burkert
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

Type 8619

bürkert
FLUID CONTROL SYSTEMS

MAN 1000139645 EN Version: E Status: RL (released | freigegeben) printed: 14.01.2015

English

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.

Important safety information.

Failure to comply with the information mentioned especially at chapters *Intended use* and *Basic safety 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 instruction manual to get a complete description of the device.

The Operating Instructions for type 8619 can be found on the CD provided with the device or on internet under:

www.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.

NOTE

Warns against material damage.

▶ Failure to observe this warning may result in damage to the device or system.

Indicates additional information, advice or important recommendations.

Refers to information contained in this manual or in other documents.

→ Indicates a procedure to be carried out.

1.2   Definition of the word "device"

The word "device" used within this manual refers to the 8619 multiCELL, the 8619 multiCELL WM AC and/or the 8619 multiCELL WM DC.

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, conductivity, temperature or flow rate... .

▸ This device must be protected against electromagnetic interference, ultraviolet rays and, when installed outdoors, the effects of climatic conditions.

▸ This device must be used in compliance with the characteristics and commissioning and use conditions specified in the contractual documents and in the user manual.

▸ Requirements for the safe and proper operation of the device are proper transport, storage and installation, as well as careful operation and maintenance.

▸ Only use the device as intended.

▸ Observe any existing restraints when the device is exported.

3 BASIC SAFETY INFORMATION

This safety information does not take into account:

▪ any contingencies or occurrences that may arise during assembly, use and maintenance of the device.

▪ the local safety regulations that the operator must ensure the staff in charge of installation and maintenance observe.

⚠

Danger due to electrical voltage.

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

▸ Disconnect the electrical power for all the conductors and isolate it before carrying out work on the system.

▸ All equipment connected to the 8619 shall be double insulated with respect to the mains according to the standard IEC 61010-1:2010.

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

⚠

Various dangerous situations.

To avoid injury take care:

▸ to prevent any unintentional power supply switch-on.

▸ to carry out the installation and maintenance work by qualified and skilled staff with the appropriate tools.

▸ to guarantee a set or controlled restarting of the process after a power supply interruption.

▸ to use the device only if in perfect working order and in compliance with the instructions provided in the user manual.

▸ to observe the general technical rules during the planning and use of the device.

▸ not to use this device in explosive atmospheres.

▸ not to use this device in an environment incompatible with the materials from which it is made.

▸ not to subject the device to any mechanical stresses (for example by placing objects on top of it or using it as a step).

▸ not to make any external modifications to the device such as for instance painting or varnishing any part of the device.

NOTE:

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 standards EN 61340-5-1 and 5-2.

▸ 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:

Bürkert SAS

Rue du Giessen

BP 21

F-67220 TRIEMBACH-AU-VAL

You may also contact your local Bürkert sales office.

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

4.2 Warranty conditions

The condition governing the legal warranty is the conforming use of the multiCELL 8619 in observance of the operating conditions specified in this manual.

4.3 Information on the Internet

You can find the Operating instructions and technical data sheets regarding the type 8619 at: www.burkert.com

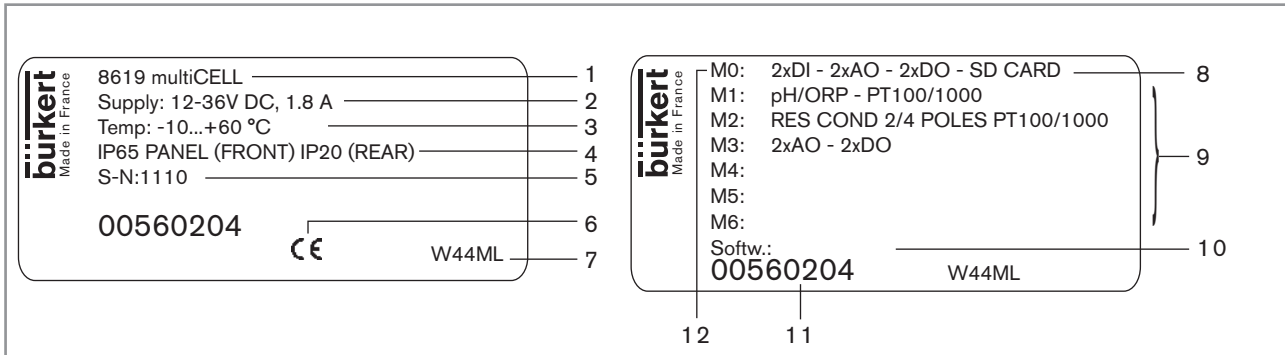# 5 DESCRIPTION OF THE DEVICE NAME PLATE

Fig. 1: Example of a name plate

1. Type of device

2. Electrical power supply

3. Ambient temperature range

4. Protection rating

5. Serial number

6. Conformity logo

7. Construction code

8. Device fitted with a memory card reader

9. Characteristics of the connection modules

10.Software options

11.Order code

12.Properties of the main "M0" board

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6 TECHNICAL DATA

6.1 Conditions of use of the 8619 multiCELL

Ambient temperature ▪ without connection module [1] ▪ with connection module [1]	 ▪ -10 to +70 °C ▪ -10 to +60 °C
Air humidity	< 85 %, not condensing
Height above sea level	max. 2000 m
Protection rating	▪ IP65, NEMA4X on front, once mounted, and electrical enclosure closed ▪ IP20 for the parts inside the electrical enclosure
Pollution degree	Degree 2 according to UL 61010-1
Category of installation	Category 1 according to UL 61010-1

[1] with a memory card available as an accessory (order reference 564072). If a different memory card is used, observe the operating temperatures given by the manufacturer of the memory card.

6.2 Conditions of use, 8619 multiCELL WM DC

Ambient temperature ▪ without connection module [1] ▪ with connection module [1]	 ▪ -10 to +75 °C ▪ -10 to +60 °C
Air humidity	< 85 %, not condensing
Height above sea level	max. 2000 m
Protection rating	IP65, IP67, if the following conditions are met: ▪ Body of the cable glands tightened with a torque of 5.5 Nm ± 20 % at the factory. ▪ Cable glands blanked off or wired. ▪ Screws of the cable glands tightened with a torque of 4.5 Nm ± 20 %. ▪ Housing closed. ▪ The 4 screws for the cover are tightened crosswise with a torque of 1.4 Nm ± 20 %.
Pollution degree	Degree 2 according to UL 61010-1
Category of installation	Category I according to UL 61010-1

[1] with a memory card available as an accessory (order reference 564072). If a different memory card is used, observe the operating temperatures given by the manufacturer of the memory card.

6.3 Conditions of use, 8619 multiCELL WM AC

> ❗ Observe the maximum permissible load as a function of the ambient temperature. See the derating curves Fig. 4, section 6.9.

Ambient temperature	-10 to +70 °C [1]
Air humidity	< 85 %, not condensing
Height above sea level	max. 2000 m
Protection rating, 8619 multiCELL	IP65 and IP67 if the following conditions are met: ▪ Body of the cable glands tightened with a torque of 5.5 Nm ±20 % at the factory. ▪ Cable glands blanked off or wired. ▪ Screws of the cable glands tightened with a torque of 4.5 Nm ± 20 %. ▪ Housing closed. ▪ The 4 screws for the cover are tightened crosswise with a torque of 1.4 Nm ± 20 %.
Pollution degree	Degree 3 according to UL 61010-1, if the following conditions are met: ▪ Housing closed. ▪ The 4 screws for the cover are tightened crosswise with a torque of 1.4 Nm ± 20 %.
Category of installation	Category II according to UL 61010-1

[1] with a memory card available as an accessory (order reference 564072). If a different memory card is used, observe the operating temperatures given by the manufacturer of the memory card.

6.4 Compliance to standards and directives

The device conforms to the EC directives through the following standards:

▪ EMC: EN 61000-6-2, EN 61000-6-3

▪ Resistance to vibrations EN 60068-2-6

▪ Resistance to shocks: EN 60068-2-27

▪ For the 8619 multiCELL WM AC: Low voltage directive

The UL devices with command key PE72 (identified by the logo) and the UL devices with command key PU02 (identified by the logo), for the United States and Canada, comply with the following standards:

▪ UL 61010-1

▪ CRN/CSA-C22.2 n° 61010-1

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6.5 Mechanical data

Tab. 1: Materials in contact with the ambient air

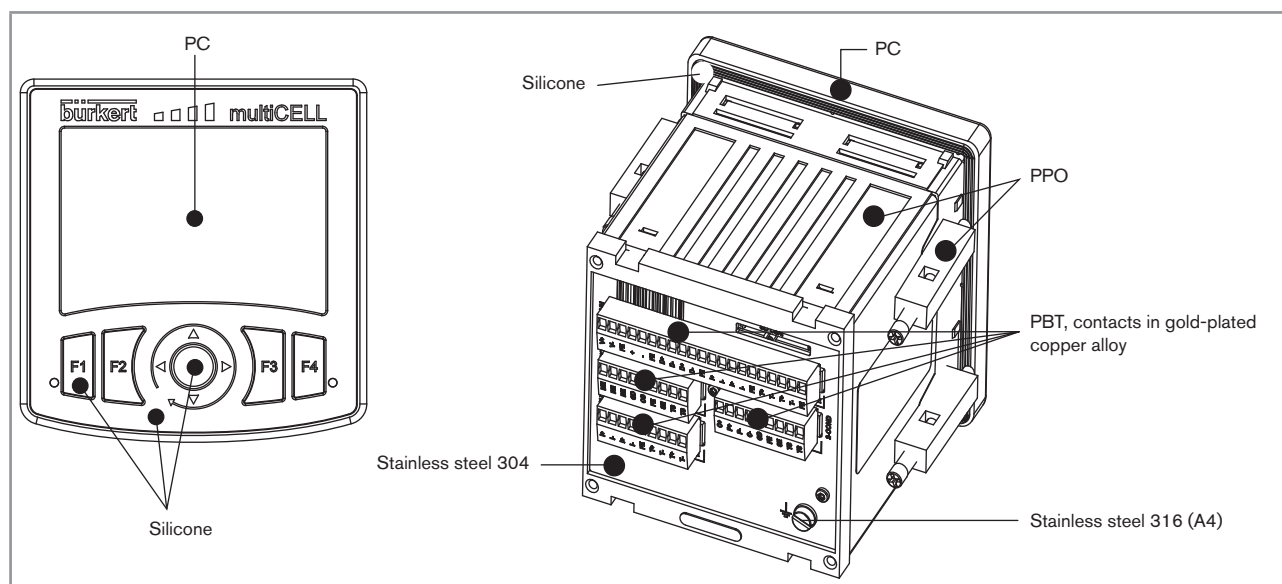| Component	Material	
	8619 multiCELL	**8619 multiCELL WM AC or 8619 multiCELL WM DC**
8619 multiCELL housing and fastener	PPO	-
Wall-mounting housing, wall-mounting fastening plate, cable glands, protective cap (for LCD display), protective blank (for a slot without connection terminal), hinge stiffener.	-	PA66
Seal	Silicone	
Front panel and keys	PC/silicone	
Terminal support plate	Stainless steel 304	
Terminal blocks	PBT, contacts in gold-plated copper alloy	
Ground screw + spring washer	Stainless steel 316 (A4)	
Protective cap for the 110-240 V AC power supply terminal board	-	Stainless steel 304
4 cover screws	-	PVC

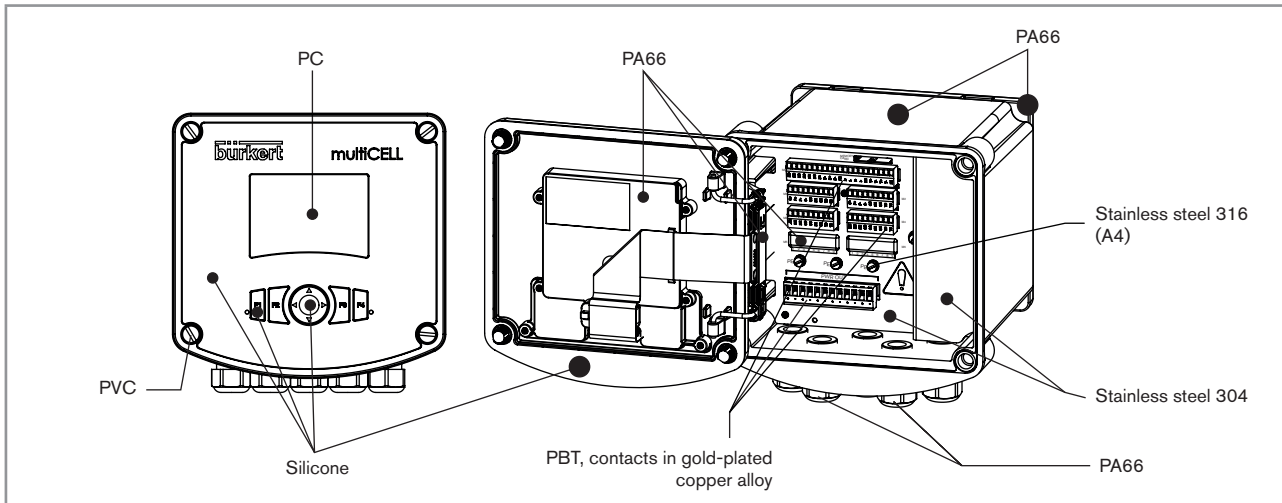*Fig. 2: Component materials of the 8619 multiCELL*

Fig. 3:   Component materials of the 8619 multiCELL WM

6.6   Specifications of the "M0" main board, 8619 multiCELL

Electrical supply 12-36 V DC	▪ filtered and regulated
	▪ SELV circuit, at a non-hazardous energy level
	▪ Tolerance: ±10 %
Specifications of the 12-36 V DC power source (not provided) of the UL devices, with variable key PE72	▪ Limited power source (in accordance with section 9.3 of the UL 61010-1 standard)
	▪ or class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Own consumption (without connection module, 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 to 32 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 to 2500 Hz

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All analogue outputs ("AO")	▪ 4-20 mA current
	▪ Any connection mode, in sink or source mode
	▪ Galvanically isolated
	▪ Protected against polarity reversal
	▪ Max. loop impedance 1100 Ω to 36 V DC, 610 Ω to 24 V DC, 100 Ω to 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. 700 mA per transistor; total of max. 1A if both transistors are connected
	▪ Max. frequency 2000 Hz
Flow rate measurement	Refer to the user manual for the flow sensor connected to the 8619

6.7 Specifications of the "M0" main board, 8619 multiCELL WM

All digital inputs ("DI")	▪ Switching threshold V_{on}: 5 to 32 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 to 2500 Hz
All analogue outputs ("AO")	▪ 4-20 mA current
	▪ Any connection mode, in sink or source mode
	▪ Galvanically isolated
	▪ Protected against polarity reversal
	▪ Max. loop impedance 1100 Ω to 36 V DC, 610 Ω to 24 V DC, 100 Ω to 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. 700 mA per transistor; total of max. 1A if both transistors are connected
	▪ Max. frequency 2000 Hz
Flow rate measurement (software option)	Refer to the user manual for the flow sensor connected to the 8619

6.8 Specifications of the power supply board, 8619 multiCELL WM

Electrical supply 12-36 V DC	▪ filtered and regulated
	▪ SELV circuit, at a non-hazardous energy level
	▪ Tolerance: ±10 %
	▪ Maximal consumption: 1.8 A
Specifications of the 12-36 V DC power source (not provided) of the UL devices, with variable key PU02	▪ Limited power source (in accordance with section 9.3 of the UL 61010-1 standard)
	▪ or class 2 type power source (according to the 1310/1585 and 60950-1 standards)
Electrical supply 110-240 V AC	
▪ Frequency	▪ 50/60 Hz
▪ Max. current	▪ 500 mA
▪ integrated protection	▪ delayed 3.15 A fuse
Own consumption (without connection module, outputs not connected)	2 VA

6.9 Specifications of the "POWER OUT" power distribution board, 8619 multiCELL WM

> Observe the maximum permissible load as a function of the ambient temperature. See the derating curves Fig. 4.

Maximum current
of the load
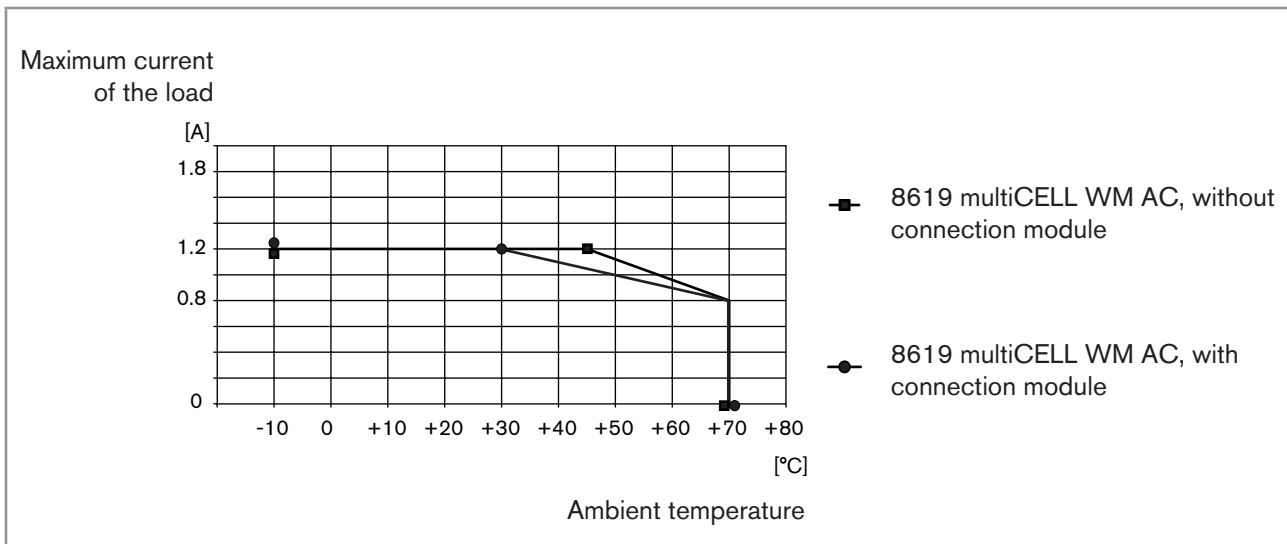
Fig. 4:   Derating curves of the maximum permissible current, depending on the ambient temperature

Power distribution	Protected against polarity reversal
▪ 12-36 V DC version ▪ 110-240 V AC version	▪ 12-36 V DC, 1.8 A max. ▪ 24 V DC, filtered and regulated, 1,2 A max.: see the curves in Fig. 4. SELV circuit, at a non-hazardous energy level

6.10 Specifications of the "Input" board

Power consumption	0.1 VA
Digital inputs ("DI")	▪ Switching threshold V_{on}: 5 to 32 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 to 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

6.11   Specifications of the memory card reader/recorder

▪ Memory card type	▪ SD (Secure Digital) or SDHC (Secure Digital High Capacity)
▪ Capacity	▪ 8 GB max.
▪ File system	▪ FAT32

6.12   Specifications of the outputs board "OUT"

Power consumption	0.1VA
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. 700 mA per transistor; total of max. 1A if both transistors are connected
	▪ Max. frequency 2000 Hz
All analogue outputs ("AOx")	▪ 4-20 mA current
	▪ Any connection mode, in sink or source mode
	▪ Galvanically isolated
	▪ Protected against polarity reversal
	▪ Max. loop impedance 1100 Ω to 36 V DC, 610 Ω to 24 V DC, 100 Ω to 12 V DC

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6.13   Specifications of the "pH/redox" module

pH measurement	
▪ pH measurement range	▪ -2.00...+16.00 pH
▪ Resolution of pH measurement	▪ 0.01pH
▪ 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	▪ -2000 ... +2000 mV
▪ Oxidation reduction potential measurement range	
▪ 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 °C ... +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

6.14   Specifications of the "COND" conductivity module

Resistance measurement (without conductivity sensor connected)	5 Ω ... 1 MΩ
Power consumption	0.25VA
Conductivity cell type	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	▪ 0.000 µS/cm ... 2 S/cm (depends on the conductivity sensor)
▪ Measurement resolution	▪ 10^{-9} S/cm
▪ Systematic variation in the measurement	▪ ±0.5% of the measured value + conductivity sensor error
Resistivity measurement (with connected conductivity sensor)	
▪ Measurement range	▪ 0.500 Ω.cm ... 100 MΩ.cm (depends on the conductivity sensor)
▪ Measurement resolution	▪ 10^{-1} Ω.cm
▪ Systematic variation in the measurement (without sensor)	▪ ±0.5% of the measured value + conductivity sensor error
Temperature measurement	
▪ Measurement range	▪ -40 °C ... ±200 °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

7   INSTALLATION AND WIRING

7.1   Safety instructions

⚠ **DANGER**

Risk of injury due to electrical voltage.

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

▶ Disconnect the electrical power for all the conductors and isolate it before carrying out work on the system.

▶ All equipment connected to the 8619 must be double insulated with respect to the mains according to the standard IEC 61010-1:2010.

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

⚠ **WARNING**

Risk of injury due to nonconforming installation.

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

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

▶ Install the circuit breaker or switch in an easily accessible place.

▶ Identify the circuit breaker or switch as the disconnecting component for the electrical power supply to the device.

▶ Install appropriate safety devices (correctly rated fuse and/or circuit-breaker).

▶ For a version powered by 110-240 V AC, insert an overload device between the live and the neutral.

▶ Do not power the 24 V DC version of the device with an AC voltage or with a DC voltage higher than 36V DC.

▶ Do not power the 100-240 V AC version with an DC voltage or with a AC voltage higher than 240 V DC.

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

▶ The use of probes/sensors sold by Bürkert is preferable.

▶ Follow the instructions for installation and wiring of remote sensors connected to the multiCELL.

▶ On a 8619 multiCELL WM, only authorized personnel is allowed to 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.

▶ Avoid unintentional activation of the installation.

▶ Guarantee a set or controlled restart of the process subsequent to the installation of the device.
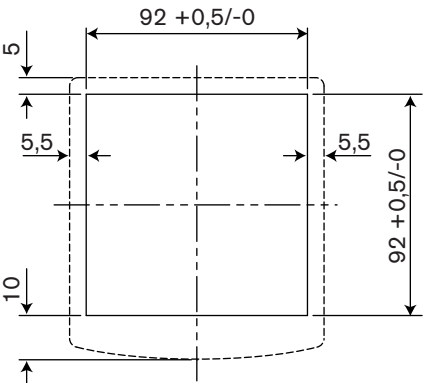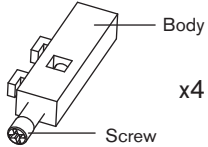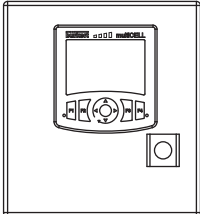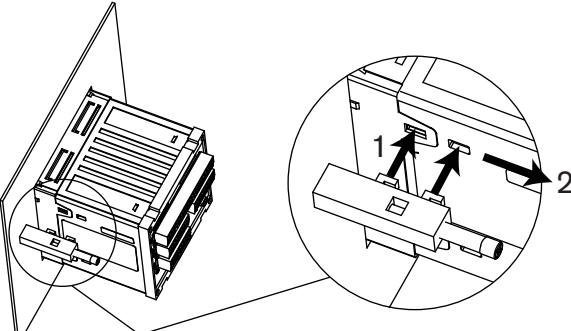
⚠ **Protect this device against electromagnetic interference, ultraviolet rays and, when installed outdoors, the effects of the climatic conditions.**

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 multiCELL, 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 no more 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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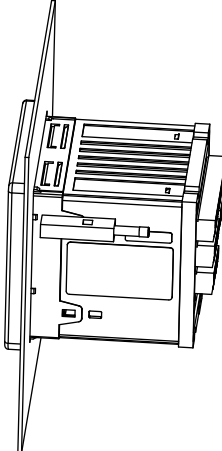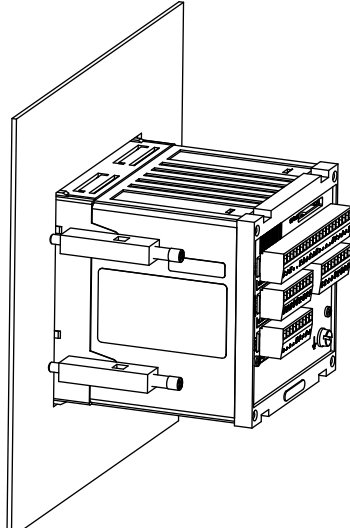
	Step 5: → Place the fastener flush against the multiCELL by hand, so that the hooks remain in place. Step 6: → Fully tighten the screws using an appropriate screwdriver.
	→ Repeat steps 4 to 6 to fit the remaining 3 fasteners.

Fig. 5:   Panel mounting of the 8619 on an enclosure or cabinet

7.2.2   Installing a 8619 multiCELL WM on a support

NOTE

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

▸ 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 %.

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°.
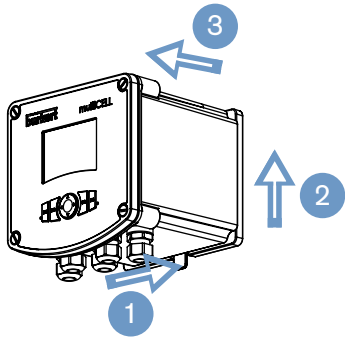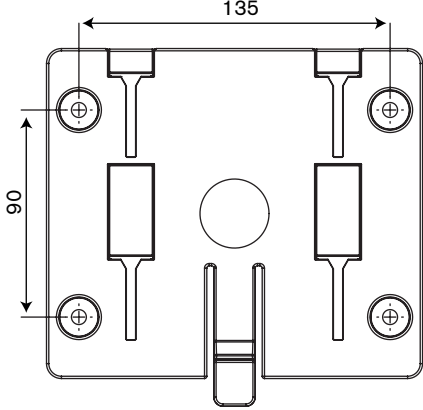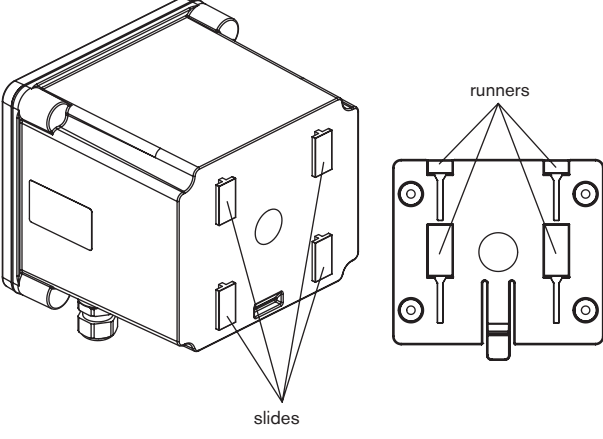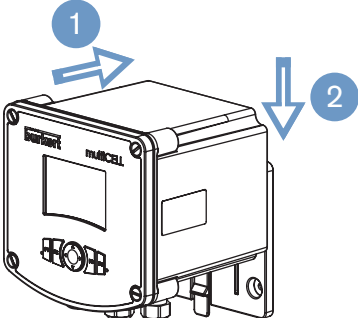
	Step 1: Removing the wall-mounting fastening plate from the device. 1. Press the tab to unlock the device. 2. Lift the device. 3. Separate the device from the wall-mounting fastening plate.
135 90 This diagram is not to scale. The dimensions are given in mm.	Step 2: Installing the wall-mounting fastening 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.
runners slides	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. 6:   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 version is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.

▶ Disconnect the electrical power for all the conductors and isolate it before carrying out work on the system.

▶ All equipment connected to the 8619 must be double insulated with respect to the mains according to the standard IEC 61010-1:2010.

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

7.3.1 Recommendations for wiring a 8619 multiCELL WM

NOTE

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.

NOTE

An unsealed 8619 multiCELL WM of the device may become damaged.

▶ 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 %.

▶ When the mechanical installation and wiring are completed, tighten the 4 screws of the cover in a crosswise manner with a torque of 1.4 Nm ± 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 connection cables

The electrical connections are carried out via terminal blocks:

▪ Directly, on a 8619 multiCELL.

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

→ Use shielded cables (not provided) with a maximum operating temperature greater than 80 °C.

→ Use cables and electric wires with dimensions that adhere to the specifications described in Tab. 2.

Tab. 2:   Specifications of the cables and conductors

External diameter of the cable (8619 multiCELL WM)	6 to 12 mm (4 mm if using multiply drilled seals)
Cross-section of the local earth connection conductor (12-36 V DC versions)	0.75 ... 1.5 mm²
Rigid conductor cross-section H05(07) V-U	0.2 ... 1.5 mm², stripped over 7 mm
Flexible conductor cross-section H05(07) V-K	0.2 ... 1.5 mm², stripped over 7 mm
Cross-section of a conductor with a non-insulated lug	0.2 ... 1.5 mm², stripped over 7 mm
Cross-section of a conductor with an insulated lug	0.2 ... 0.75 mm², stripped over 7 mm

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 "M0" terminal board 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 with a torque of 1 Nm ± 20 %.

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

Fig. 7:   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 %.

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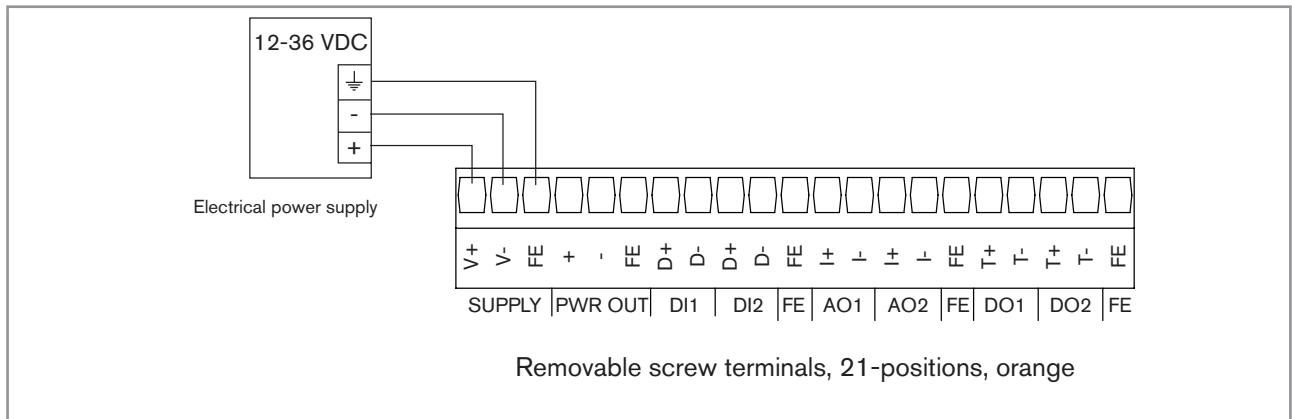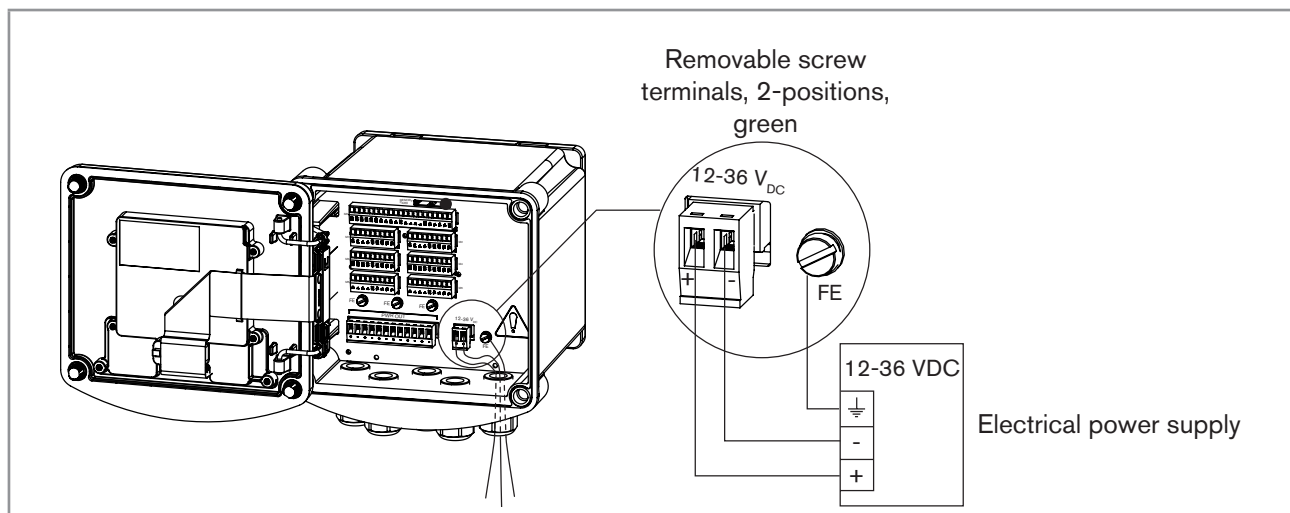

Fig. 8:   Wiring the 12-36 V DC electrical supply for a 8619 multiCELL WM

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.

MAN 1000139645 EN Version: E Status: RL (released | freigegeben) printed: 14.01.2015
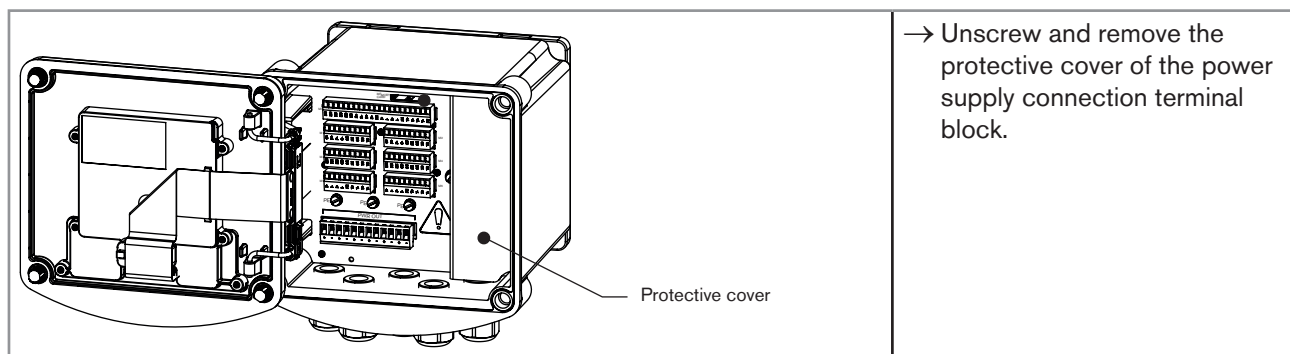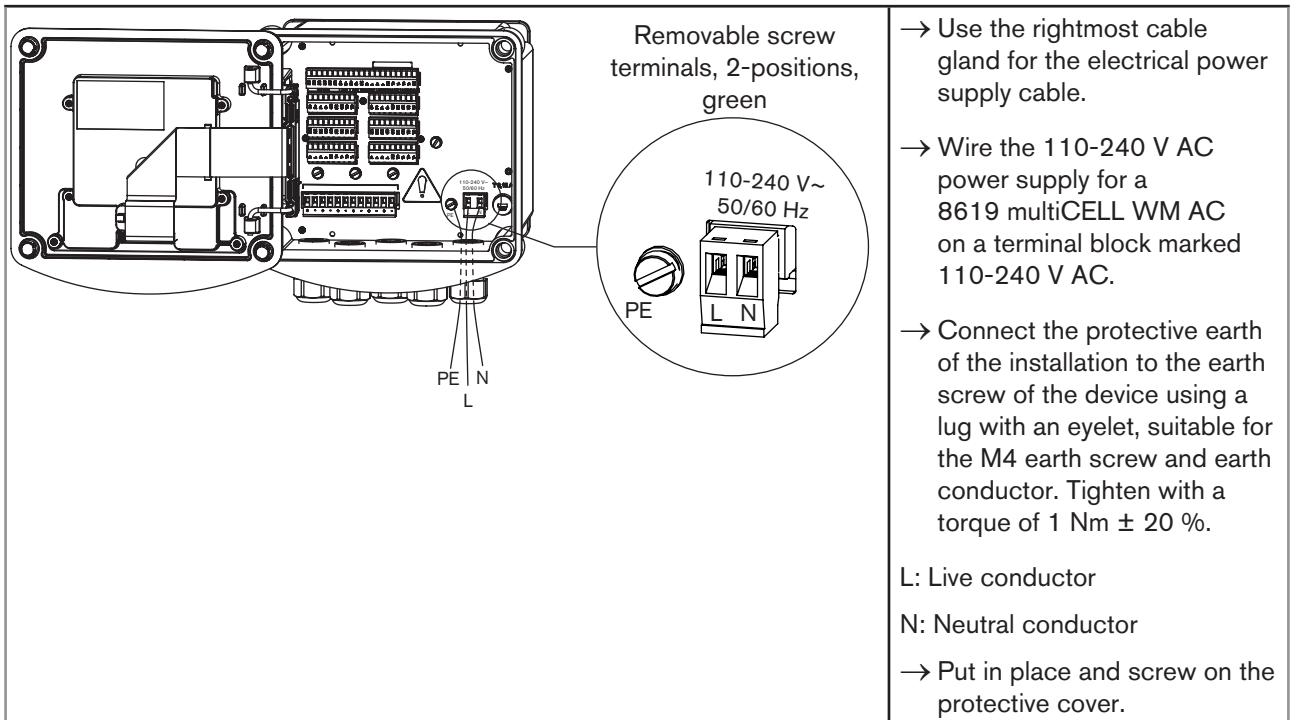
Fig. 9:   Wiring the 110-240 V AC electrical supply for a 8619 multiCELL WM AC

7.3.6   Supplying an external instrument via a 8619 multiCELL

The device can be used to supply an external instrument, for example a flow sensor, with a voltage identical to the supply voltage of the 8619

The power supply is available on the "M0" terminal block of a 8619 multiCELL
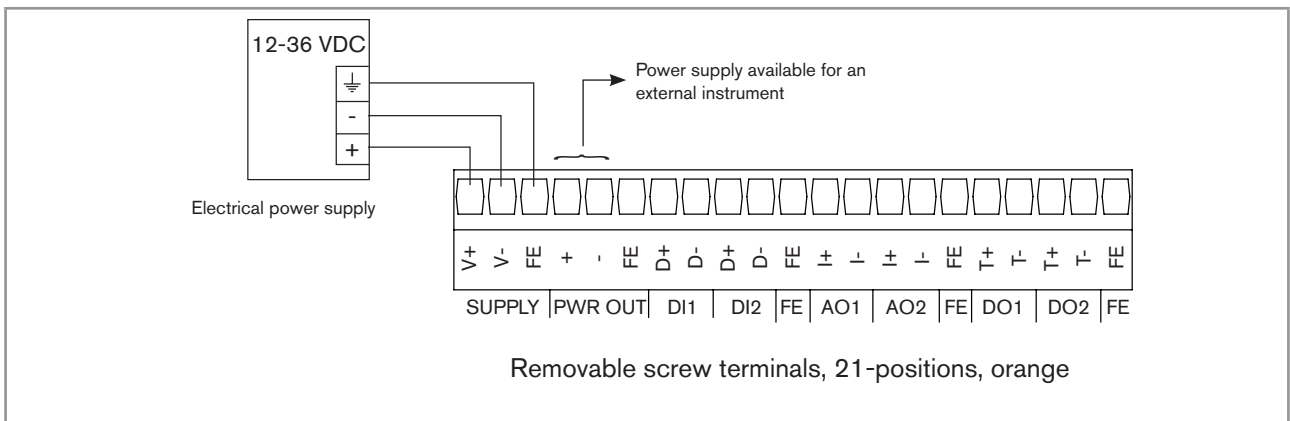
Fig. 10:   Supplying an external instrument via a 8619 multiCELL

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 terminal on the POWER OUT terminal block.

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

▪ is equal to the supply voltage of the 12-36 V DC version of the 8619.

▪ is equal to a voltage of 24 V DC on a version of the 8619 which is supplied with a voltage of 110-240 V AC.

POWER OUT

+ - + - + - + - + - + -

Removable screw terminals,
12-positions, green
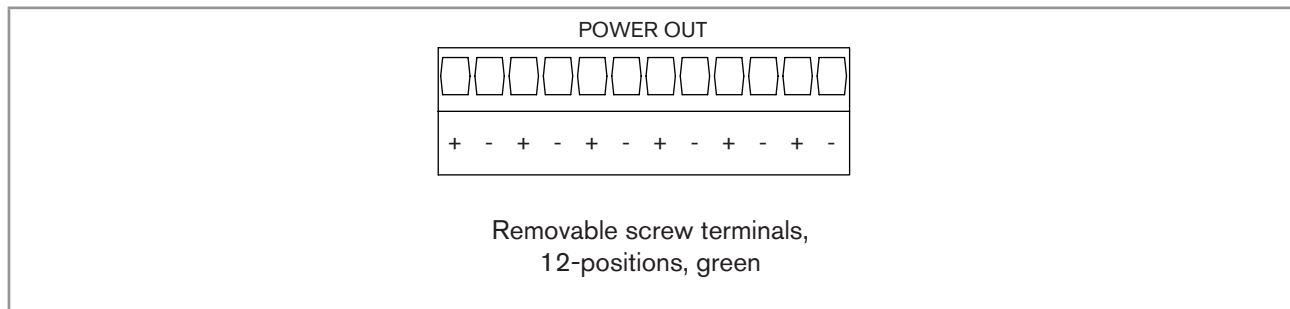
Fig. 11:   Supplying external instruments via a 8619 multiCELL WM

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

The M0 board 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.

MAN 1000139645 EN Version: E Status: RL (released | freigegeben) printed: 14.01.2015
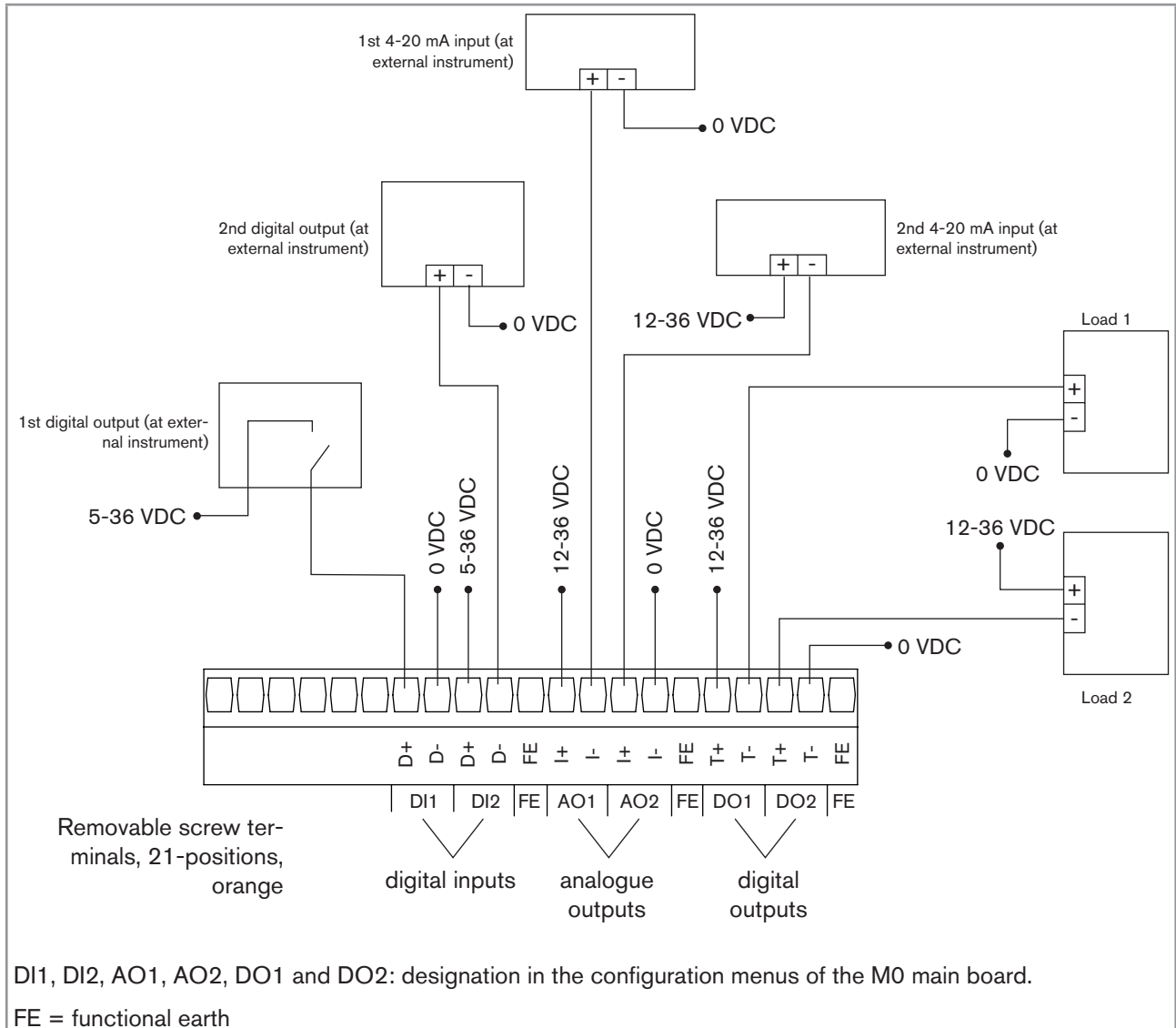
Fig. 12: Wiring the inputs and outputs on the main board "M0"

7.3.9   Examples of the connection of flowmeters to a 8619 multiCELL
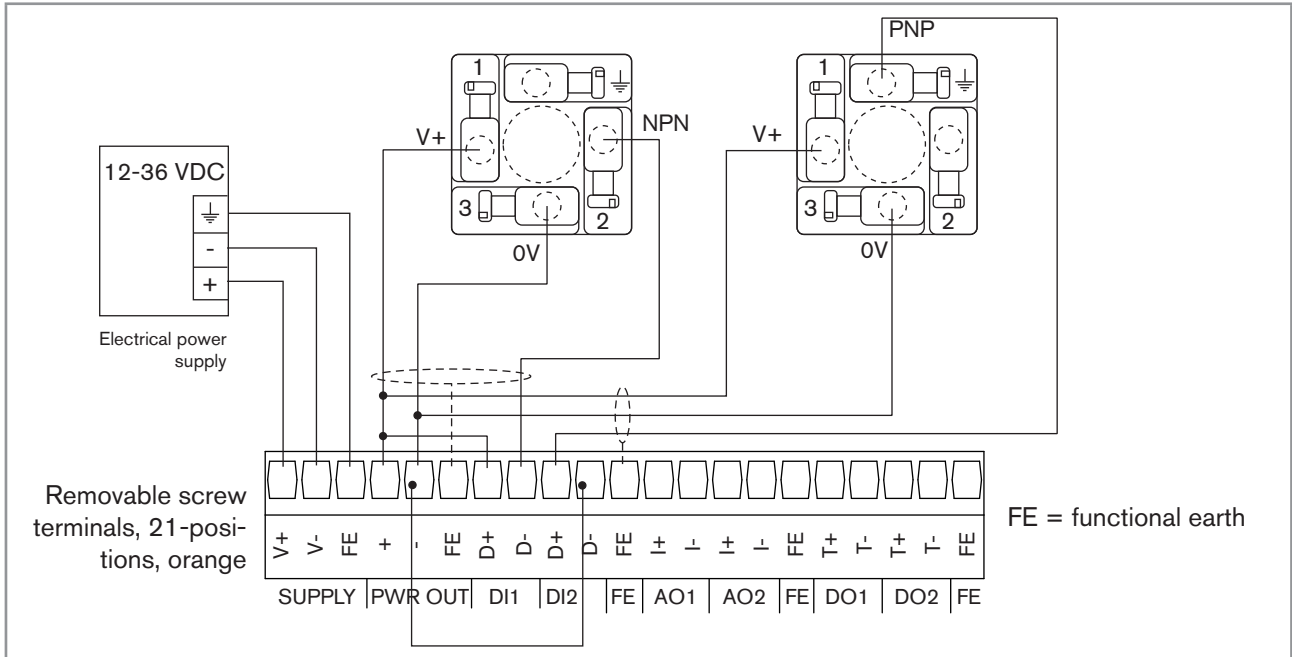
Fig. 13:   Wiring the 2 type 8030 flow sensors
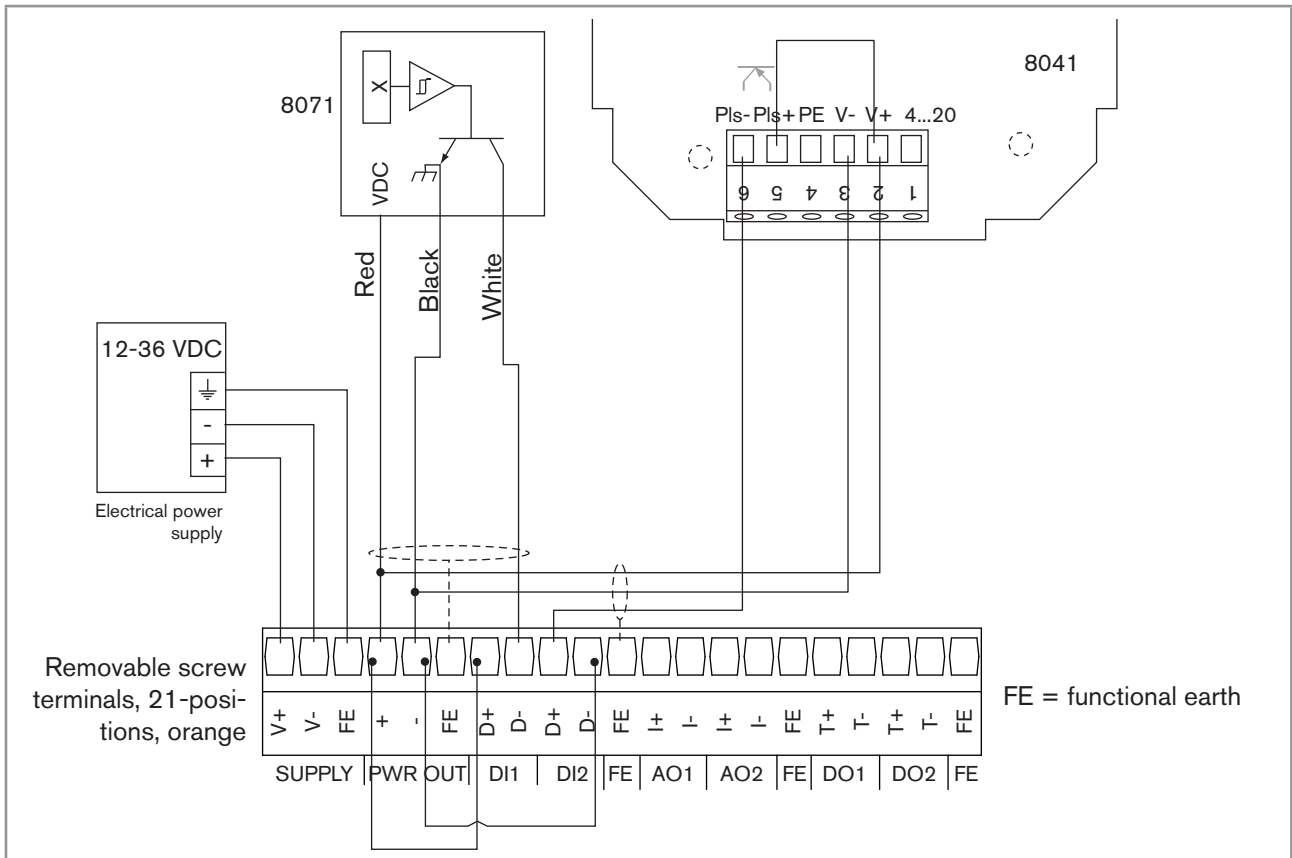
Fig. 14:   Wiring a type 8071 flow sensor and a type 8041 flow sensor

7.3.10 Examples of the connection of a solenoid valve to a 8619 multiCELL WM

The solenoid valve can be connected to the 8619 via board "M0" or via the outputs module, "OUT".

→ If a solenoid valve is connected to the 8619, connect a flyback diode in parallel to the solenoid valve. If the solenoid valve is connected via a type 2508 connector, this connector is available with an integrated flyback diode.
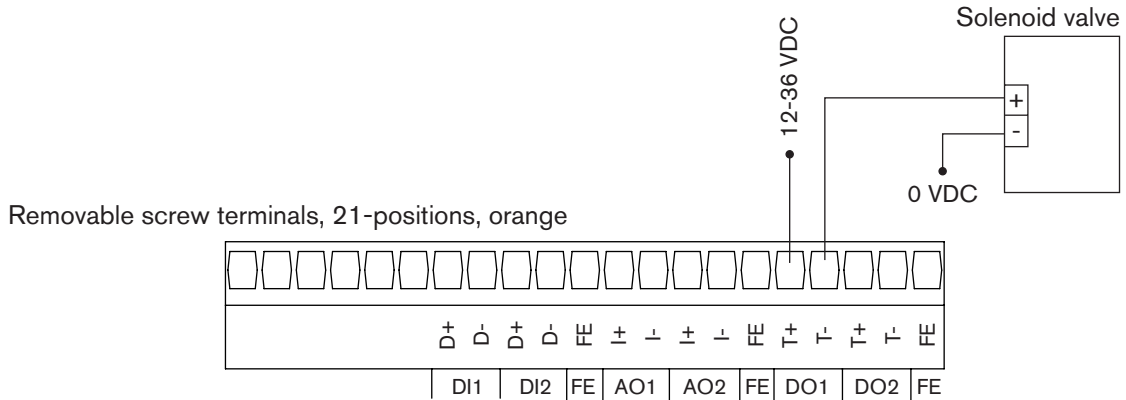
Fig. 15:   Wiring a solenoid valve to the "M0" board of the 8619

7.3.11 Identifying the pins on the connection modules

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

Fig. 16 enables labelling of the terminals.
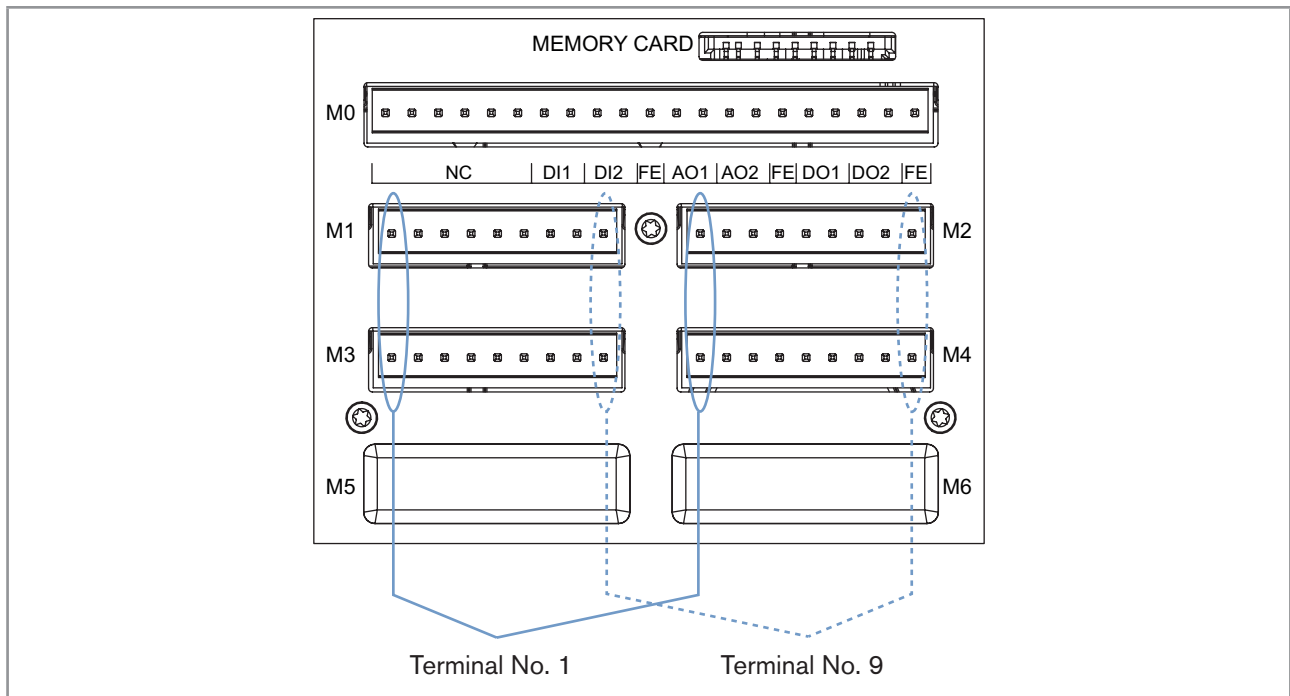
Fig. 16:   Identifying the pins on the connection modules

7.3.12 Wiring the input module "INPUT"

The "INPUT" inputs module has:

▪ Two analogue inputs;

▪ Two digital inputs.

The inputs are galvanically insulated, and therefore floating.
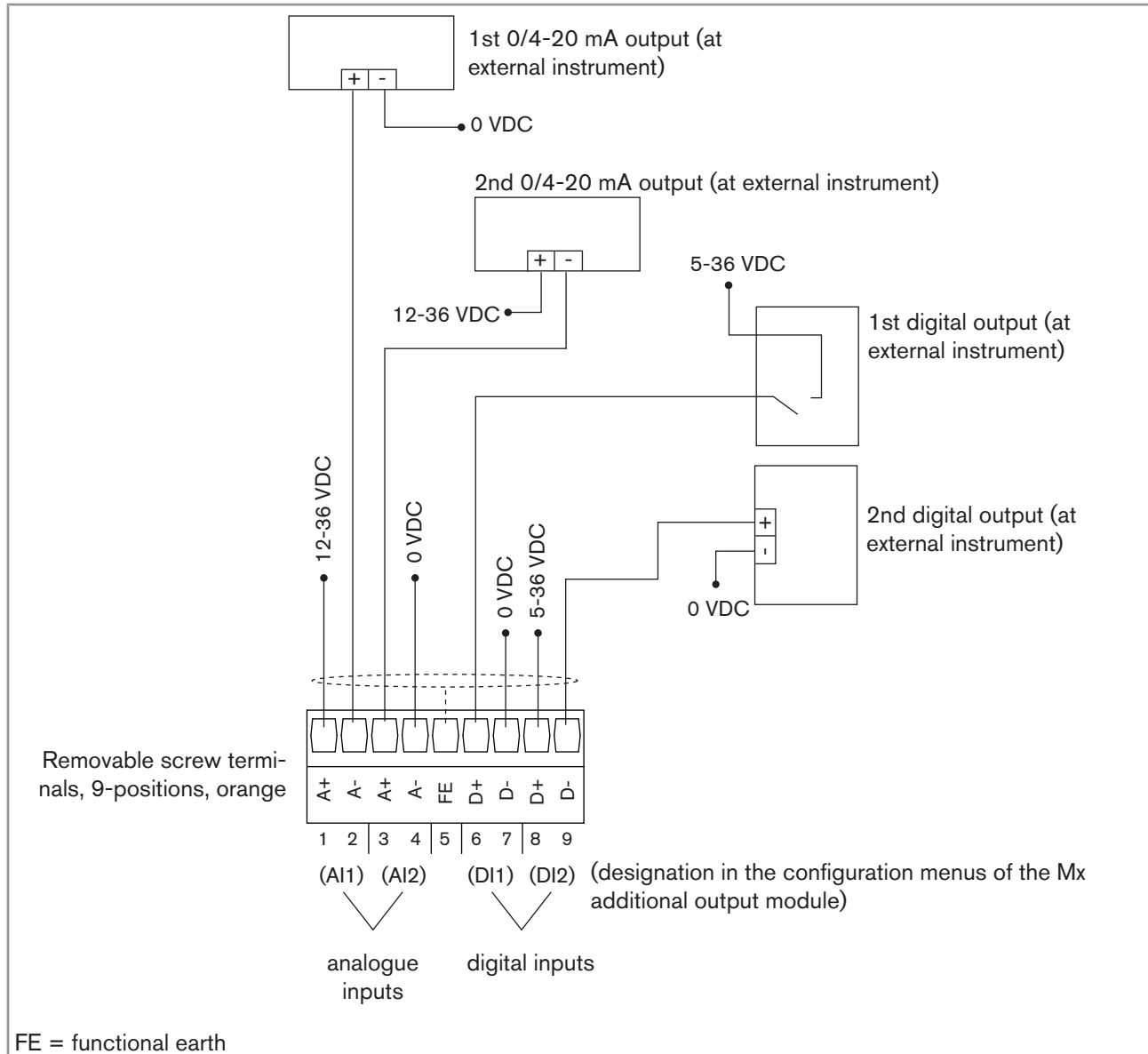
Fig. 17: *Connecting the analogue inputs to a 2-wire current transmitter and connecting the digital inputs of the input module*
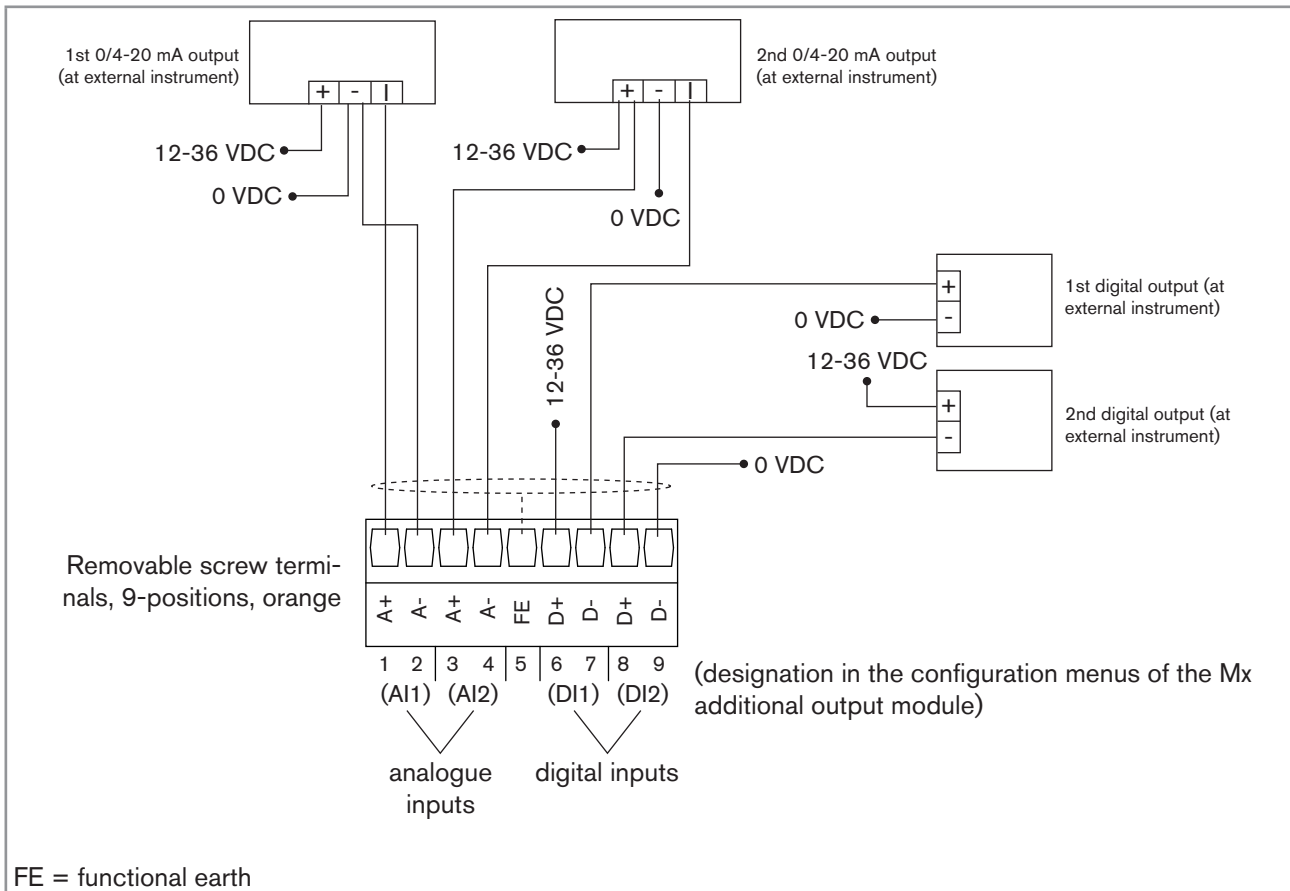
Fig. 18: *Connecting the AI1 analogue input in source mode and the analogue input AI2 in sinking mode to a 3-wire current transmitter (for example type 8025 with relay outputs) and connecting the digital inputs of the input module*
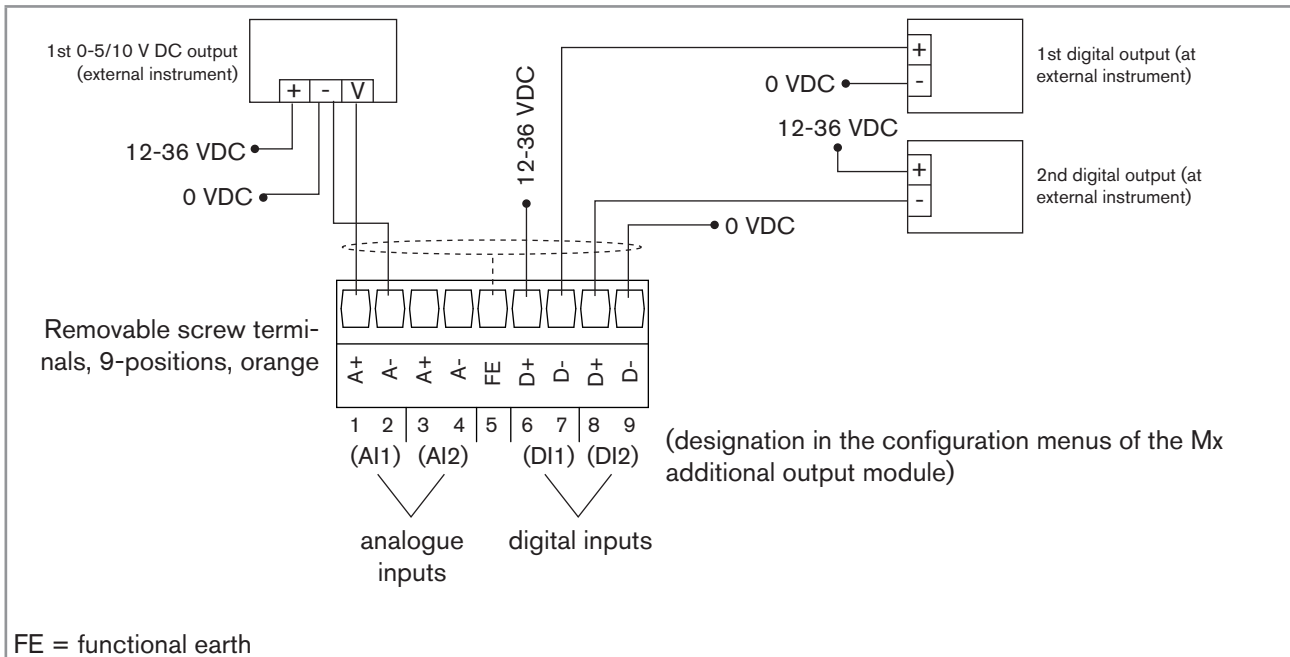
Fig. 19: *Connecting the analogue inputs to a voltage transmitter and connecting the digital inputs of the input module*

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7.3.13 An example of the connection of a type 8232 chlorine sensor (order code 566051 or 566052) to the input module "INPUT".

Electrical supply to the chlorine sensor

12-36 VDC

Removable screw terminals, 9-positions, orange

A+ A- A+ A- FE D+ D- D+ D-
1   2   3   4   5   6   7   8   9

(AI1) (AI2)   (DI1) (DI2)

"INPUT" module of the 8619

FE = functional earth
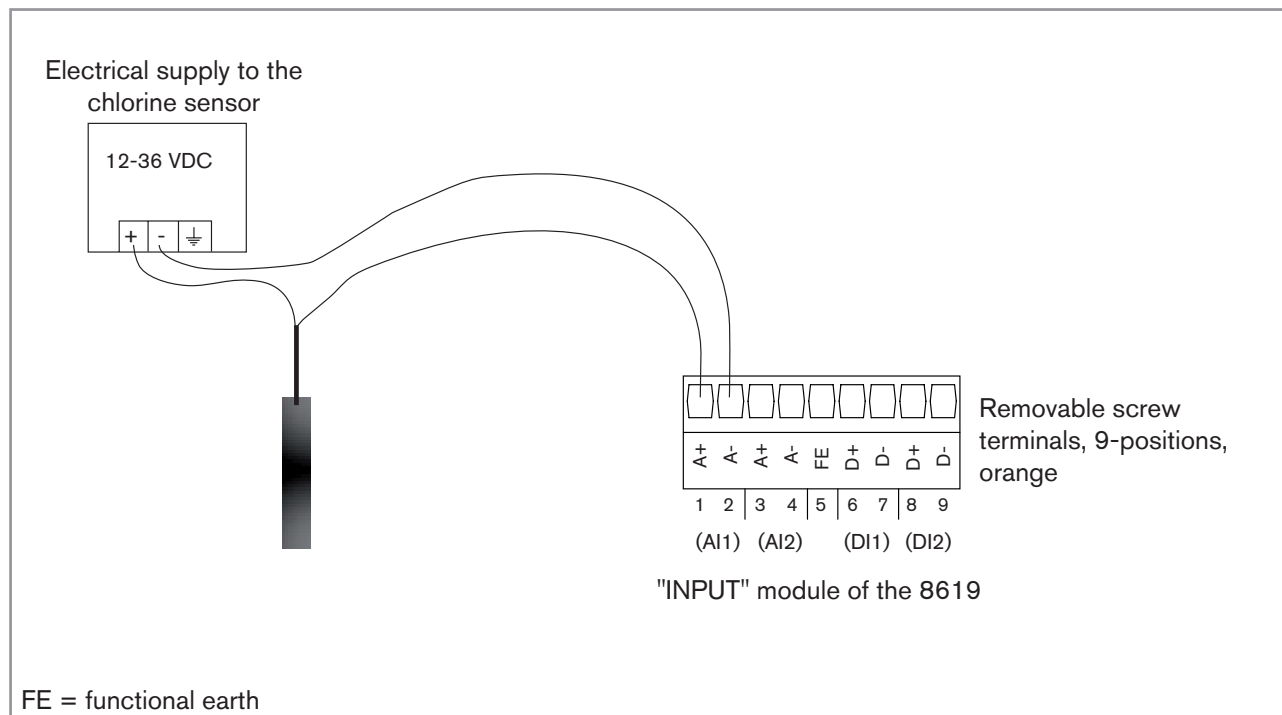
Fig. 20: Connection of a type 8232 chlorine sensor (order code 566051 or 566052) powered by an external voltage source

7.3.14 An example of the connection of a type 8232 chlorine sensor (order code 565164) to the input module "INPUT".

NOTE

The type 8232 chlorine sensor may be damaged by the electrical power supply.

▸ Power the chlorine sensor with a voltage between 22.5 and 26 V DC.

▸ If the chlorine sensor is powered via a type 8619 controller, power the type 8619 controller, 12-36 V DC version, with a power supply between 22.5 and 26 V DC.

Colour of the conductor for chlorine sensor (order code 565164)	Signal
Green	Negative voltage signal
Yellow	Positive voltage signal
White	Positive supply
Brown	Negative supply
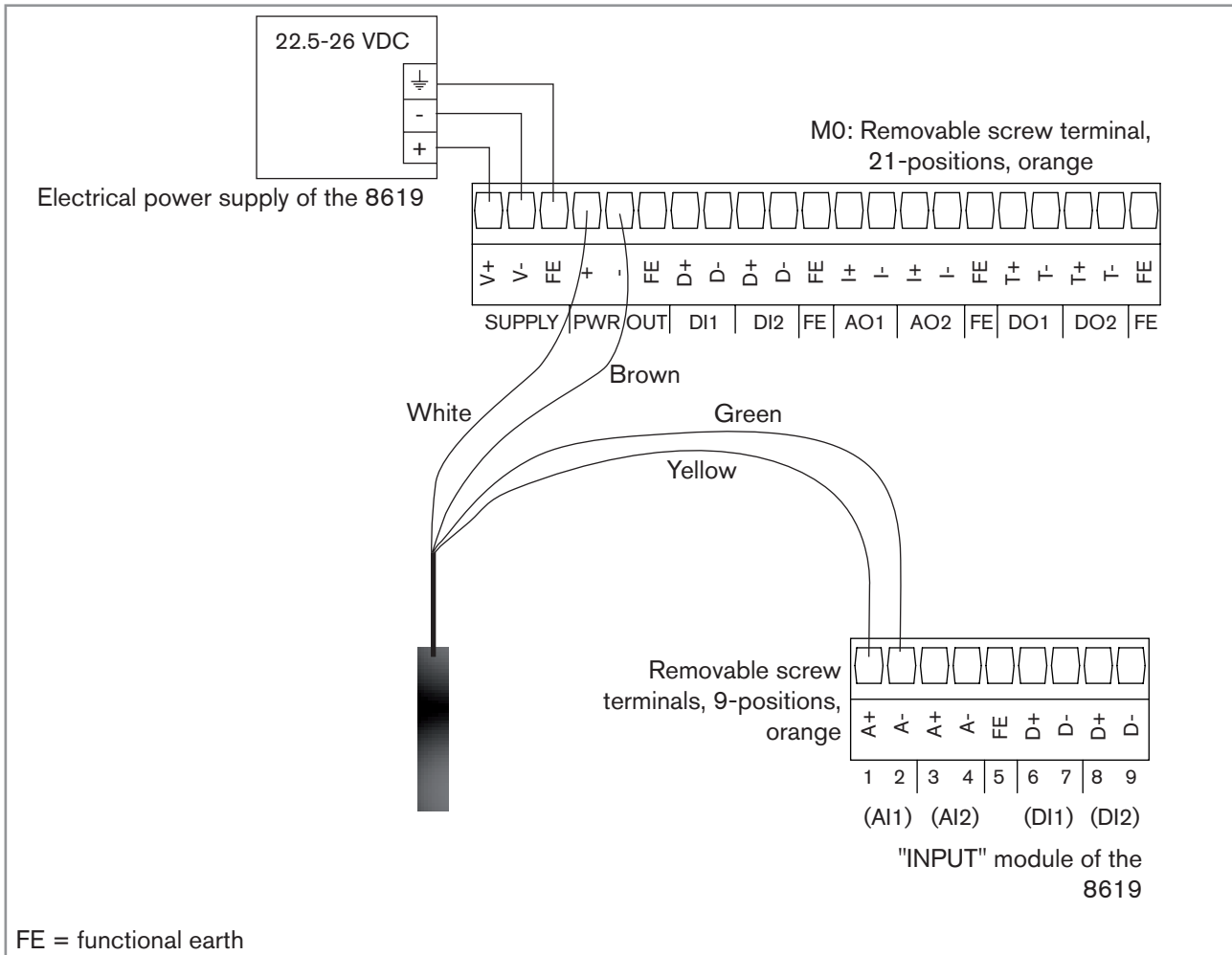
Fig. 21:   Connection of the type 8232 chlorine sensor (order code 565164), powered via the 8619 multiCELL

7.3.15   Wiring the output module "OUT"

The "OUT" outputs module has:

▪ Two 4-20 mA analogue outputs;

▪ Two digital outputs.

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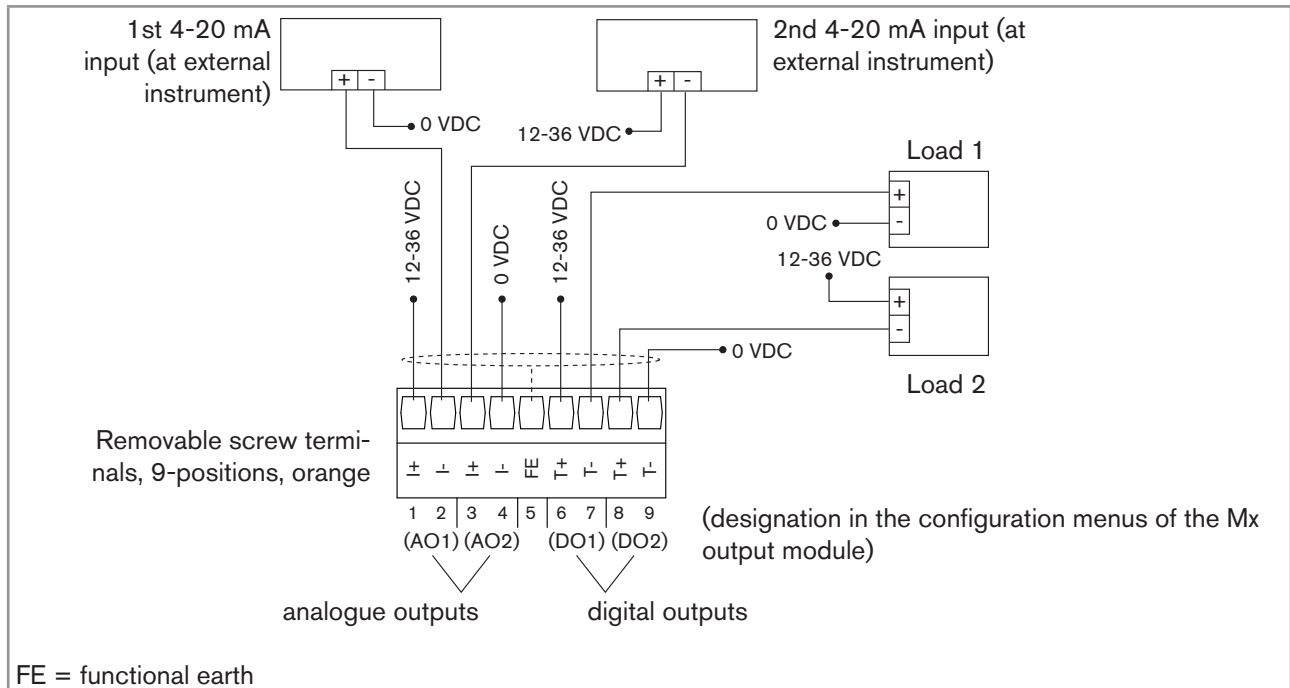
Fig. 22:   Wiring the "OUT" output module

7.3.16 Wiring the "pH/ORP" module

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

▪ When the pH/redox sensor is wired in asymmetrical mode, measurement of the pH or the oxidation reduction potential may drift over time when the equipotential electrode is not wired.

Oxidation reduction potential measurement electrode

Temperature sensor

Reference electrode

Strap (not delivered)

ME RE RE GD CG FE SE TS TS
1 2 3 4 5 6 7 8 9

FE = functional earth

Removable screw terminals, 9-positions, grey
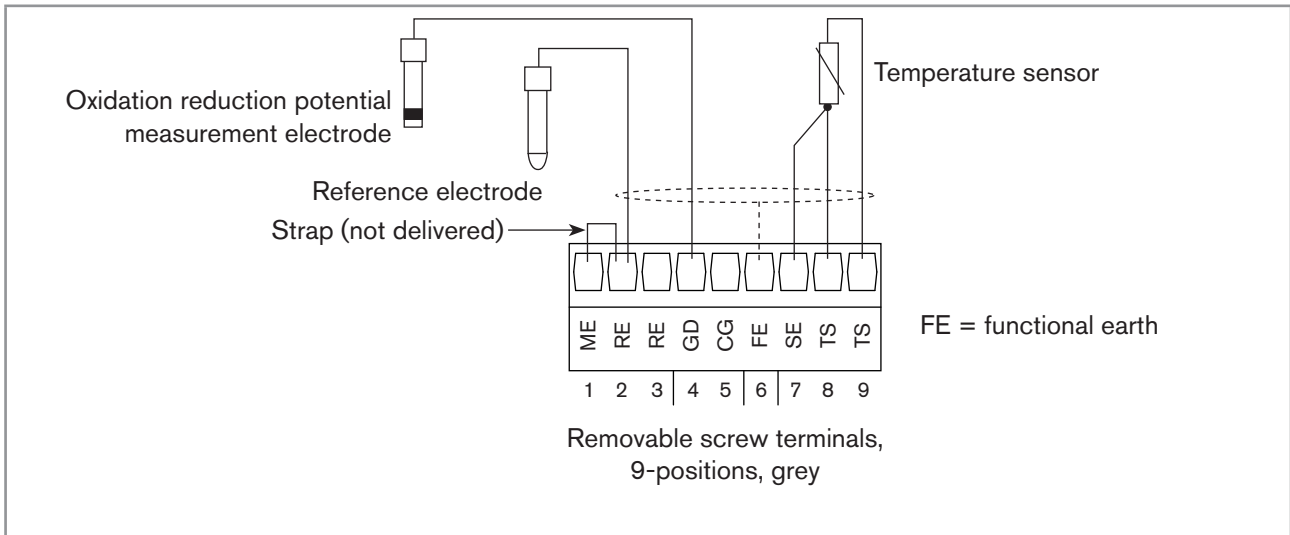
Fig. 23: Wiring an oxidation reduction potential sensor and a Pt100 or Pt1000 temperature sensor in a pH/ORP module

Oxidation reduction potential measurement electrode

Temperature sensor

Reference electrode

pH measurement electrode

ME RE RE GD CG FE SE TS TS
1 2 3 4 5 6 7 8 9

Removable screw terminals, 9-positions, grey

FE = functional earth
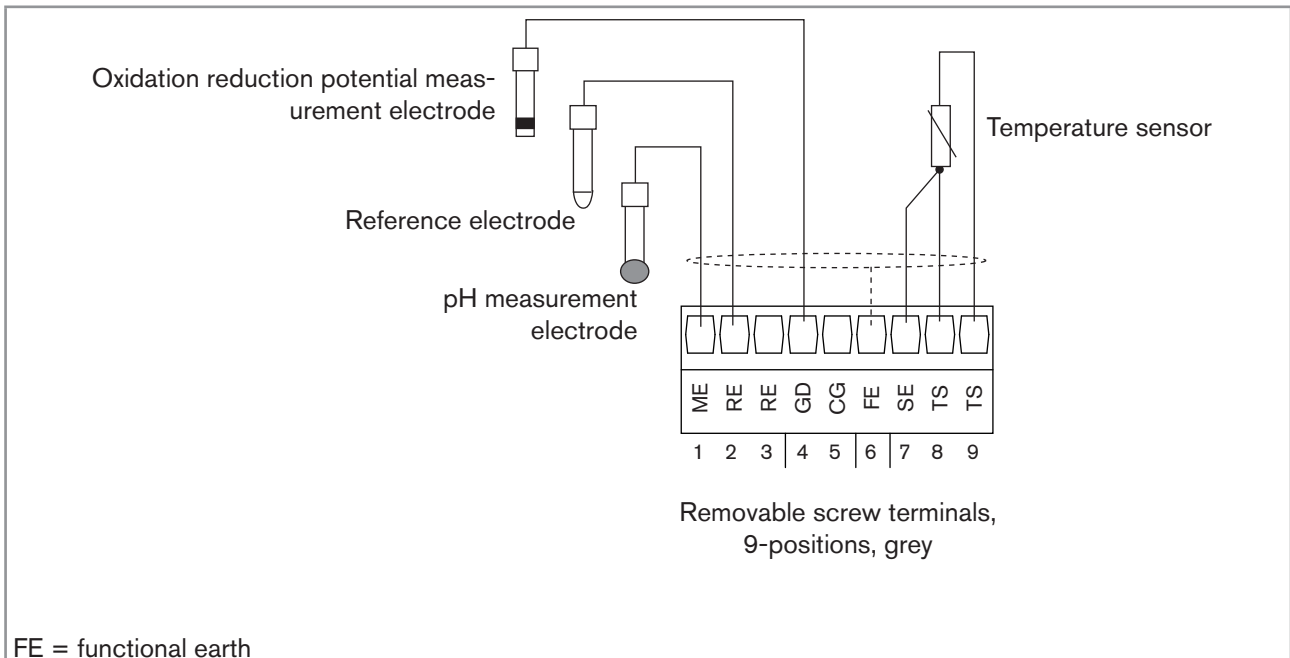
Fig. 24: Wiring a pH sensor, an oxidation reduction potential sensor and a Pt100 or Pt1000 temperature sensor in a pH/ORP module

English

FE = functional earth

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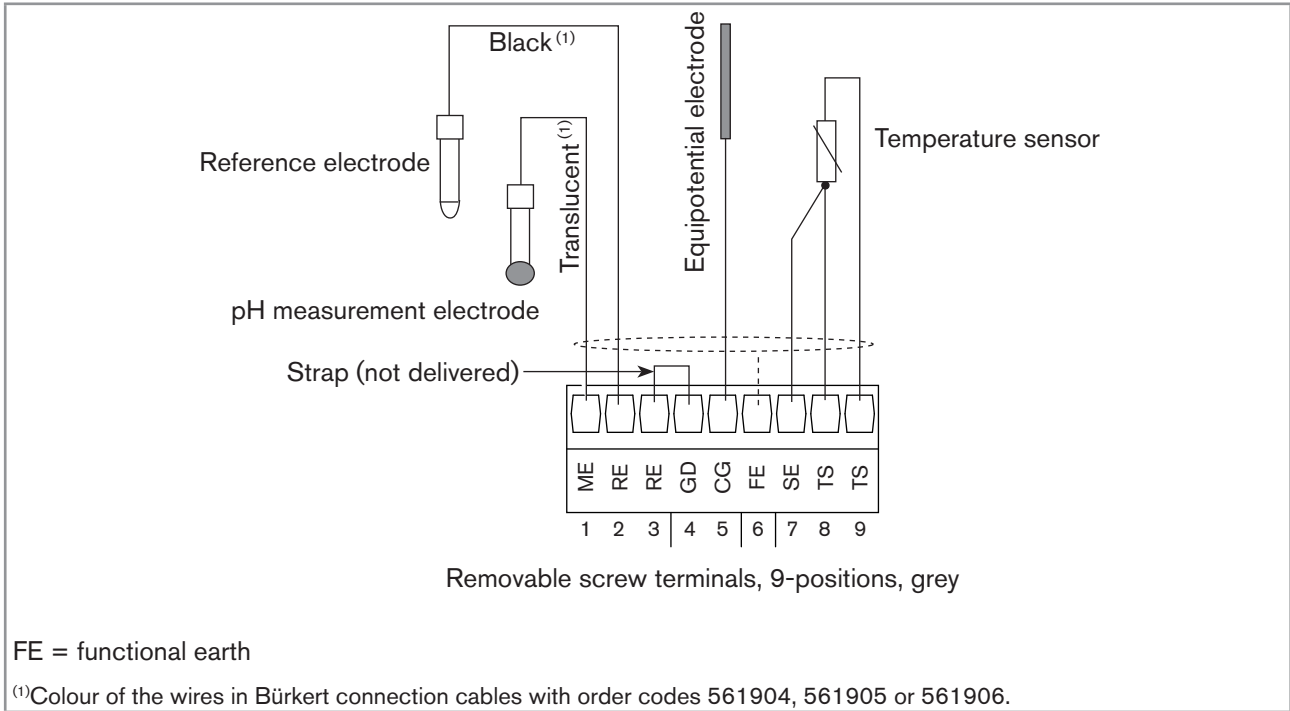
Fig. 25:   Wiring a pH sensor and a Pt100 or Pt1000 temperature sensor in asymmetrical mode to a pH/ORP module

7.3.17   Examples of connection to be "pH/ORP" module

FE = functional earth

(1)Colour of the wires in Bürkert connection cables with order codes 561904, 561905 or 561906.

(2) Colour of the wires of the Pt1000 sensor with order code 427023 and its Bürkert connection cable with order code 427113.
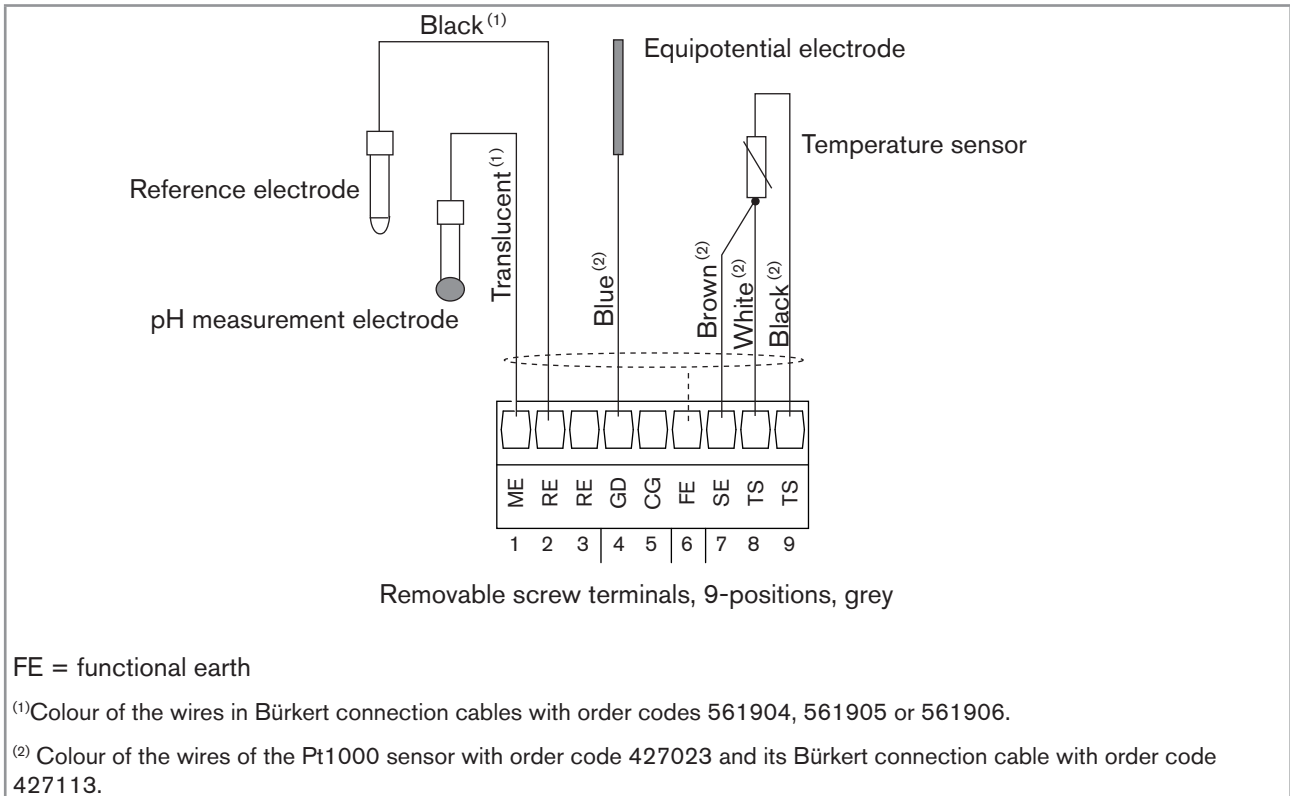
Fig. 26:   Wiring a Bürkert 8200 type sensor and a Pt1000 temperature sensor in symmetrical mode

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wire colour	signal
translucent	pH sensor
red (coax cable shielding)	reference electrode
blue	rhodium electrode
green/yellow	cable shielding
grey	sensor body
Green	Pt1000
White	Pt1000

Removable screw terminals, 9-positions, grey

FE = functional earth
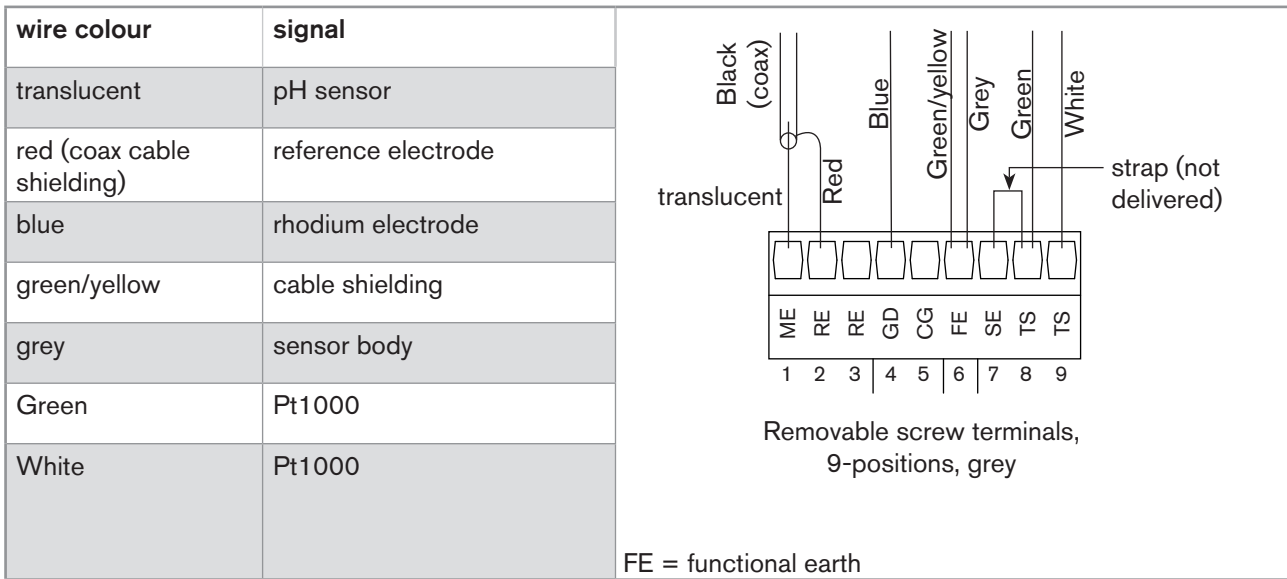
Fig. 27:   Wiring a Bürkert 8201 type sensor with integrated Pt1000 temperature sensor in symmetrical mode using a Variopin connection cable with order code 554856 or 554857

7.3.18   Wiring the "COND" conductivity module

Removable screw terminals, 9-positions, green

FE = functional earth
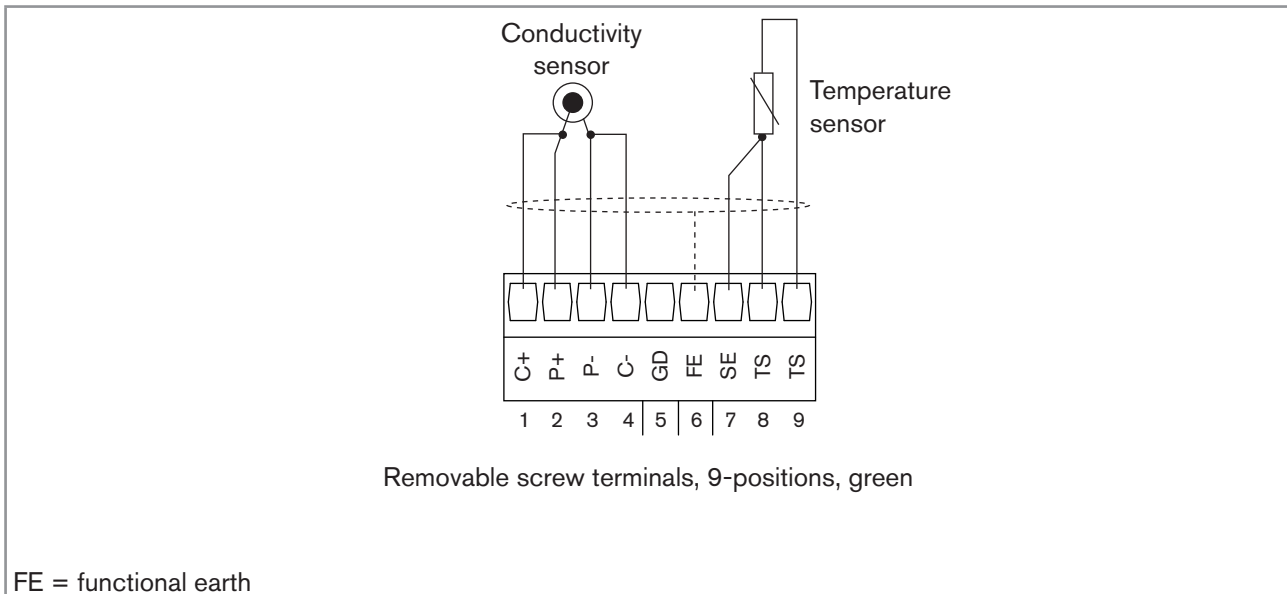
Fig. 28:   Wiring a resistive conductivity sensor with 2 electrodes and a Pt100 or Pt1000 temperature sensor in a conductivity module
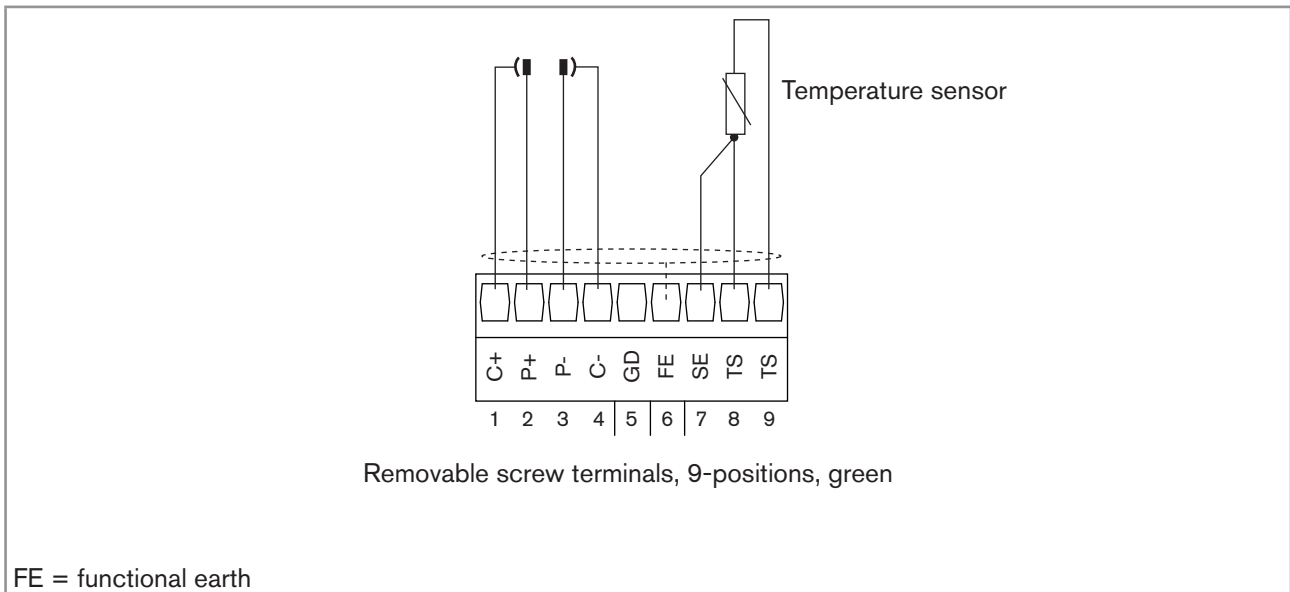
Fig. 29: *Wiring a resistive conductivity cell with 4 electrodes and a Pt100 or Pt1000 temperature sensor in a conductivity module*

7.3.19   Examples of connection to the "COND" conductivity module
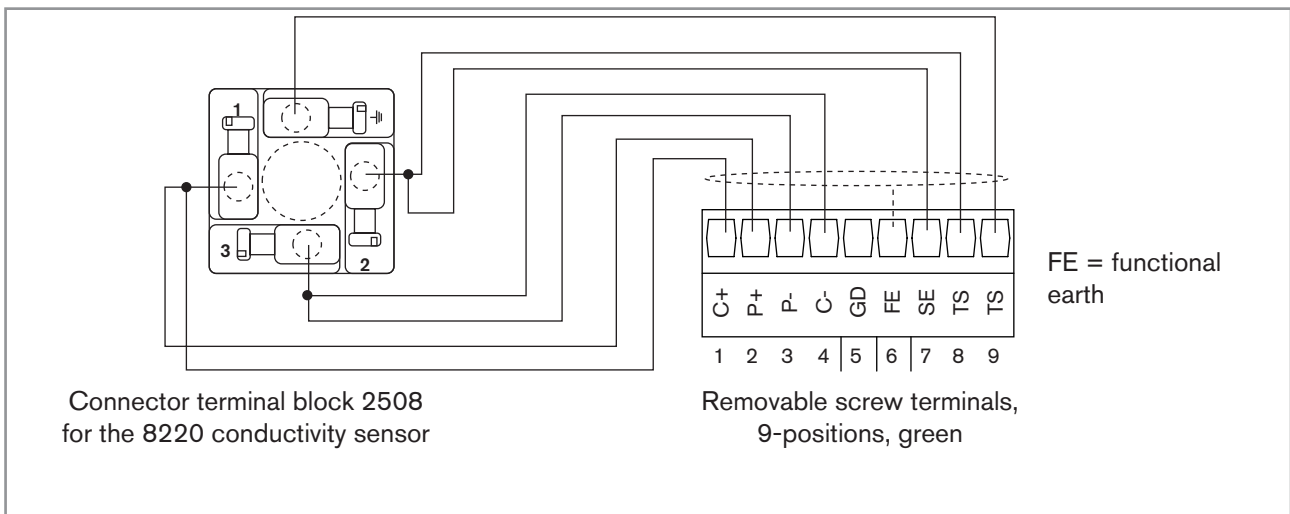
Fig. 30: *Wiring an 8220 conductivity sensor*

wire colour	signal
Pink	current injection +
Green	conductivity measurement +
Brown	conductivity measurement -
Yellow	current injection -
Grey	Pt1000
White	Pt1000
Blue	Pt1000

Temperature sensor

Removable screw terminals,
9-positions, green

FE = functional earth
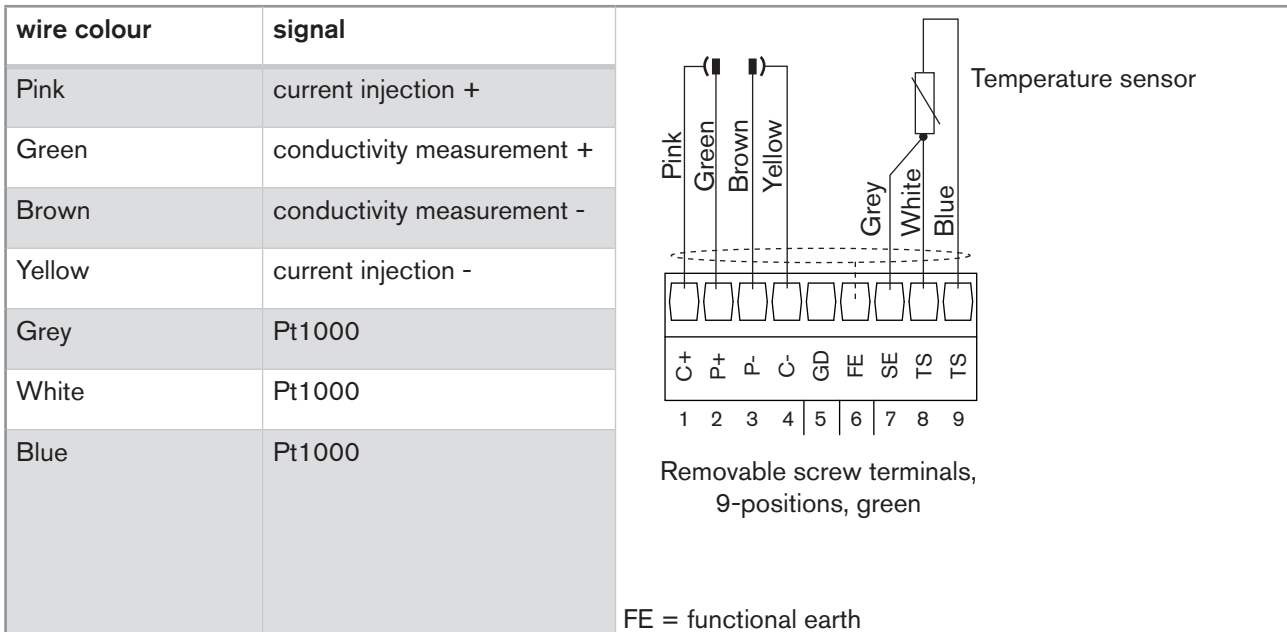
Fig. 31:   Wiring a type 8221 conductivity sensor with cable gland and connection cable

wire colour	signal
Red	current injection +
translucent	conductivity measurement +
Grey	conductivity measurement -
Blue	current injection -
Green/yellow	functional earth
White	Pt1000
Green	Pt1000

Temperature sensor

strap (not delivered)

Removable screw terminals,
9-positions, green

FE = functional earth

[1] Colour of the wires of the connection cables with order codes 554855, 554856 and 554857.

Fig. 32:   Wiring of a type 8221 conductivity sensor with Variopin connector

8   ADJUSTMENT AND COMMISSIONING

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 manual.

▸ 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 manual.

▸ 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 is made of the following 5 menus : "Parameters", "Calibration", "Diagnostics", "Tests" and "Information".

8.2.1 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 leve is displayed. See chap. 8.2.1 to browse in all views in Process level.

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

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

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

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

M0:MAIN: 2010/06/29 13:40
OFF DI1   OFF DO1
OFF DI2   OFF DO2
6.000 mA AO1
20.00 mA AO2
MENU
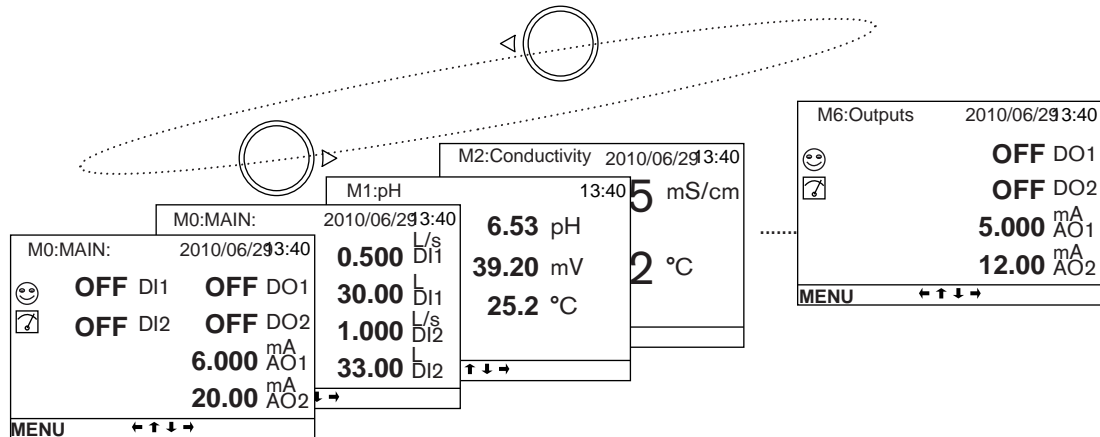
Views of the modules connected to the device (cannot be modified):

▪ "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.

▪ "M1:" to "M6:" views display the data for modules 1 to 6.

U4:PROCESS1   2010/06/29 13:40
1   6.53 pH
3   25 mS/cm
0   25.2 °C
1   205 l/min
MENU
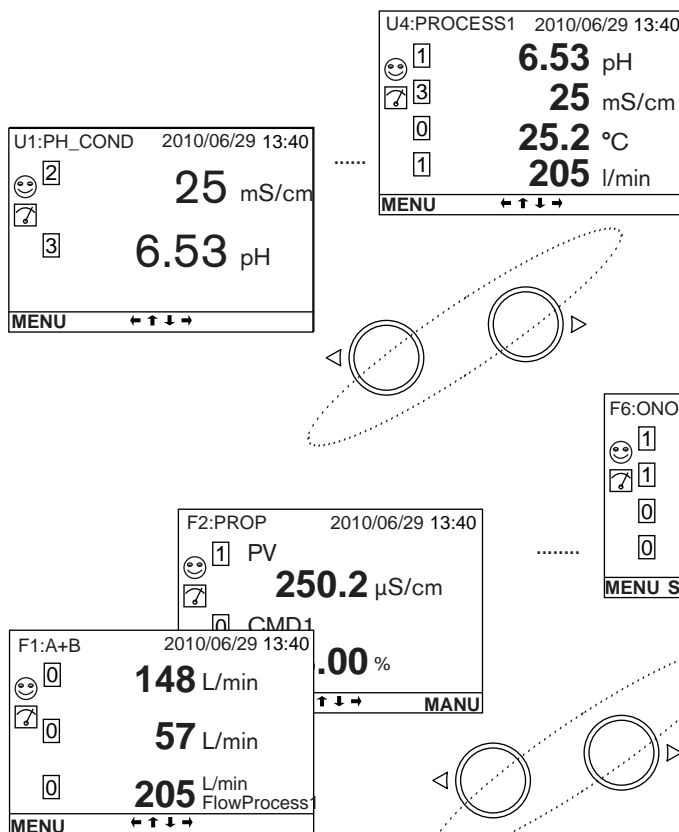
User defined views (U1 to U4) are each used to display 1, 2 or 4 data or a graph. Only the effectively defined views are shown.

U1:PH_COND   2010/06/29 13:40
2   25 mS/cm
3   6.53 pH
MENU

F6:ONOFF   2010/06/29 13:40
1   250.0 µS/cm PV
1   500.0 µS/cm SP
0   0.00 % CMD1
0   Off F3 Dos.St
MENU SETP

F2:PROP   2010/06/29 13:40
1 PV
250.2 µS/cm
0 CMD1
.00 %
MANU

F1:A+B   2010/06/29 13:40
0   148 L/min
0   57 L/min
0   205 L/min FlowProcess1
MENU

Views of active functions which cannot be modified (F1: to F6:) are used to display one function each. Only the views of functions declared "active" are shown.

8.2.2 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
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
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
Simulate PV
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.

8.3 Calibrating the measuring sensors

8.3.1 Calibrating a flow sensor

→ Enter the K factor in pulse/liter unique to the fitting used. Refer to the user manual of the fitting used.

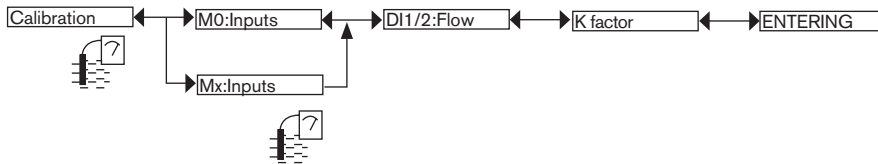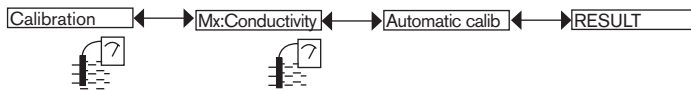| Calibration | ↔ | M0:Inputs | ↔ | DI1/2:Flow | ↔ | K factor | ↔ | ENTERING |
| | | Mx:Inputs | | | | | | |

8.3.2 Calibrating a conductivity sensor

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

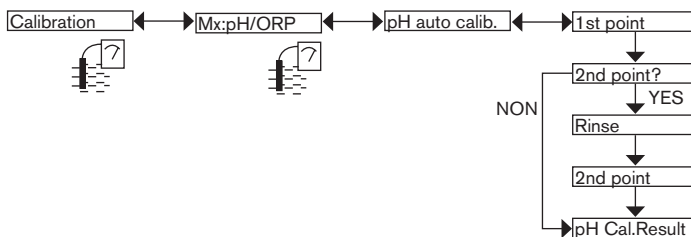→ Calibrate the conductivity sensor by automatically determining its specific C constant.

| Calibration | ↔ | Mx:Conductivity | ↔ | Automatic calib | ↔ | RESULT |

8.3.3 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 multiCELL 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 multiCELL automatically recognizes the pH of the buffer used.

→ Automatically calibrate the pH sensor:

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

```
                                                    ↓
                              2nd point?
                        NON            ↓ 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.
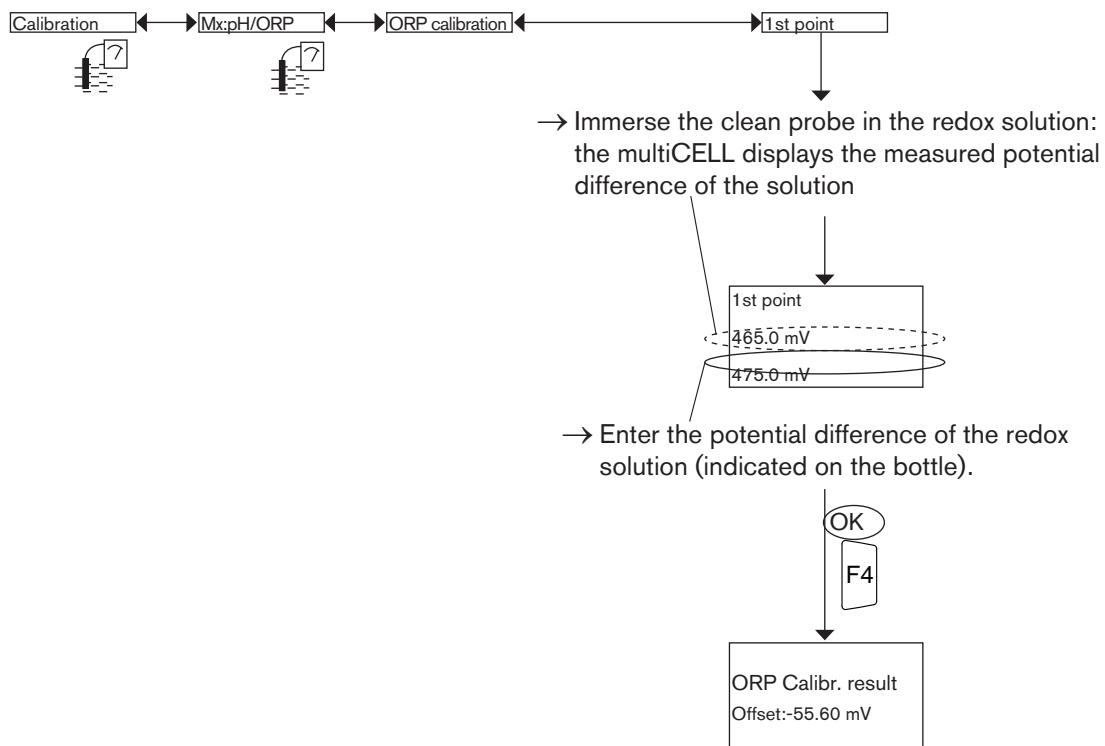
8.3.4 Calibrating a redox sensor

> ⚠ • Modify the default calibration limits before calibrating your sensor in the menu "Parameters" -> "Mx:pH/ORP" -> "Calibration limits" -> "Offset ORP".
>
> • 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 multiCELL 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 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.

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 multiCELL 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 multiCELL displays the calibration result. [1]

9 MAINTENANCE AND TROUBLESHOOTING

9.1 Safety instructions

⚠ **DANGER**

Danger due to electrical voltage.

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

▶ Disconnect the electrical power for all the conductors and isolate it before carrying out work on the system.

▶ All equipment connected to the 8619 shall be double insulated with respect to the mains according to the standard IEC 61010-1:2010.

▶ 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.

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

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.

📖 The messages generated in the system log are detailled in the complete instruction manual.

LEDs		Displayed icons					Type of event and possible cause
left	right	Smiley	Error	Warning	Maintenance		
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.
red	green	☺		⚠	🔧		"Maintenance" event linked to the calibration.
any colour	any colour	any colour				⊠	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, TRANSPORT

ATTENTION

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

CAUTION

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 a memory card (with order code 564072) is inserted.

13. DISPOSAL OF THE DEVICE

→ Dispose of the device and its packaging in an environmentally-friendly way.

Note

Comply with the national and/or local regulations which concern the area of waste disposal.

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