UL-listed and UL-recognized
Power distribution (POWER OUT module)	• Protected against polarity reversal • 24 V DC, filtered and regulated, device permanently connected to a Safety Extra-Low Voltage circuit (SELV circuit), at a non-hazardous energy level, • ⚠ 1.3 A max.: observe the maximum permissible load as a function of the ambient temperature. See the derating curves in Fig. 6.

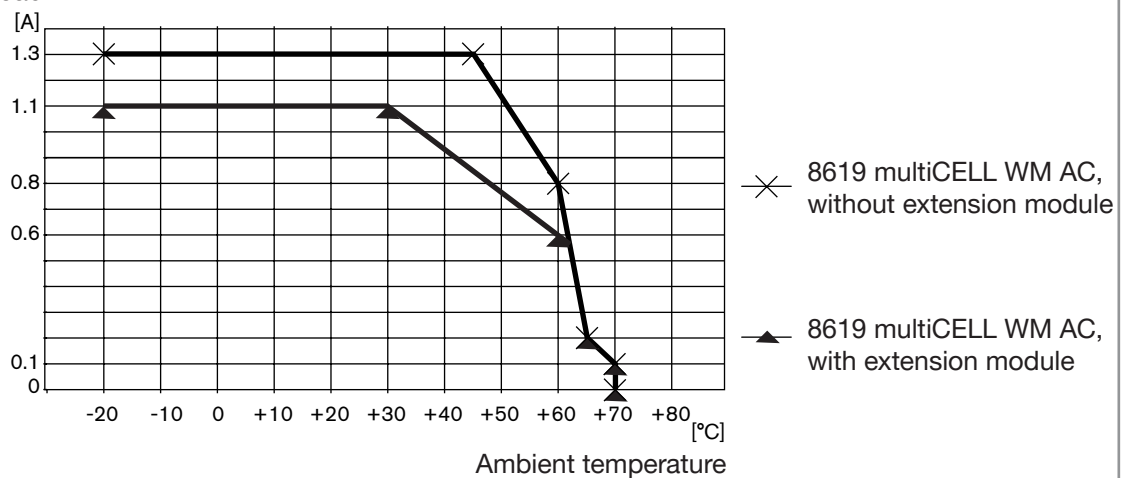*Fig. 6:   Derating curves of the maximum permissible current, depending on the ambient temperature*

All digital inputs ("DI")	
	• Switching threshold V_{on}: 5...36 V DC
	• Switching threshold V_{off}: < 2 V DC
	• Input impedance: 3 kΩ
	• Galvanically isolated
	• Protected against polarity reversal and voltage spikes
	• Frequency: 0.5...2500 Hz

All analogue outputs ("AO")	• 4...20 mA current
	• Uncertainty: ±0.5 % of the measured value
	• Any connection mode, in sink or source mode
	• Galvanically isolated
	• Protected against polarity reversal
	• Max. loop impedance 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC
All digital outputs ("DO")	• Transistor
	• Any connection mode, in NPN or PNP mode
	• Galvanically isolated
	• Protected against short circuits
	• Max. voltage: 36 V DC
	• Max. frequency 2000 Hz
	• Maximum current consumption allowed:
	- Max. 700 mA if 1 DO per module is activated
	- Max. 1 A if the 2 DOs per module are activated
	- Max. 4 A for an Ethernet version if the device has 4 output modules

6.10 Specifications common to all the versions

6.10.1 Specifications of the memory card

> We recommend to use the 8 GB memory card available at Bürkert with article number 564072, because it has been tested with and validated to operate with the device.
>
> A memory card with a different capacity or from another manufacturer can lead to the malfunction of the device.

• Memory card type	• MMC (MultiMedia Card) and compatible
• Capacity	• 8 GB max.
• File system	• FAT32
• Operating temperature	• –25...+85 °C

6.10.2 Flow rate measurement

> Refer to the Operating Instructions of the flow sensor connected to the device.

6.10.3   Specifications of the "Input" module

Power consumption	0.1 VA
Digital inputs ("DI")	• Switching threshold V_{on}: 5...36 V DC • Switching threshold V_{off}: < 2 V DC • Input impedance: 3 kΩ • Galvanically isolated • Protected against polarity reversal and voltage spikes • Frequency: 0.5...2500 Hz
Analogue inputs ("AI")	• Any connection mode, in sink or source mode • Galvanically isolated • Precision ±0.25 % • Current: 0...22 mA or 3.5...22 mA. Max. voltage: 36 V DC. Impedance: 50 Ω. Resolution: 1.5 µA. • Voltage: 0...5 V DC or 0...10 V DC. Max. voltage: 36 V DC. Impedance: 110 kΩ. Resolution: 1 mV.

6.10.4   Specifications of the output module "OUT"

Power consumption	0.1 VA
All digital outputs ("DOx")	• Transistor • Any connection mode, in NPN or PNP mode • Galvanically isolated • Protected against short circuits • Max. voltage: 36 V DC • Max. frequency 2000 Hz • Maximum current consumption allowed: see section 6.7, 6.8 or 6.9
All analogue outputs ("AOx")	• 4...20 mA current • Uncertainty: ±0.5 % of the measured value • Any connection mode, in sink or source mode • Galvanically isolated • Protected against polarity reversal • Max. loop impedance 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC

6.10.5 Specifications of the "pH/ORP" module

pH measurement	
• pH measurement range	• –2.00...+16.00 pH
• Resolution of pH measurement	• 0.01 pH
• Systematic variation in the pH measurement	• ±0.02 pH + pH probe error
• Potential difference measurement range	• –600...+600 mV
• Resolution of the potential difference measurement	• 0.1 mV
• Systematic variation in the potential difference measurement	• ±1 mV + pH probe error
• pH probe type	• Electrochemical
Power consumption	0.1 VA
Measurement of the oxidation reduction potential	
• Oxidation reduction potential measurement range	• –2000...+2000 mV
• Resolution of the potential difference measurement	• 0.1 mV
• Systematic variation in the potential difference measurement	• ±1 mV + ORP probe error
• Oxidation reduction potential probe type	• Electrochemical
Temperature measurement	
• Measurement range	• –25...+130 °C
• Measurement resolution	• 0.1 °C
• Systematic variation in the measurement	• ±1 °C + temperature probe error
• Temperature sensor type	• Pt100 or Pt1000, with 2 or 3 wires

6.10.6 Specifications of the conductivity module "COND"

Resistance measurement (without conductivity sensor connected)	5 Ω...1 MΩ
Power consumption	0.25 VA
Type of conductivity probe	With 2 or 4 electrodes; the specifications of Bürkert cells are described in the related operating instructions.
Conductivity measurement (with connected conductivity sensor) • Measurement range • Measurement resolution • Systematic variation in the measurement	• 0.000 µS/cm...2 S/cm (depends on the conductivity sensor) • 10^{-9} S/cm • ±0.5 % of the measured value + conductivity sensor error
Resistivity measurement (with connected conductivity sensor) • Measurement range • Measurement resolution • Systematic variation in the measurement (without sensor)	• 0.500 Ω.cm...100 MΩ.cm (depends on the conductivity sensor) • 10^{-1} Ω.cm • ±0.5 % of the measured value + conductivity sensor error
Temperature measurement • Measurement range • Measurement resolution • Systematic variation in the measurement • Temperature sensor type	• –40 °C...+200 °C • ±0.1 °C • ±1 °C + temperature probe error • Pt100 or Pt1000, with 2 or 3 wires

6.10.7 Specifications of the Ethernet module M1

Power consumption	2.2 VA
Supported network protocols	• Modbus TCP • PROFINET • EtherNet/IP
LEDs	• 2 Link/Act LED (yellow) • 2 Link LEDs (green)
Electrical connection	• 2 ports for an RJ45 connector

6.11 Specifications of the Industrial Ethernet protocols

6.11.1 Modbus TCP protocol

TCP port	502
Protocol	Internet protocol, version 4 (IPv4)
Network topology	• Tree • Star • Line (open daisy chain)
IP configuration	• Fixed IP • BOOTP (Bootstrap Protocol) • DHCP (Dynamic Host Configuration Protocol)
Transmission speed	10 and 100 MBit/s
Data transport layer	EtherNet II, IEEE 802.3
Modbus function codes	3, 4, 16, 23
Read/write register	Max. 125 read registers and 123 write registers per telegram
Message mode	Server
Input (Target to Originator)	• All diagnostics and errors informations are with the highest priority and can be read by a PLC (refer to the supplement related to the digital communication for the Type 8619). • AI / DI / AO / DO: value, status, unit • Device and modules: status • Functions: value, status, unit • PVC: value, status, unit
Output (Originator to Target)	20 Process Variable Network (PVN)

AI = Analogue Input, AO = Analogue Output, DI = Digital Input, DO = Digital Output, Target = Server, Originator = Client.

6.11.2 PROFINET protocol

Product type	Compact field IO device
PROFINET IO specification	V2.3
Network topology	• Tree • Star • Ring (closed daisy chain) • Line (open daisy chain)
Network management	• LLDP (Link Layer Discovery Protocol) • SNMP V1 (Simple Network Management Protocol) • MIB (Management Information Base)
Additional supported features	• DCP (Discovery and Configuration Protocol) • VLAN- and priority tagging • Shared device • RTC (Real Time Cyclic) protocol: Class 1
Transmission speed	100 MBit/s full duplex
Data transport layer	EtherNet II, IEEE 802.3
Maximum supported conformance class	CC-B
Media Redundancy (for ring topology)	MRP client is supported
Minimum cycle time	64 ms
Input cyclic data (device to IO-controller or device to IO-supervisor)	• All diagnostics and errors informations are with the highest priority and can be read by a PLC (refer to the supplement related to the digital communication for the Type 8619). • AI / DI / AO / DO: value, status, unit • Device and modules: status • Functions: value, status, unit • PVC: value, status, unit
Output cyclic data (IO-controller to device or IO-supervisor to device)	20 Process Variable Network (PVN)
Multiple Application Relations (AR)	Stack can simultaneously process up to 2 IO-ARs, 1 Supervisor-DA AR
GSDml file	Available at / Download from: country.burkert.com

AI = Analogue Input, AO = Analogue Output, DI = Digital Input, DO = Digital Output.

6.11.3 EtherNet/IP protocol

Protocol	Internet protocol, version 4 (IPv4)
Network topology	• Tree • Star • DLR (Device Level Ring) for closed daisy chain • Linear for open daisy chain
IP configuration	• Fixed IP • BOOTP (Bootstrap Protocol) • DHCP (Dynamic Host Configuration Protocol)
CIP reset services (Common Industrial Protocol)	Reset service (type 0 or type 1) of the Identity object
Transmission speed	10 and 100 MBit/s
Duplex modes	Half duplex, full duplex, auto-negotiation
Data transport layer	EtherNet II, IEEE 802.3
MDI modes (Medium Dependant Interface)	auto-MDIX
Predefined standard objects	• Identity (0x01) • Message Router (0x02) • Assembly (0x04) • Connection Manager (0x06) • DLR (0x47) • QoS (0x48) • I/O main board M0 (0x64) • Functions (0x65) • Extension modules (0x66) • Ethernet module (0x67) • TCP/IP Interface (0xF5) • EtherNet Link (0xF6)
RPI (Requested Packet Interval)	• minimum: 100 ms • maximum: 9999 ms
Input (Consumer to Producer or Adapter to Scanner)	• All diagnostics and errors informations are with the highest priority and can be read by a PLC (refer to the supplement related to the digital communication for the Type 8619). • AI / DI / AO / DO: value, status, unit • Device and modules: status • Functions: value, status, unit • PVC: value, status, unit
Output (Producer to Consumer or Scanner to Adapter)	20 Process Variable Network (PVN)
EDS file	Available at / Download from: country.burkert.com

AI = Analogue Input, AO = Analogue Output, DI = Digital Input, DO = Digital Output, Consumer = Server, Producer = Client, Adapter = Server, Scanner = Client.

7   INSTALLATION AND WIRING

7.1   Safety instructions

⚠ **DANGER**

Risk of injury due to electrical voltage.

▶ If a 12..36 V DC wall-mounted version is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.

▶ Before carrying out work on the system, disconnect the electrical power for all the conductors and isolate it.

▶ All equipment connected to the device must be double insulated in relation to the mains according to the standards UL/EN 61010-1.

▶ Observe all applicable accident protection and safety regulations for electrical equipment.

⚠ **WARNING**

Risk of injury due to non-conforming installation.

▶ Electrical installation can only be carried out by qualified and skilled staff with the appropriate tools.

▶ Fit a circuit breaker or a switch to the electrical installation in which the device is installed.

▶ Install the circuit breaker or the switch in a place which is easy to reach.

▶ Identify the circuit breaker or the switch as the electrical power cut-off system for the device.

▶ Install appropriate overload safety devices. For a version powered by 110...240 V AC, insert overcurrent protective devices in the live conductor and in the neutral conductor.

▶ Do not power a device, version 12...36 V DC, with an alternating voltage or with a direct voltage higher than 36 V DC + 10 %.

▶ Do not power a device, version 110...240 V AC, with a direct voltage or with an alternating voltage higher than 240 V AC.

▶ Observe the standard NF C 15-100 / IEC 60634.

▶ Use preferably probes or sensors sold by Bürkert.

▶ Read and follow the Operating Instructions manuals of all the instruments connected to the device.

▶ On a 8619 multiCELL WM, only authorized personnel may insert in or remove the memory card from the reader/recorder.

Risk of injury due to unintentional switch on of power supply or uncontrolled restarting of the installation.

▶ Take appropriate measures to avoid unintentional activation of the installation.

▶ Guarantee a set or controlled restarting of the process subsequent to any intervention on the device.

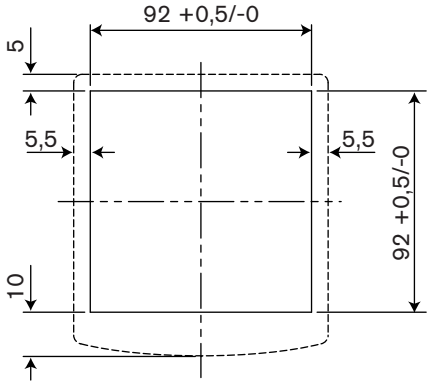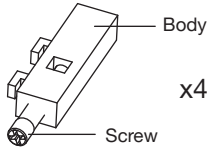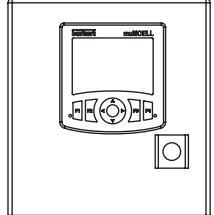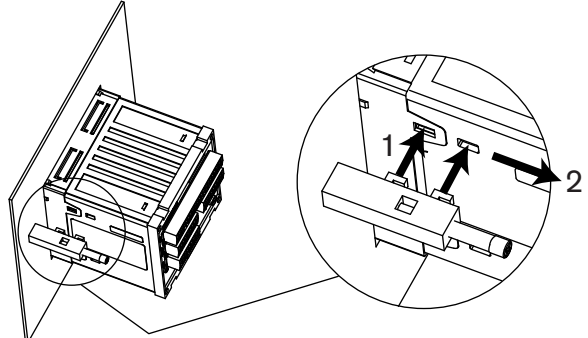🛈 For the Ethernet installation, observe the standard ISO / IEC 61918.

🛈 Protect this device against electromagnetic interference, ultraviolet rays and, when installed outdoors, the effects of the climatic conditions.

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7.2 Installation procedure

1. To carry out mechanical installation: Depending on the version, follow the instructions in section 7.2.1 or 7.2.2.

2. To wire the device: Depending on the version, follow the instructions in section 7.3.

7.2.1 Installing a 8619 multiCELL on an enclosure or electrical cabinet

→ Follow the instructions below to mount the device, delivered fully assembled, onto an enclosure or cabinet.

92 +0,5/-0 5 5,5 5,5 92 +0,5/-0 10 This diagram is not to scale. The dimensions are given in mm.	**Step 1:** → Check that the thickness of the door of the enclosure or cabinet is less than 4 mm. → Ensure there will be sufficient space around the cut out hole and on the inside of the cabinet to easily accommodate the 4 fasteners. → Cut a hole in the door of the enclosure or electrical cabinet according to standard CEI 61554:1999 (DIN 43700).
Body x4 Screw	**Step 2:** Prepare the 4 fasteners: → Insert a screw into each device. → Tighten the screw until the end of the shaft of the screw is flush with the device.
	Step 3: → Slide the housing into the cut-out with the connectors to the back, until it can go no further.
1 2	**Step 4:** → Insert (1) the hooks on the first fastener into the slots on the housing. → Pull the fastener (2).

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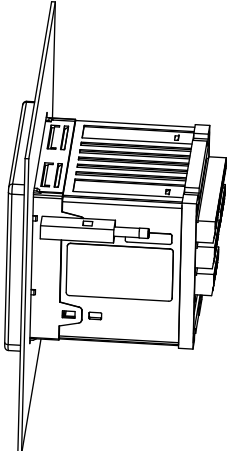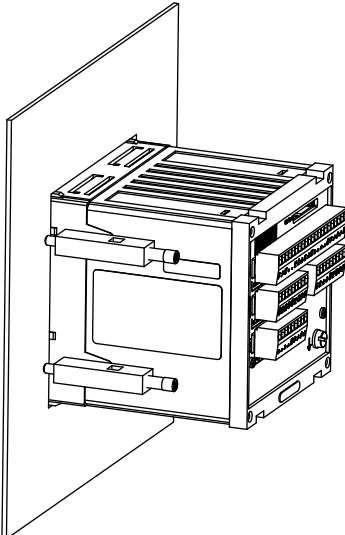
	Step 5:
	→ Place the fastener flush against the device by hand, so that the hooks remain in place.
	Step 6:
	→ Fully tighten the screws using an appropriate screwdriver.
	→ Repeat steps 4 to 6 to fit the remaining 3 fasteners.

Fig. 7:   Panel mounting of the device on an enclosure or cabinet

7.2.2   Installing a 8619 multiCELL WM on a support

NOTICE

Risk of material damage the cable glands are loosened. The body of the cable glands are screwed into the housing at the factory with a torque of 5.5 Nm (4.06 lbf·ft)

▸ Before installing the wall-mounting housing on its support, check that the bodies of the cable glands are tightened. If the bodies of the cable glands are loose, tighten them with a torque of 5.5 Nm ± 20 % (4.06 lbf·ft ± 20 %).

The 8619 multiCELL WM is installed on a support using the wall-mounting fastening plate.

→ Choose a location such that:

• The surface is plane.

• The surface temperature of the support remains below 100 °C.

• The display is at eye level.

• There is sufficient space to open the housing by 180°.
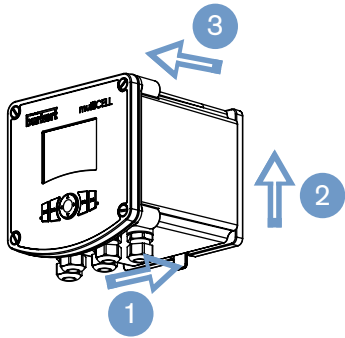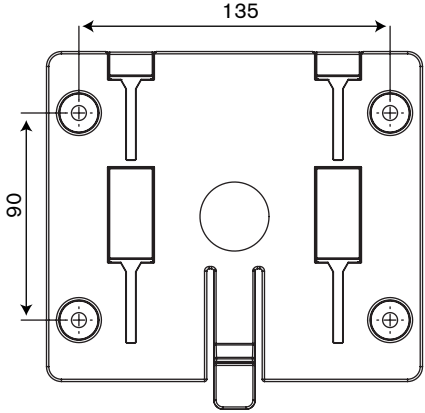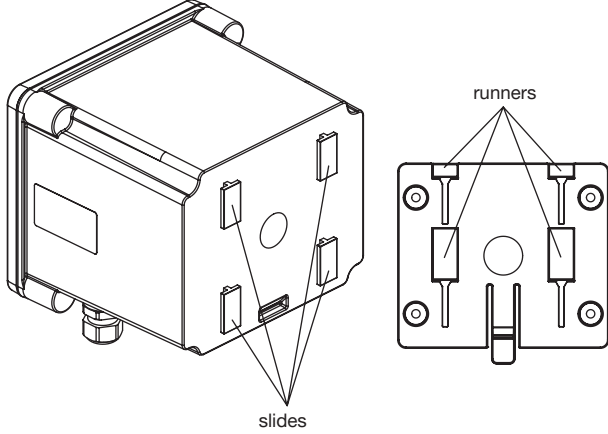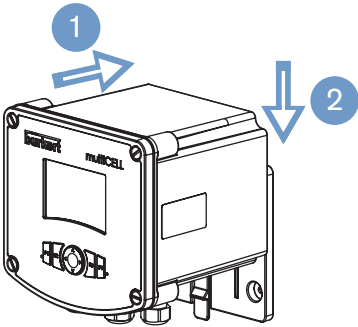
	Step 1: Removing the wall-mounting fastening plate from the device. 1. Press the tab to unlock the device. 2. Lift the device. 3. Separate the device from the wall-mounting fastening plate.
  This diagram is not to scale. The dimensions are given in mm.	Step 2: Installing the wall-mounting fastening plate on the support. The screws and washers are not provided. → Drill holes in the support according to the dimensions indicated on the diagram to the left. → Use 4 screws of 6 mm diameter, which will support the weight of the device and are suitable for the support. → Insert a washer for each screw. → Insert the 4 screws in the wall-mounting fastening plate and in the holes drilled in the support. → Tighten the 4 screws in a crosswise manner, with a maximum torque of 5.3 Nm (3.91 lbf·ft).
	Step 3: Installing the device on the fastening plate. → Align the base of the slides with the height of the runners.
	→ Insert the 4 slides into the 4 runners until you hear a click.

Fig. 8: Installation of a 8619 multiCELL WM on a support

7.3 Electrical wiring

⚠ **DANGER**

Risk of injury due to electrical voltage.

▸ If a 12...36 V DC wall-mounted version is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.

▸ Before carrying out work on the system, disconnect the electrical power for all the conductors and isolate it.

▸ All equipment connected to the device must be double insulated in relation to the mains according to the standards UL/EN 61010-1.

▸ Observe all applicable accident protection and safety regulations for electrical equipment.

🛈 On the rear plate of the device, depending of the version of the device that you order, caps blank off the free slots.

   ▸ Do not remove the caps of the rear plate.

🛈 For the Ethernet installation, observe the standard ISO / IEC 61918.

7.3.1 Recommendations for wiring a 8619 multiCELL WM

NOTICE

On a 8619 multiCELL WM, the ribbon cable which connects the display to the electronic board can be damaged.

▸ Open and close the cover of the housing with care.

▸ Do not pinch the ribbon cable.

▸ Do not pull the ribbon cable.

▸ Manipulate the ribbon cable with care.

▸ If the ribbon cable is disconnected, reconnect it with care.

NOTICE

A 8619 multiCELL WM may be damaged if the device is not tight.

▸ Make sure the nuts of the unused cable glands are tightened (at the factory, a stopper gasket has been inserted in each cable gland).

▸ When the mechanical installation and wiring are completed, tighten the cable gland screws with a torque of 4.5 Nm ± 20 % (3.32 lbf·ft ± 20 %).

▸ When the mechanical installation and wiring are completed, tighten the 4 screws of the cover in a cross-wise manner with a torque of 1.4 Nm ± 20 % (1.03 lbf·ft ± 20 %).

→ Before wiring the device, install it according to the instructions in section 7.2.1 or section 7.2.2.

7.3.2 Specifications of the cables and conductors

→ Use shielded cables (not provided) with a maximum operating temperature greater than 90 °C.

→ Use cables and electric wires with dimensions that respect the specifications described in Table 2.

→ For an Ethernet version, use RJ45 cables that respect the specifications described in Table 3.

The electrical connections are carried out via terminal blocks and, on an Ethernet version, via RJ45 ports:

• Directly, on a 8619 multiCELL.

• Via the cable glands, on a 8619 multiCELL WM.

Table 2: Specifications of the cables and conductors for the terminal blocks

External diameter of the cable (8619 multiCELL WM)	6...12 mm (4 mm if using a multiple entry seal)
Cross-section of the local earth connection conductor (12...36 V DC versions)	0.75...1.5 mm^2
Cross-section of the protective earth connection conductor (110...240 V AC versions)	min. 1.5 mm^2
Rigid conductor cross-section H05(07) V-U	0.2...1.5 mm^2, stripped over 7 mm
Flexible conductor cross-section H05(07) V-K	0.2...1.5 mm^2, stripped over 7 mm
Cross-section of a conductor with a non-insulated lug	0.2...1.5 mm^2, stripped over 7 mm
Cross-section of a conductor with an insulated lug	0.2...0.75 mm^2, stripped over 7 mm

Table 3: Specifications of the RJ45 cable

⚠ To make sure the door of a wall-mounted Ethernet version can be fully closed, use RJ45 male connectors with maximum dimensions of 45 mm, including the bend radius of the Ethernet cable.

Shielded cable	minimum required: FTP
Minimum category	5e / CAT-5
Length	max. 100 m

7.3.3 Wiring the 12...36 V DC electrical supply for a 8619 multiCELL

→ Use a filtered and regulated 12...36 V DC electrical power supply.

→ Wire the 12...36 V DC power supply on the main board "M0" of a 8619 multiCELL.

→ Connect the functional earth of the installation to the earth screw of the device using a lug with an eyelet, suitable for the M4 earth screw and earth conductor. Tighten to the torque of 1 Nm ± 20 % (0.74 lbf·ft ± 20 %).

→ Connect the shielding on each wire to an "FE" (functional earth) terminal to guarantee the equipotentiality of the installation.

Fig. 9:   Wiring the 12...36 V DC electrical supply for a 8619 multiCELL

7.3.4   Wiring the 12…36 V DC electrical supply for a 8619 multiCELL WM DC

→ Use a filtered and regulated 12...36 V DC electrical power supply.

→ Use the rightmost cable gland for the electrical power supply cable.

→ Wire the 12...36 V DC power supply for a 8619 multiCELL WM on a terminal block marked 12...36 V DC.

→ Connect the functional earth of the installation to the earth screw of the device using a lug with an eyelet, suitable for the M4 earth screw and earth conductor. Tighten with a torque of 1 Nm ± 20 % (0.74 lbf·ft ± 20 %).

→ Connect the shielding on each wire to an "FE" (functional earth) terminal to guarantee the equipotentiality of the installation.
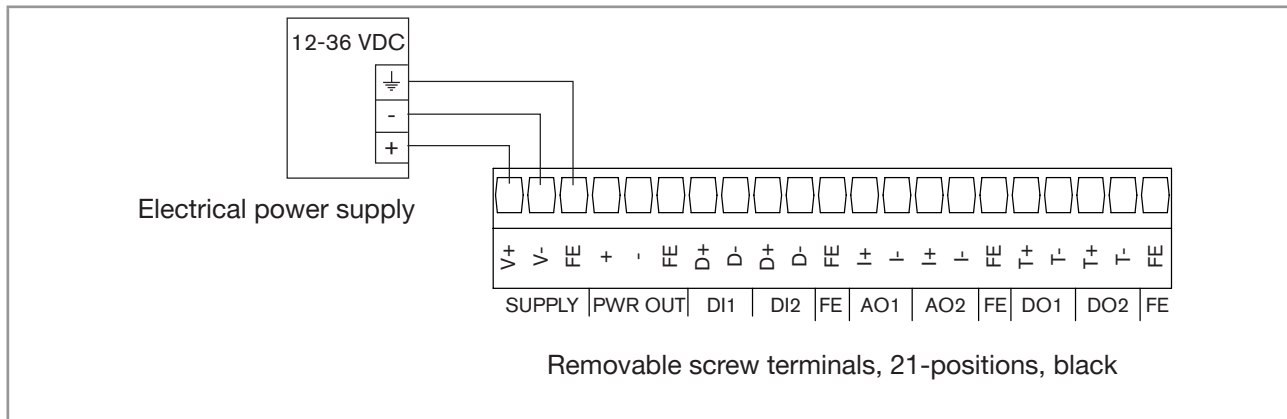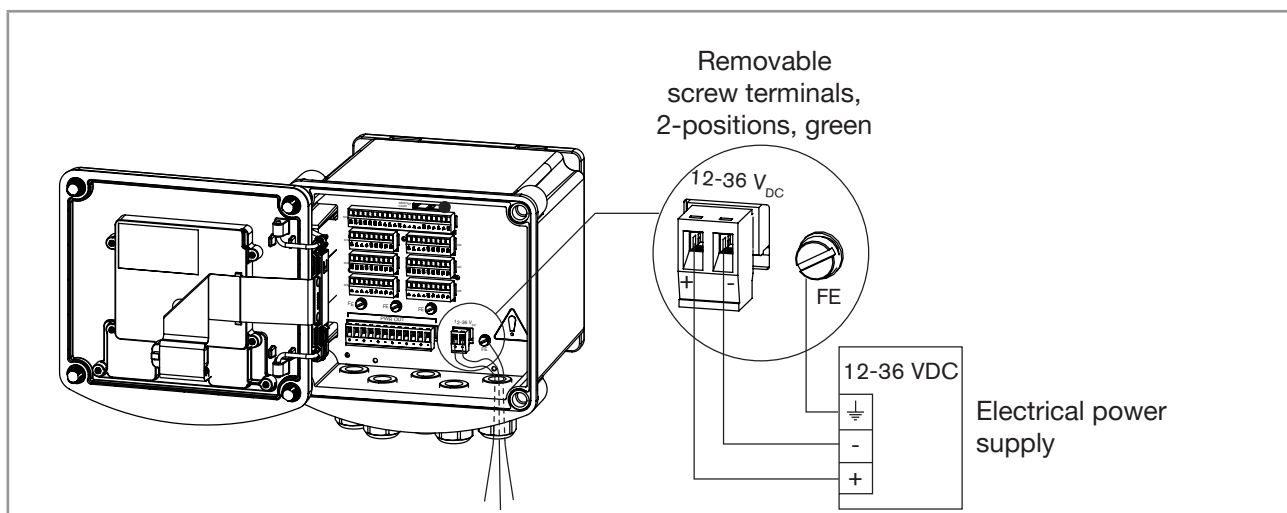

Fig. 10:   Wiring the 12...36 V DC electrical supply for a 8619 multiCELL WM

7.3.5 Wiring the 110...240 V AC electrical supply for a 8619 multiCELL WM AC
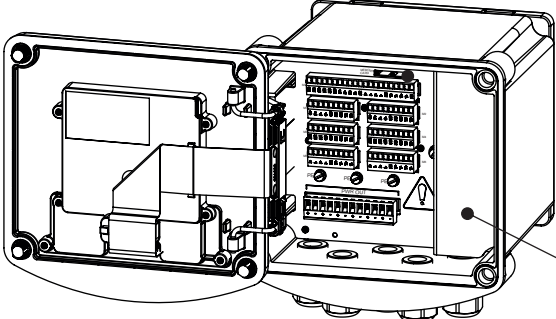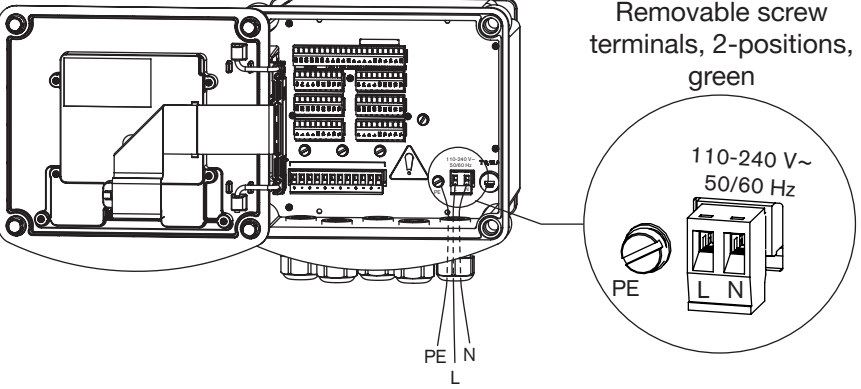
	→ Unscrew and remove the protective cover of the power supply connection terminal block.
Protective cover	
Removable screw terminals, 2-positions, green 110-240 V~ 50/60 Hz PE L N PE N L	→ Use the rightmost cable gland for the electrical power supply cable. → Wire the 110...240 V AC power supply for a 8619 multiCELL WM AC on a terminal block marked 110...240 V AC. → Connect the protective earth of the installation to the earth screw of the device using a lug with an eyelet, suitable for the M4 earth screw and earth conductor. Tighten with a torque of 1 Nm ± 20 % (0.74 lbf·ft ± 20 %). L: Live conductor N: Neutral conductor → Put in place and screw on the protective cover.

Fig. 11: Wiring the 110...240 V AC electrical supply for a 8619 multiCELL WM AC

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FLUID CONTROL SYSTEMS

7.3.6 Supplying an external instrument via a 8619 multiCELL

The device in a panel-mounted version can be used to supply an external instrument, for example a flow sensor, with a voltage identical to the supply voltage of the device.

The power supply is available on the main board "M0" of a 8619 multiCELL.
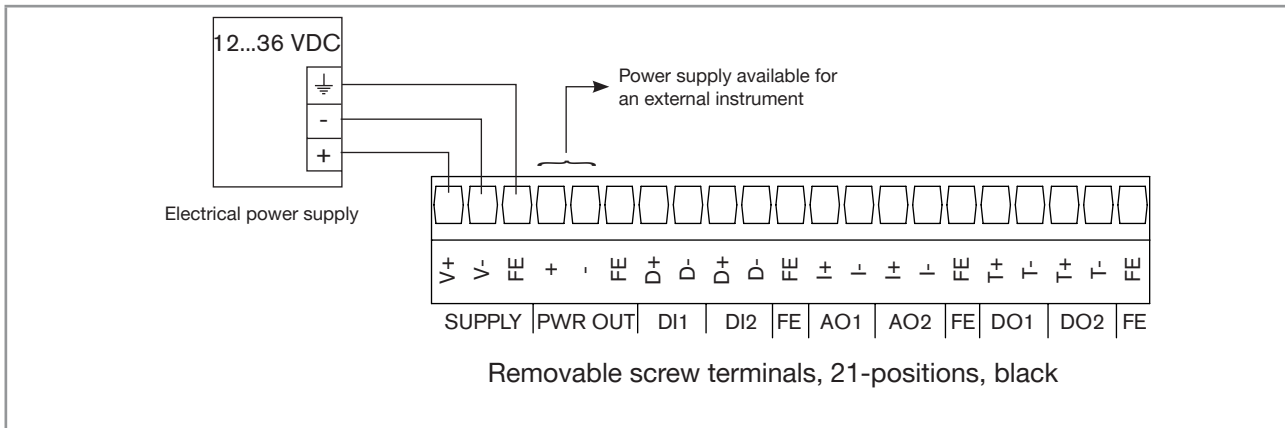
Fig. 12:   Supplying an external instrument via a 8619 multiCELL

7.3.7 Supplying an external instrument via a 8619 multiCELL WM

The device can be used to supply power to several external instruments, such as flow sensors or conductivity sensors for example.

→ To supply power to an external instrument, connect it to a positive and negative screw terminal on the terminal block "POWER OUT".

The voltage available on the green terminal block "POWER OUT" of a 8619 multiCELL WM:

• is equal to the supply voltage of the 8619 multiCELL WM DC which is supplied with a voltage of 12...36 V DC.

• is equal to a voltage of 24 V DC on a 8619 multiCELL WM AC which is supplied with a voltage of 110...240 V AC.
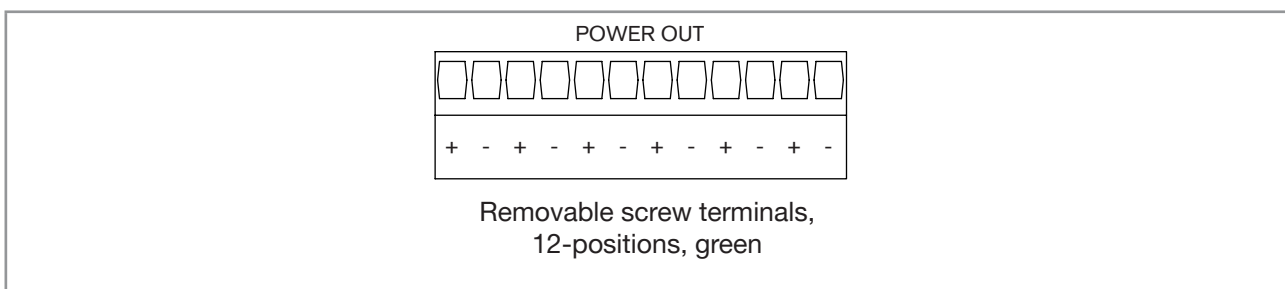
Fig. 13:   Supplying external instruments via a 8619 multiCELL WM

7.3.8 Wiring the inputs and outputs on the main board "M0"

> Find some connection examples with Bürkert sensors in the complete Operating Instructions under country.burkert.com

The main board "M0" has:

• 2 digital inputs (marked DI1 and DI2), for connecting a flow sensor for example

• Two 4...20 mA analogue outputs (marked AO1 and AO2)

• 2 digital outputs (marked DO1 and DO2)

The inputs and outputs are galvanically insulated and therefore floating.

DI1, DI2, AO1, AO2, DO1 and DO2: designation in the configuration menus of the main board "M0".

FE = functional earth
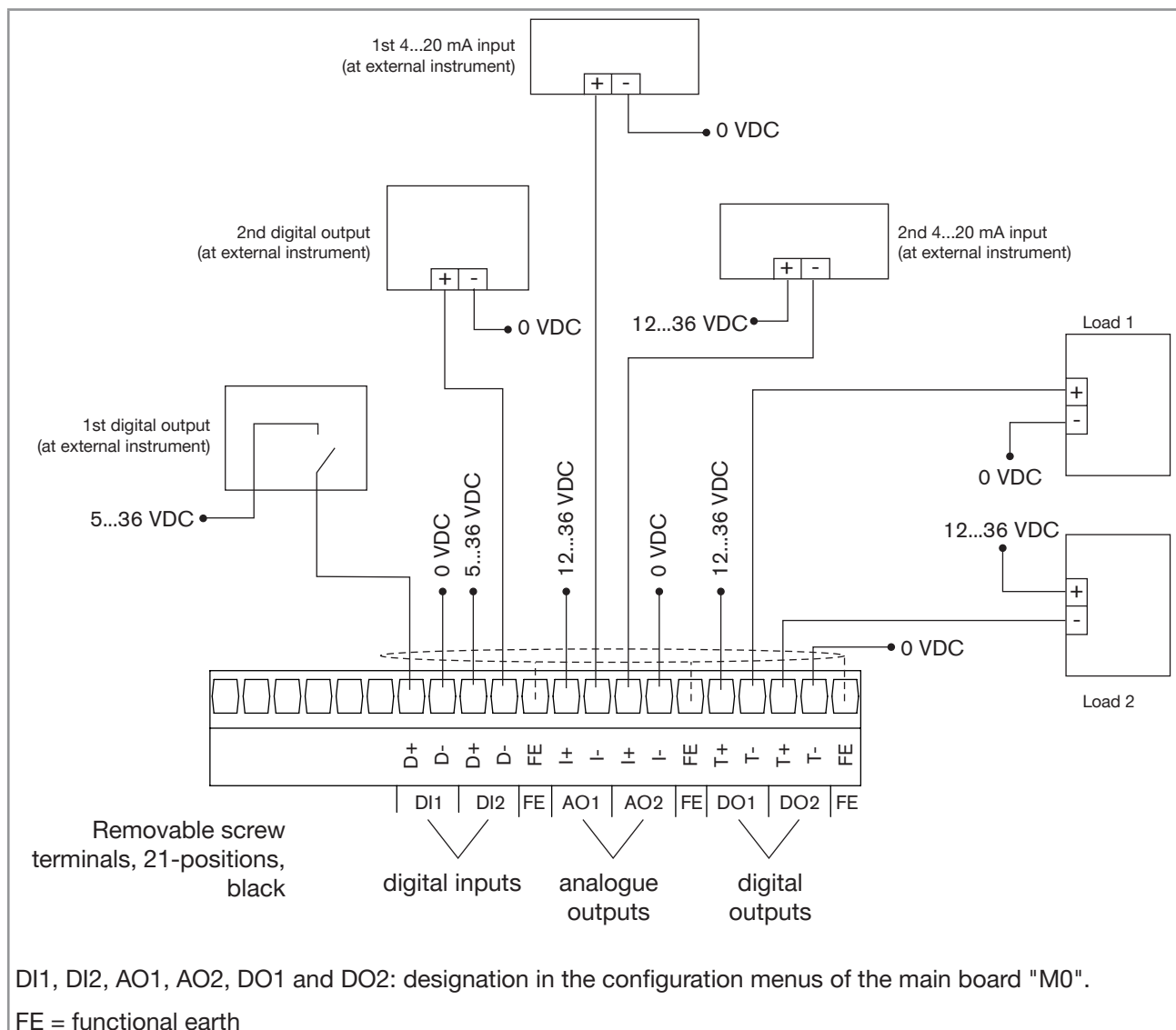
Fig. 14: Wiring the inputs and outputs on the main board "M0"

7.3.9 Identifying the pins on the extension modules

If you use terminal blocks other than those supplied with the device, these terminal blocks will not be marked.

Fig. 15 enables labelling of the terminals.
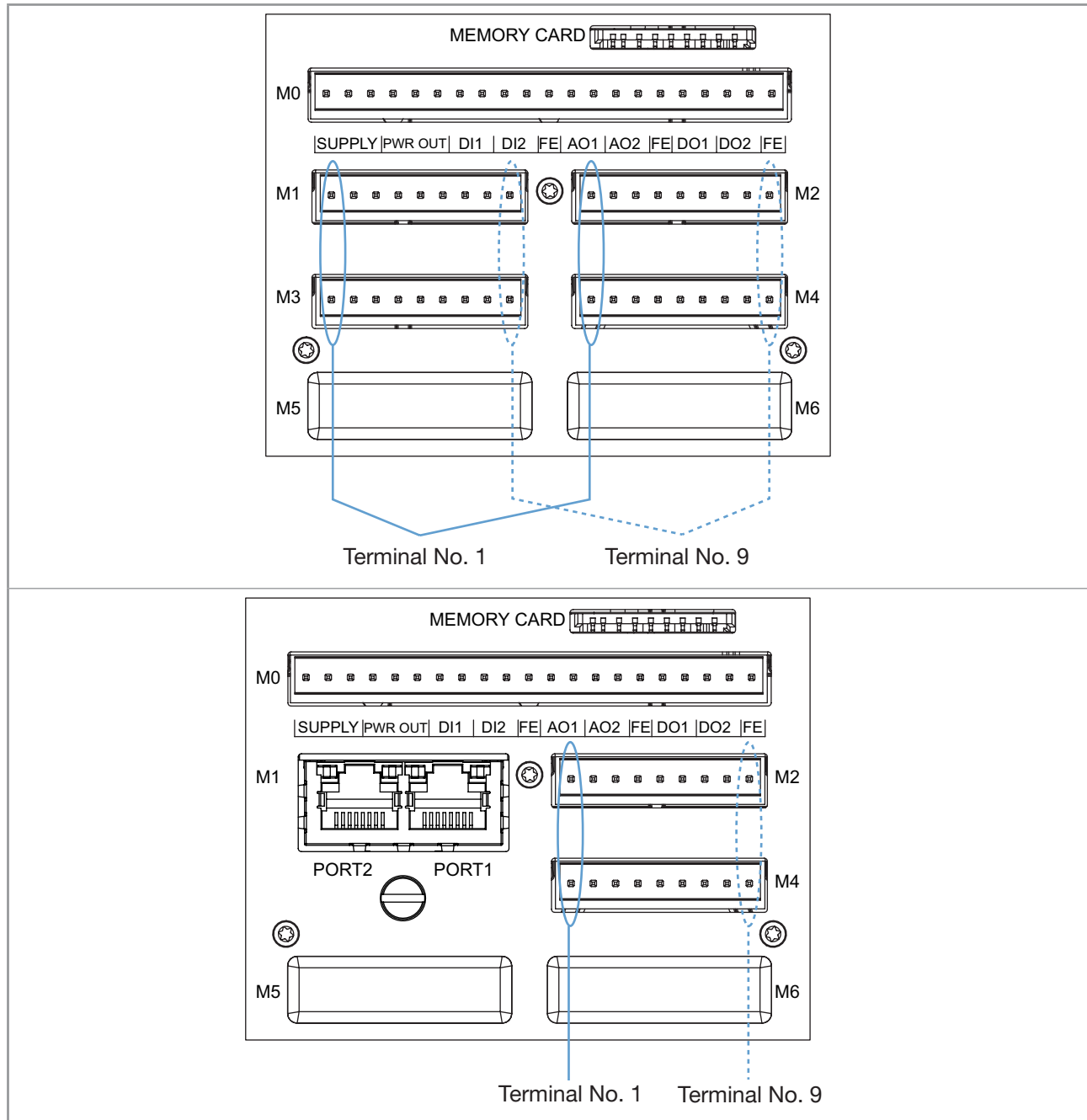
Fig. 15: Identifying the terminals on the extension modules

7.3.10 Wiring the Industrial Ethernet

⚠ **WARNING**

Risk of injury due to non-conforming installation.

▸ Electrical installation can only be carried out by qualified and skilled staff with the appropriate tools.

An Industrial Ethernet device has 2 LEDs on each RJ45 connector to show the status of the connection to the network.

Link/Act LED (yellow)   Link LED (green)
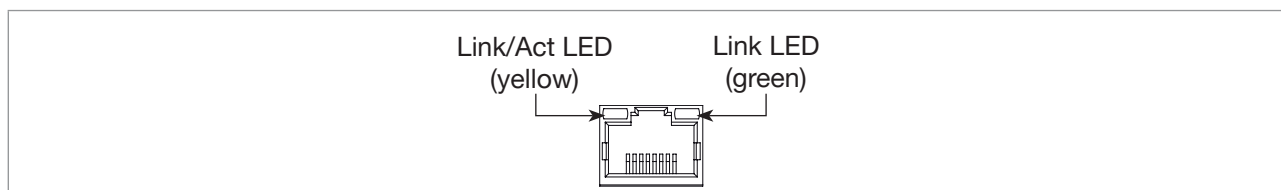
Fig. 16:   Location of the LEDs of an RJ45 connector

LEDs	Behaviour	Meaning
Link/Act LED (yellow)	ON, fast blinking	Connection to the parent protocol layer is established. Data is being exchanged.
	ON, slow blinking	No connection to the protocol layer.
	OFF	No connection to the network.
Link LED (green)	ON	Connection to the network is established.
	OFF	No connection to the network.

Table 4:   Description of the LEDs of an RJ45 connector

RJ45 port	Pin	Pin assignment
	1	TX+
	2	TX–
	3	RX+
	4	N. C.
	5	N. C.
	6	RX–
	7	N. C.
	8	N. C.
	Housing	FE

Fig. 17:   Pin assignment of each RJ45 port

You can prepare a connection cable for wall-mounted version as described below, or you can use an adapter RJ45-M12.

Preparing a connection cable for a wall-mounted version:

→ Choose an RJ45 male connector for industrial use

Shielded cable	minimum required: FTP
Minimum category	5e / CAT-5
Length	max. 100 m

→ To make sure the door of the device can be fully closed, use RJ45 male connectors with maximum dimensions of 45 mm including the bend radius of the Ethernet cable.

→ Insert the cable via the cable gland of the device.

→ Insert the wires as specified by the manufacturer of the RJ45 male connector and according to ISO / IEC 11801.

→ Crimp the RJ45 male connector.

→ Insert the RJ45 connector in the RJ45 port.

→ Do the settings of the Ethernet connection. Refer to the Supplement related to the digital communication for the Type 8619, available on: country.burkert.com.

7.3.11   Connection example of the Ethernet module
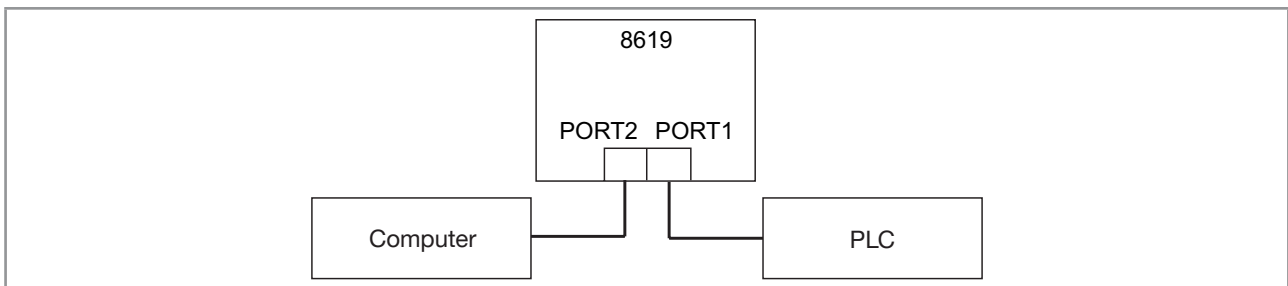
Fig. 18:   Connection example of a computer and a PLC to the Ethernet module

MAN 1000333498 EN Version: D Status: RL (released | freigegeben) printed: 26.09.2023

7.3.12   Wiring the module "INPUT"

Find some connection examples with Bürkert sensors in the complete Operating Instructions under country.burkert.com

The module "INPUT" has:

• Two analogue inputs;

• Two digital inputs.

The inputs are galvanically insulated, and therefore floating.
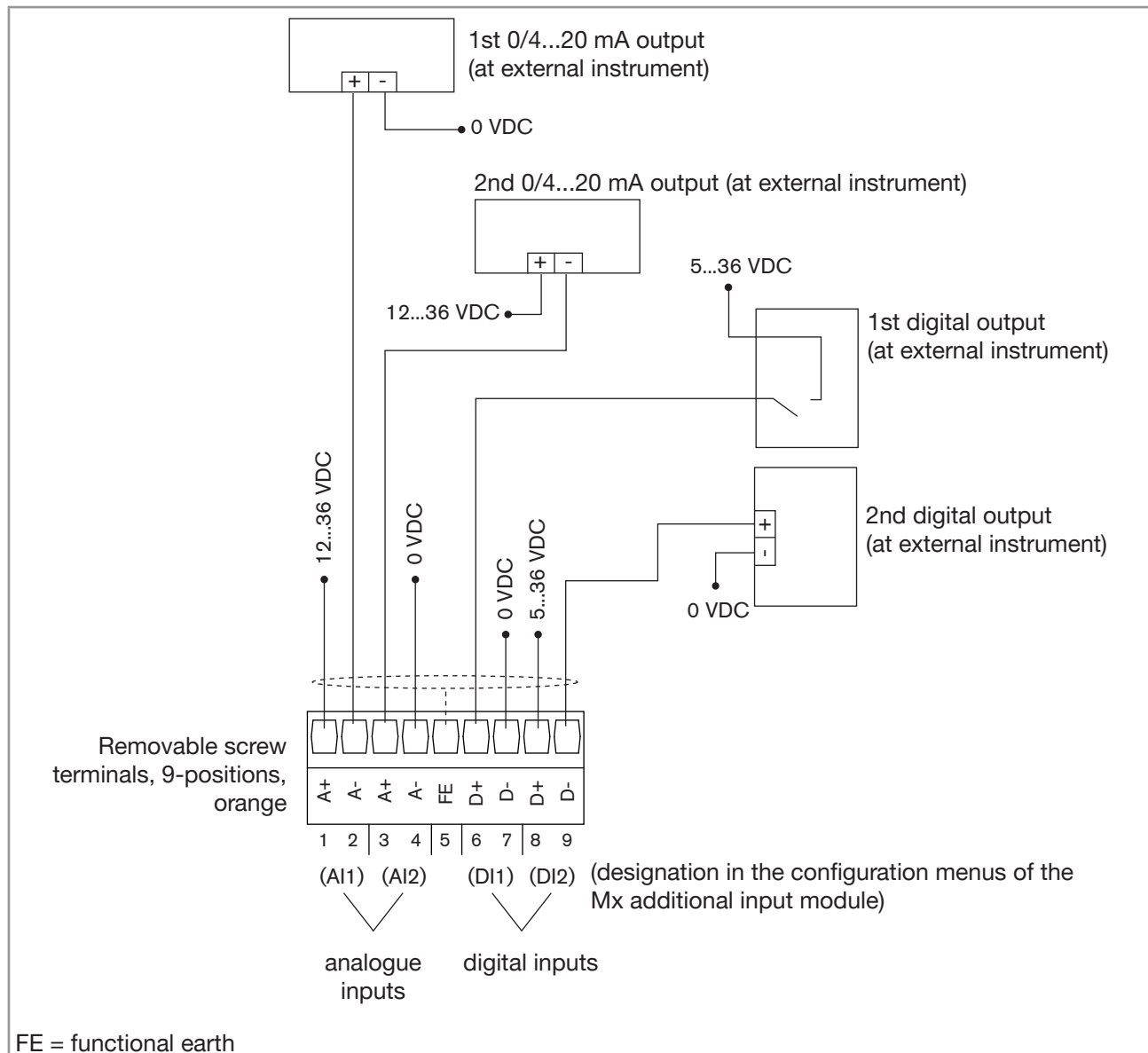
Fig. 19:   Connecting the analogue inputs to a 2-wire current transmitter and connecting the digital inputs of the module "INPUT"
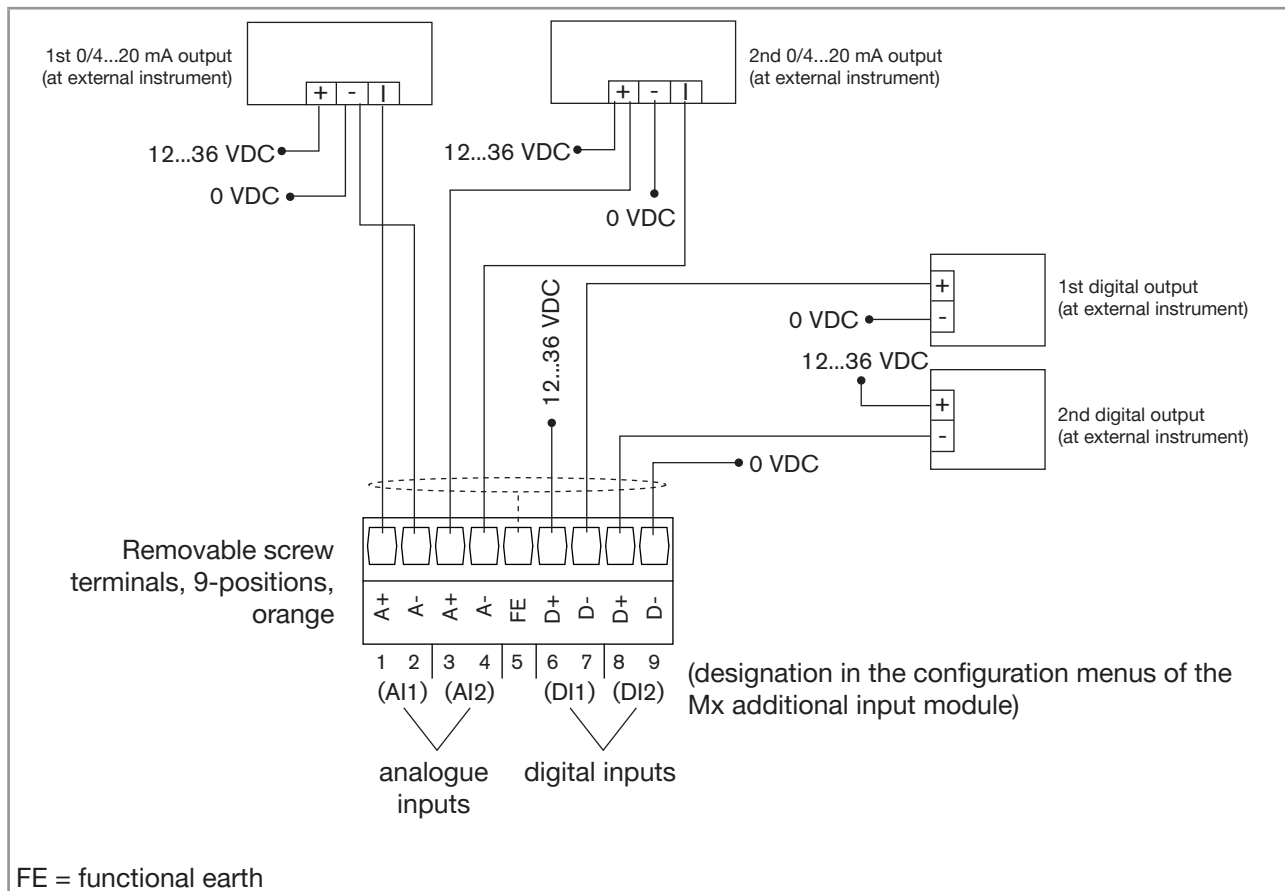
Fig. 20:   *Connecting the AI1 analogue input in source mode and the analogue input AI2 in sinking mode to a 3-wire current transmitter (for example Type 8025 with relay outputs) and connecting the digital inputs of the module "INPUT"*
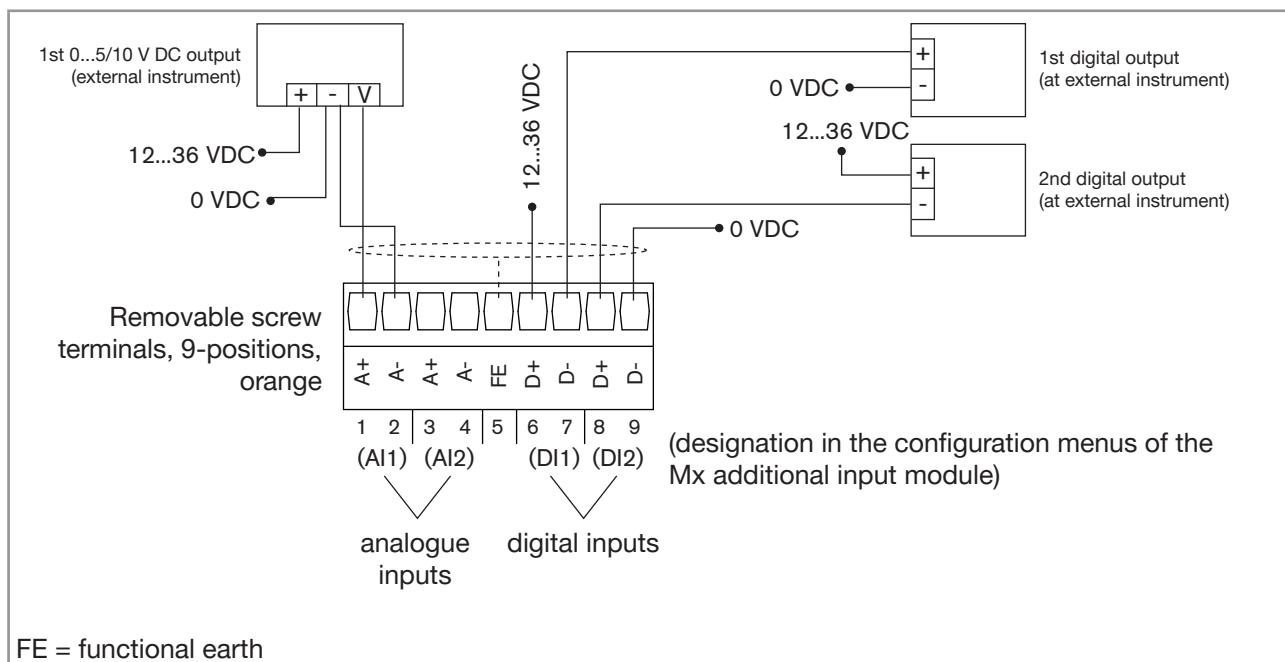
Fig. 21:   *Connecting the analogue inputs to a voltage transmitter and connecting the digital inputs of the module "INPUT"*

7.3.13   Wiring the output module "OUT"

The module "OUT" has:

• Two 4...20 mA analogue outputs;

• Two digital outputs.

The outputs are galvanically insulated, and therefore floating.
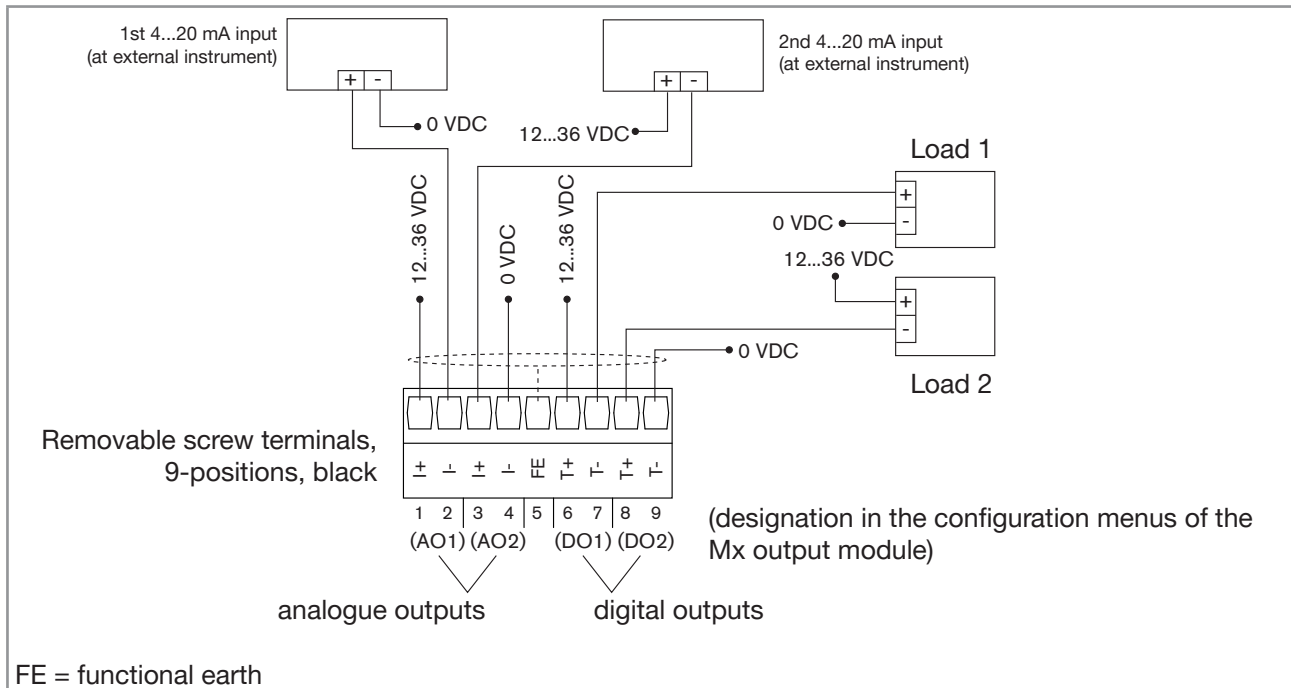
Fig. 22:   Wiring the output module "OUT"

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7.3.14 Wiring the "pH/ORP" module

Find some connection examples with Bürkert sensors in the complete Operating Instructions under country.burkert.com

- To avoid the influence of disturbances, wire the pH sensor in symmetric mode. In this case, it is compulsory to wire the equipotential electrode.

- When the pH sensor is wired in asymmetrical mode, measurement of the pH may drift over time when the equipotential electrode is not wired.
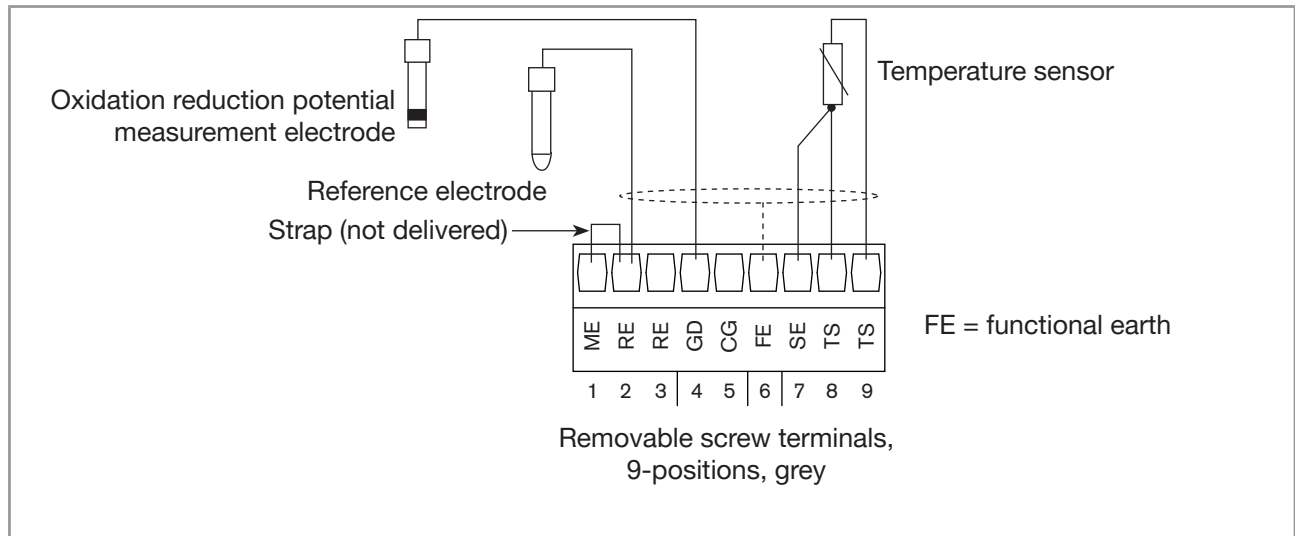
Fig. 23:   Wiring a redox sensor and a Pt100 or Pt1000 temperature sensor to a "pH/ORP" module
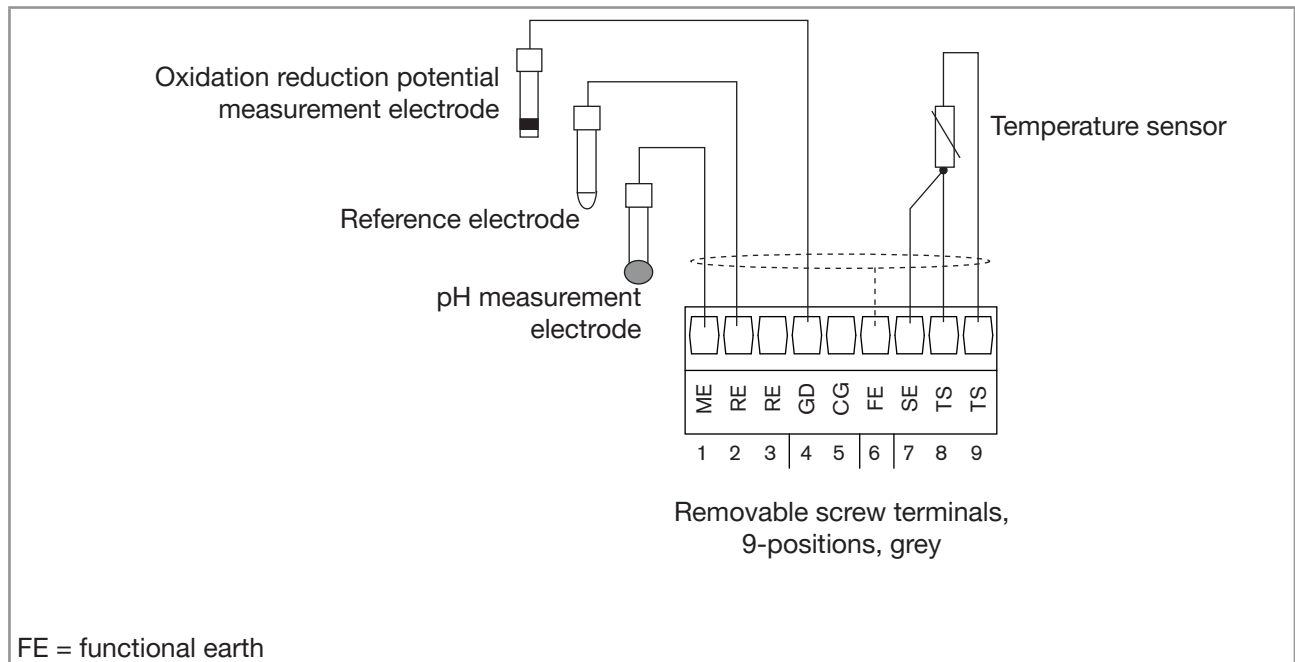
Fig. 24:   Wiring a pH sensor, a redox sensor and a Pt100 or Pt1000 temperature sensor to a "pH/ORP" module

FE = functional earth

(1) Colour of the wires in Bürkert connection cables with article numbers 561904, 561905 or 561906.
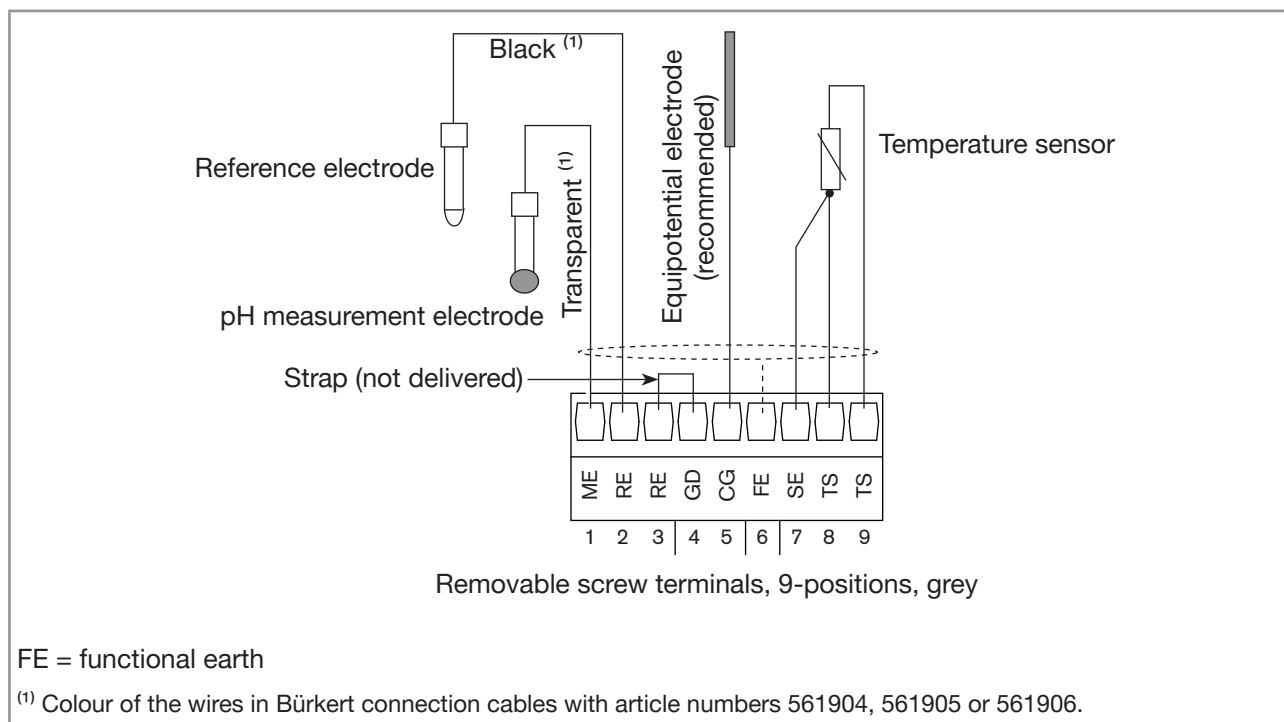
Fig. 25:   Wiring a pH sensor and a Pt100 or Pt1000 temperature sensor in asymmetrical mode to a "pH/ORP" module

7.3.15   Wiring the conductivity module "COND"

Find some connection examples with Bürkert sensors in the complete Operating Instructions under country.burkert.com

FE = functional earth
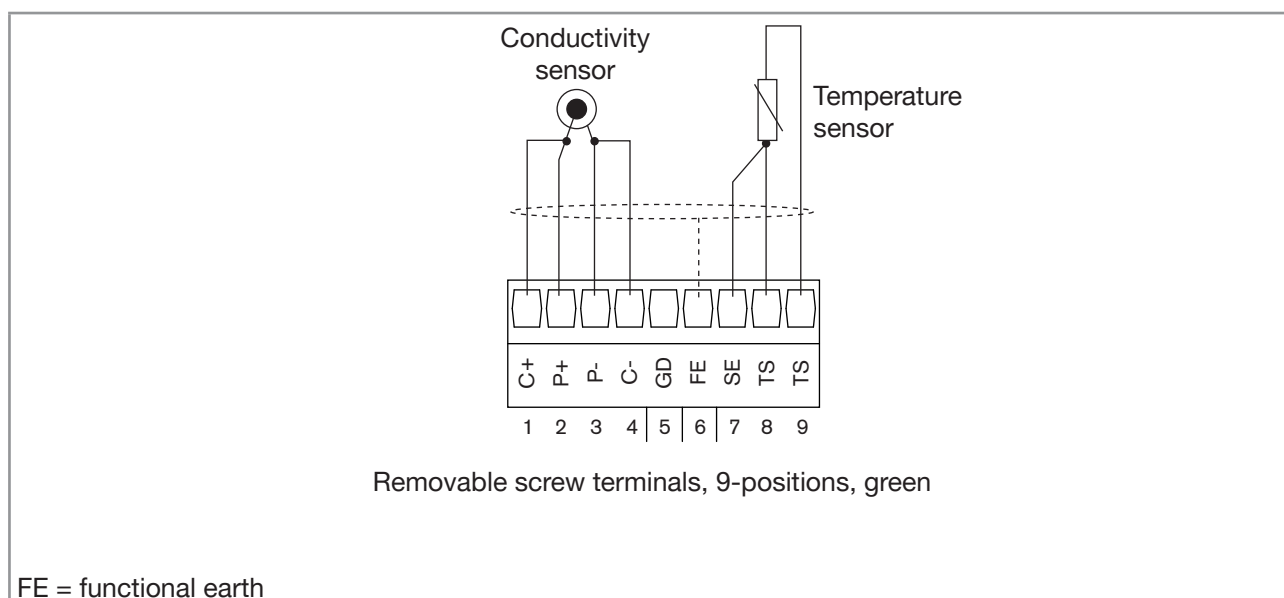
Fig. 26:   Wiring a resistive conductivity sensor with 2 electrodes and a Pt100 or Pt1000 temperature sensor to a conductivity module "COND"
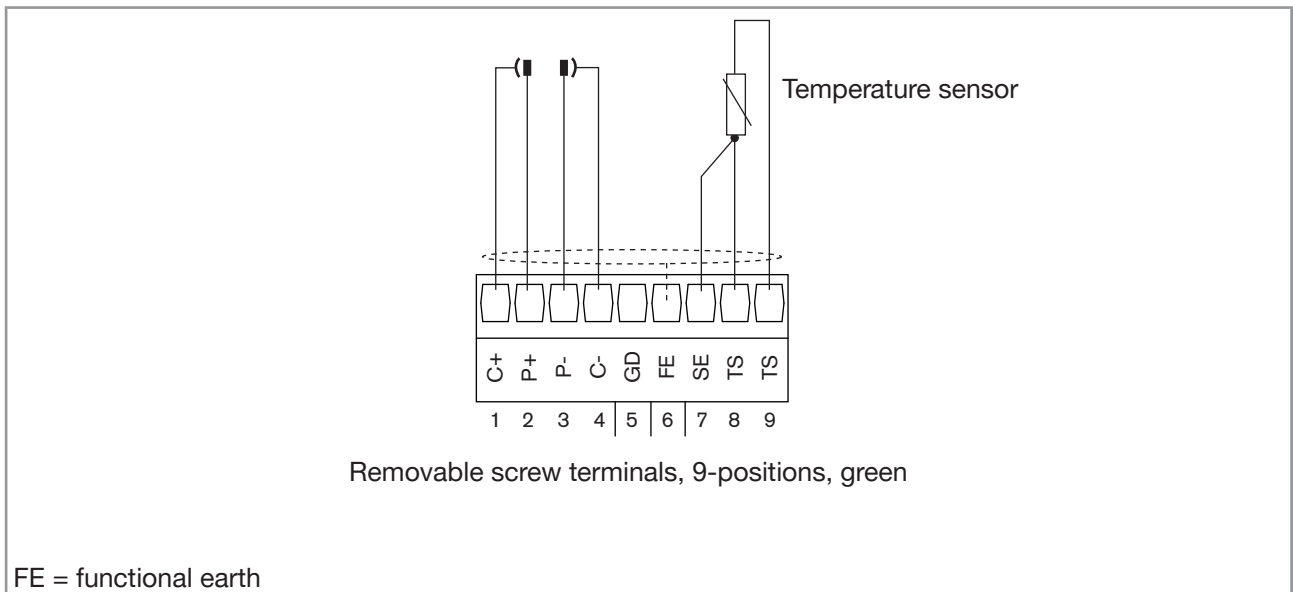
Fig. 27: *Wiring a resistive conductivity cell with 4 electrodes and a Pt100 or Pt1000 temperature sensor to a conductivity module "COND"*

8 COMMISSIONING, DISPLAY DESCRIPTION

> ❗ For a detailed description of all the functions and their adjustment, refer to the Operating Instructions available on the internet under country.burkert.com.

8.1 Safety instructions

> ⚠️ **WARNING**
>
> **Risk of injury due to non-conforming adjustment.**
>
> Non conforming adjustment could lead to injuries and damage the device and its environment.
> - ▸ The operators in charge of adjustment must have read and understood the contents of this operating instructions.
> - ▸ In particular, observe the safety recommendations and intended use.
> - ▸ The device/installation must only be adjusted by suitably trained staff.

> ⚠️ **WARNING**
>
> **Danger due to non-conforming commissioning.**
>
> Non-conforming commissioning could lead to injuries and damage the device and its surroundings.
> - ▸ Before commissioning, make sure that the staff in charge have read and fully understood the contents of the operating instructions.
> - ▸ In particular, observe the safety recommendations and intended use.
> - ▸ The device/installation must only be commissioned by suitably trained staff.

> ❗ Before commissioning, calibrate each measuring sensor connected to the device.

8.2 Operating levels

The device has 2 operating levels: the Process level and the Configuration level which comprises the following menus: "Parameters", "Calibration", "Diagnostics", "Tests" and "Information".

8.3 Process level

When switching on the device for the first time, the display shows the first view in Process level.

> 📖 When switched on subsequently, the last active view in the Process level is displayed.

M0:MAIN	29/06/2010 13:40
OFF DI1	OFF DO1
OFF DI2	OFF DO2
	6.000 mA AO1
	20.00 mA AO2
MENU	← ↑ ↓ →

M1:pH	29/06/2010 13:40
0.500 L/s DI1
30.00 L DI1
1.000 L/s DI2
33.00 L DI2
↑ ↓ →

M2:Conductivity	29/06/2010 13:40
5 mS/cm
6.53 pH
39.20 mV
25.2 °C
2 °C
↑ ↓ →

M6:Outputs	29/06/2010 13:40
OFF DO1
OFF DO2
5.000 mA AO1
12.00 mA AO2
MENU	← ↑ ↓ →

Views of the modules connected to the device (cannot be modified):

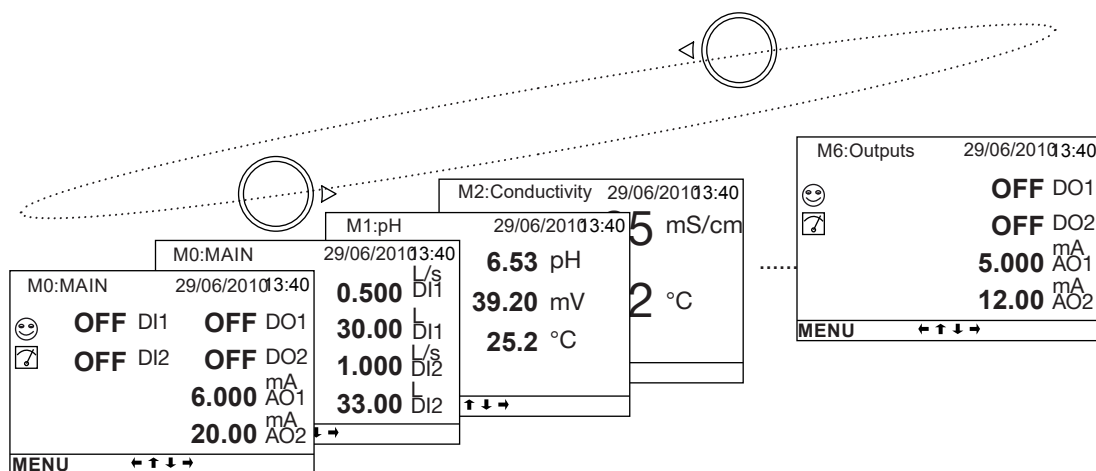- "M0:MAIN" view: displays the values of inputs and outputs on the main board; the second "M0:" view is available if the software option, "FLOW", is activated (refer to the Operating Instructions).

- "M1:" to "M6:" views display the data for modules 1 to 6.
  If the device is equipped with an Ethernet module, the related view is "M1: Ethernet"

CONSTANTS	29/06/2020 12:06
0.000 µS/cm PVC1
ON PVC2
21.6 °C PVC7
−0.960 V PVC10
MENU ← ↑ ↓ → VAL

F1:A+B	29/06/2010 13:40
148 L/min
57 L/min
205 L/min FlowProcess1
MENU ← ↑ ↓ →

F2:PROP	29/06/2010 13:40
PV
S/cm
MANU

F12: ONOFF	29/06/2010 13:40
250.0 µS/cm PV
500.0 µS/cm SP-PV:
0.00 % CMD1
Off F3 Dos.St
← ↑ ↓ →
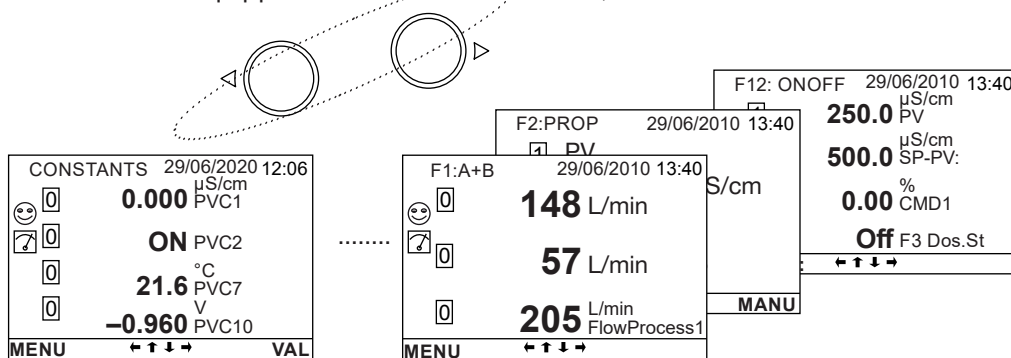
Views of the constants. Only activated constants are displayed.

To configure and activate the constants to be displayed, refer to the Operating Instructions.

Views of active functions which cannot be modified (F1: to F12:) are used to display one function each. Only views of functions declared "active" are displayed.

To configure and activate a function, refer to the Operating Instructions.

U1:PH_COND	29/06/2010 13:40
25 mS/cm
6.53 pH
MENU ← ↑ ↓ →

U4:PROCESS1	29/06/2010 13:40
6.53 pH
25 mS/cm
25.2 °C
205 l/min
MENU ← ↑ ↓ →
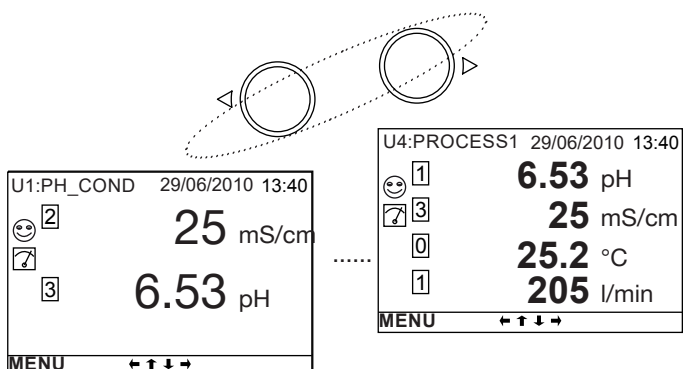
User defined views (U1 to U4) are each used to display 1, 2 or 4 data or a graph. Only the effectively defined views are shown.

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8.4 Configuration level access

On any view in
Process level,
press MENU

F1

Parameters

MEAS.
OK
F4

Code
incorrect

"Parameters"
code correct [1]

Parameters
System
Display
Functions
Datalogger [2]
M0:Outputs
M0:Inputs [2]
M1:Ethernet
Mx:pH/ORP
Mx:Conductivity
Mx:Outputs
Mx:Inputs

Calibration

MEAS.
OK
F4

Code
incorrect

"Calibration"
code correct [1]

Calibration
System
M0:Outputs
M0:Inputs [2]
Mx:pH/ORP
Mx:Conductivity
Mx:Outputs
Mx:Inputs

Diagnostics

MEAS.
OK
F4

Code
incorrect

"Diagnostics"
code correct [1]

Diagnostics
System
Mx:pH/ORP
Mx:Conductivity
Mx:Inputs

Tests

MEAS.
OK
F4

Code
incorrect

"Tests"
code
correct [1]

Tests
System
PV value simulation
M0:Outputs
Mx:Outputs

Information

MEAS.
OK
F4

Information
Error
Warning
Maintenance
Smiley
System log
Versions

[1] The code is not requested if the default code "0000" is used.

[2] This menu is available as an option.

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8.5 Checking the IP address of an Ethernet module

> ⚠ **Checking the IP address of an Ethernet version**
>
> Before installing an Ethernet version into the network, make sure the IP address of the device Type 8619 is not already used by another equipment.
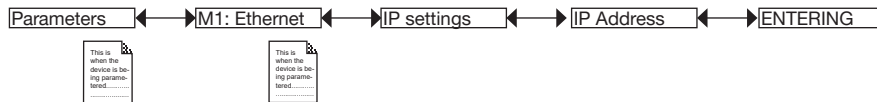>
> → If necessary, change the IP address of the device.

Parameters ↔ M1: Ethernet ↔ IP settings ↔ IP Address ↔ ENTERING

This is when the device is being parametered...........

This is when the device is being parametered...........

8.6 Calibrating the measuring sensors

8.6.1 Entering the K factor for the used fitting or determining it using teach-in

→ Enter the K factor in pulse/litre unique to the fitting used. Refer to the Operating Instructions of the fitting used.

Calibration ↔ M0:Inputs ↔ DI1/2: Flow rate ↔ K factor ↔ ENTERING

Mx:Inputs
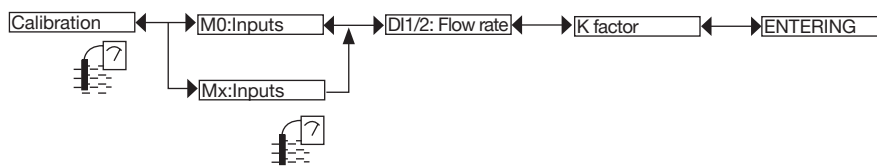
8.6.2 Calibrating a pH sensor

> ⚠ ▶ In order not to interrupt the process, activate the HOLD function in the menu "Calibration -> System -> Hold". The Hold mode is automatically deactivated when the device restarts after a power interruption, if the Hold mode was activated at the moment of the power cut-off.
>
> ▶ Before each calibration, correctly clean the electrode with a suitable product.

→ Choose the buffer solution used, in the menu "Parameters -> Mx:pH/ORP -> Buffer". The device automatically recognizes the pH of the buffer used.

→ Automatically calibrate the pH sensor:

Calibration ↔ Mx:pH/ORP ↔ pH auto calib. ↔ 1st point

2nd point?

NO   YES

Rinse

2nd point

pH Cal.Result

> ⚠ The calibration may fail:
>
> • a possible "warning" message indicates either an error in the buffer solution or the ageing of the probe.
>
> • a possible "error" message indicates that the probe must be replaced.

8.6.3 Calibrating a redox sensor

> ⚠ ▸ Modify the default calibration limits before calibrating your sensor in the menu "Parameters" -> "Mx:pH/ORP" -> "Calibration limits" -> "ORP Offset".
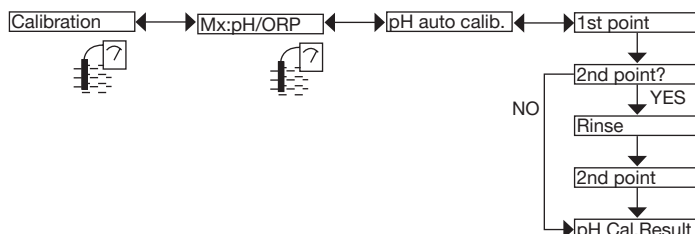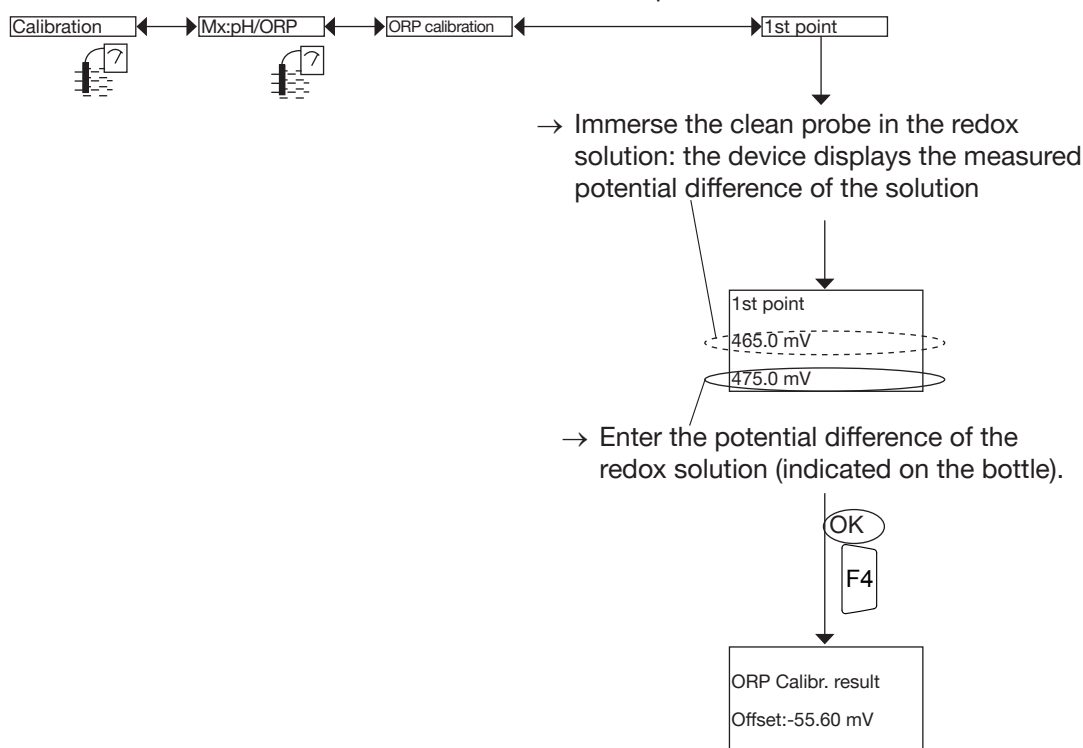>
> ▸ In order not to interrupt the process, activate the HOLD function in the menu "Calibration -> System -> Hold". The Hold mode is automatically deactivated when the device restarts after a power interruption, if the Hold mode was activated at the moment of the power cut-off.
>
> ▸ Before each calibration, correctly clean the electrode with a suitable product.

→ Calibrate the redox sensor using a 1-point procedure.

The 1-point calibration procedure is used for a quick calibration by adjusting the zero of the measurement graph with a buffer solution with a known oxidation reduction potential.

→ Immerse the clean probe in the redox solution: the device displays the measured potential difference of the solution

1st point
465.0 mV
475.0 mV

→ Enter the potential difference of the redox solution (indicated on the bottle).

OK
F4

ORP Calibr. result
Offset:-55.60 mV

The device displays the calibration result.

> ⚠ The calibration may fail:
>
> • a possible "warning" message indicates either an error in the buffer solution or the ageing of the probe.
>
> • a possible "error" message indicates that the probe must be replaced.

8.6.4 Calibrating a conductivity sensor

→ Choose the reference solution used in the menu "Parameters -> Mx:Conductivity -> Calib. Buffer".

→ Calibrate the conductivity sensor by automatically determining its specific C constant.
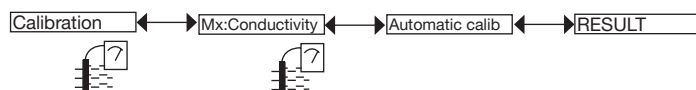
9 TROUBLESHOOTING AND MAINTENANCE

9.1 Safety instructions

⚠️ **DANGER**

Risk of injury due to electrical voltage.

▸ If a 12...36 V DC wall-mounted version is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.

▸ Before carrying out work on the system, disconnect the electrical power for all the conductors and isolate it.

▸ All equipment connected to the device must be double insulated in relation to the mains according to the standards UL/EN 61010-1.

▸ Observe all applicable accident protection and safety regulations for electrical equipment.

⚠️ **WARNING**

Risk of injury due to non-conforming maintenance.

▸ Maintenance must only be carried out by qualified and skilled staff with the appropriate tools.

▸ Ensure that the restart of the installation is controlled after any interventions.

9.2 If you encounter problems

The following table gives the association between the LEDs, the icons and the types of events generated by the device.

LEDs		Displayed icons					Type of event and possible
LED A (left)	LED B (right)	Smiley	Error	Warning	Maintenance		cause
purple (blinking)	purple (blinking)	any					The DCP mode of the Profinet protocol is active on a device with an Ethernet module.
green	green	😊					Normal operating and default icon if no diagnostic function is active on the device.
green	red	☹	⊗				"Error" event linked to the diagnostic.
red	green	😊	⊗				"Error" event linked to the device.
green	orange	😊		⚠️			"Warning" event linked to the diagnostic.
orange	green	😊		⚠️			"Warning" event linked to the device.
green	orange	😊		⚠️	🔧		"Maintenance" event linked to a calibration.
any colour	any colour	any smiley				⊠	Problem linked to the datalogger

10   SPARE PARTS AND ACCESSORIES

⚠ **CAUTION**

Risk of injury and/or material damage caused by the use of unsuitable parts.

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

▸ Use only original accessories and original replacement parts from Bürkert.

11   PACKAGING AND TRANSPORT

NOTICE

Damage due to transport

Transport may damage an insufficiently protected device.

▸ Transport the device in shock-resistant packaging and away from humidity and dirt.

▸ Do not expose the device to temperatures that may exceed the admissible storage temperature range.

12   STORAGE

NOTICE

Poor storage can damage the device.

▸ Store the device in a dry place away from dust.

▸ Storage temperature: –20...+70 °C,
  limited to –10...+70 °C if the memory card with article number 564072 is inserted.

13   DISPOSAL

Environmentally friendly disposal

▸ Follow national regulations regarding disposal and the environment.

▸ Collect electrical and electronic devices separately and dispose of them as special waste.

Further information country.burkert.com.

www.burkert.com