bürkert
FLUID CONTROL SYSTEMS

Type 8228

Inductive conductivity meter
Induktives Leitfähigkeitsmessgerät
Conductimètre inductif

Quickstart

English Deutsch Français

MAN 1000370621 EN Version: CStatus: RL (released | freigegeben) printed: 13.12.2022

Quickstart 2211/01_EU-ML 00572159 / ORIGINAL_EN

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1 THE QUICKSTART

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

The quickstart contains important safety information.

Failure to comply with these instructions can lead to hazardous situations. Pay attention in particular to the chapters "Basic safety information" and "Intended use".

- Irrespective of the device variant, read the quickstart. If you do not understand the content of the quickstart, then contact Bürkert.
- When the symbol ⚠ is marked inside or outside the device, carefully read the Operating Instructions.

The quickstart explains how to install, adjust, and start-up the device.

A detailed description of the device can be found in the related Operating Instructions.

The Operating Instructions for the device can be found on the Internet at: country.burkert.com.

1.1 Definition of the term device

The term device that is used in the quickstart refers to the Type 8228 ELEMENT conductivity meter.

1.2 Validity of the quickstart

The quickstart is valid for the Type 8228 ELEMENT conductivity meter version V2.

Mention V2 is given on the device Type-label. Refer to chapter 5.

1.3 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 for risk prevention.
- → Indicates a work step that you must carry out.
- ✔ Indicates a result.

2 INTENDED USE

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

The Type 8228 ELEMENT conductivity meter is intended for the measurement of the conductivity of liquids.

- ▸ Use the device in compliance with the characteristics and start-up and use conditions specified in the contractual documents and in the Operating Instructions.
- ▸ Do not use the device for security applications.
- ▸ Only operate a device in perfect working order.
- ▸ Store, transport, install and operate the device properly.
- ▸ 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 staff safety.

Risk of injury due to electrical voltage.

- Before carrying out work on the system or the device, disconnect the electrical power for all the conductors and isolate it
- If the device is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.
- All equipment connected to the device shall be double insulated with respect to the mains according to the standard UL/EN 61010-1.
- Observe all applicable accident protection and safety regulations for electrical equipment.

Risk of injury due to pressure in the installation.

- Before any intervention in the installation, stop the circulation of fluid, cut off the pressure and drain the pipe.
- Before any intervention in the installation, make sure there is no pressure in the pipe.
- Observe the dependency between the fluid temperature and the fluid pressure.

Risk of burns due to high fluid temperatures.

- Use safety gloves to handle the device.
- Before opening the pipe, stop the circulation of fluid and drain the pipe.
- Before opening the pipe, make sure the pipe is completely empty.

Risk of injury due to the nature of the fluid.

- Respect the prevailing regulations on accident prevention and safety relating to the use of dangerous fluids.

Various dangerous situations

To avoid injury, observe the following instructions:

- Do not use the device in explosive atmospheres.
- Do not use the device in an environment incompatible with the device materials.
- Do not use fluid that is incompatible with the device materials. Find the compatibility chart on our homepage: country.burkert.com
- Do not subject the device to mechanical stress.
- Do not make any modifications to the device.
- Prevent any unintentional power supply switch-on.

Various dangerous situations

To avoid injury, observe the following instructions:

- Only qualified and skilled staff may carry out the installation and maintenance work.
- Ensure a defined or controlled restart of the process after a power supply interruption.
- Observe the general technical rules.

NOTICE

Elements and components that are both sensitive to electrostatic discharges

- The device contains electronic components that are sensitive to electrostatic discharges. The components may be damaged if they are touched by an electrostatically charged person or object. In the worst case scenario, the components are instantly destroyed or disabled as soon as they are activated.
- To minimise or even avoid any damage caused by an electrostatic discharge, take all the precautions that are described in the EN 61340-5-1 norm.
- Do not touch any of the live electrical components.

4 GENERAL INFORMATION

4.1 Contact

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

Bürkert SAS

Rue du Giessen

BP 21

F-67220 TRIEMBACH-AU-VAL

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

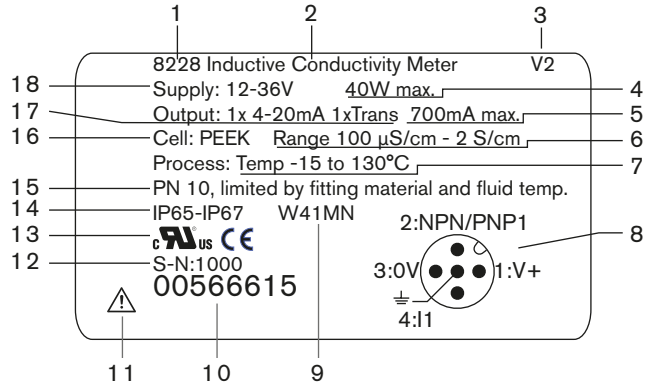
4.2 Warranty conditions

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 for the Type 8228 at country.burkert.com.

5 TYPE LABEL



1.	Type of the device
2.	Measured quantity
3.	Device version
4.	Maximum power consumption
5.	Maximum current available at a transistor output
6.	Conductivity measuring range
7.	Fluid temperature range
8.	Pin assignment of an electrical connection
9.	Manufacturing code
10.	Article number
11.	Warning: Before using the device, take into account the technical specifications described in the Operating Instructions.
12.	Serial number
13.	Certification, conformity marking
14.	IP-Code
15.	Nominal pressure of the fluid
16.	Material of the conductivity-sensor holder
17.	Outputs
18.	Operating voltage

Fig. 1: Type-label example

6 TECHNICAL DATA

6.1 Conditions of use

Ambient temperature	–10...+60 °C
Air humidity	< 85 %, without condensation
Use	Indoor and outdoor ▸ Protect the device against electromagnetic interference, ultraviolet rays and, when installed outdoors, the effects of the climatic conditions.
IP-Code 1) *not evaluated by UL*	IP67 1) and IP65 1), according to IEC / EN 60529 Mating connectors must be wired, plugged,and tightened. Housing lid must be fully tightened and locked
Operating condition	Continuous operation
Equipment mobility	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

6.2 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.

6.2.1 Conformity to the Pressure Equipment Directive

- ▸ Make sure that the device materials or the fitting materials are compatible with the fluid.
- ▸ Make sure that the pipe DN is adapted for the device or the fitting used.
- ▸ Observe the fluid nominal pressure (PN) for the device or the fitting used. The nominal pressure (PN) is given by the device manufacturer or the fitting manufacturer.

The device conforms to Article 4, Paragraph 1 of the Pressure Equipment Directive 2014/68/EU under the following conditions:

- Device used on a pipe (PS = maximum admissible pressure; DN = nominal diameter of the pipe)

Type of fluid	Conditions
Fluid group 1, Article 4, Paragraph 1.c.i	DN ≤ 25
Fluid group 2, Article 4, Paragraph 1.c.i	DN ≤ 32 or PSxDN ≤ 1000 bar
Fluid group 1, Article 4, Paragraph 1.c.ii	DN ≤ 25 or PSxDN ≤ 2000 bar
Fluid group 2, Article 4, Paragraph 1.c.ii	DN ≤ 200 or PS ≤ 10 bar or PSxDN ≤ 5000 bar

- Device used on a vessel (PS = maximum admissible pressure)

Type of fluid	Conditions
Fluid group 1, Article 4, Paragraph 1.a.i	PS ≤ 200 bar
Fluid group 2, Article 4, Paragraph 1.a.i	PS ≤ 1000 bar
Fluid group 1, Article 4, Paragraph 1.a.ii	PS ≤ 500 bar
Fluid group 2, Article 4, Paragraph 1.a.ii	PS ≤ 1000 bar

6.2.2 UL certification

The 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 UL us	UL recognized	PU01
c UL us LISTED Measuring Equipment EXXXXXX	UL listed	PU02

6.2.3 FDA approval

The following device variants have an FDA approval: device variant with a condictivity-sensor holder in PVDF, with an EPDM seal or an FKM seal.

6.3 Fluid data

Fluid temperature	The fluid temperature may be restricted by the fluid pressure, the material of the conductivity-sensor holder and the material of the Type S020 fitting used. Refer to Fig. 2.
• device variant with conductivity-sensor holder in PVDF	• –15...+100 °C
• device variant with conductivity-sensor holder in PP	• 0...+80 °C
• device variant with conductivity-sensor holder in PEEK	• –15...+130 °C

Fluid pressure	The fluid pressure may be restricted by the fluid temperature, the material of the conductivity-sensor holder and the material of the Type S020 fitting used. Refer to Fig. 2.
• device variant with conductivity-sensor holder in PVDF	• PN6[2)] 2) *not evaluated by UL*
• device variant with conductivity-sensor holder in PP	• PN6[3)] 3) *not evaluated by UL*
• device variant with conductivity-sensor holder in PEEK	• PN10[4)] 4) *not evaluated by UL*
Measuring ranges	
• Conductivity	• 100 µS/cm...2 S/cm
• Resistivity	• 0.5 Ω/cm...10 kΩ/cm
• Temperature	• –40...+150 °C
• Concentration	• Conductivity to concentration conversion function
Temperature compensation	• no compensation • compensation according to a predefined curve: NaCl, NaOH, HNO_3 or H_2S_O • compensation according to a curve defined especially for your process

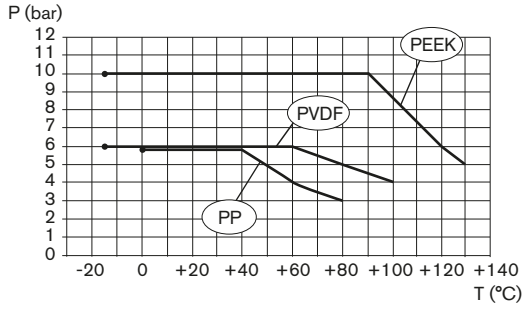


Fig. 2: Dependency between the fluid temperature and the fluid pressure, device variants with a conductivity-sensor armature in PVDF, PP or PEEK, and device inserted in a Type S020 fitting in stainless steel

6.4 Materials

Part	Material
Housing	stainless steel 316L 1.4404, PPS
Housing seals	EPDM
Housing lid	PC
Housing-lid seal	silicone
Display module	PC, PBT

Part	Material
M12 male connector, M12 female connector	
• Device variant with G2" nut	• nickel-plated brass • stainless steel, on request
• Device variant with 2"-clamp process connection	• stainless steel
Support plate	PPS CF30
Screws	stainless steel
G2" nut	
• Device variant with conductivity-sensor holder in PVDF or in PP	• PC
• Device variant with conductivity-sensor holder in PEEK	• PPA
In contact with the fluid: conductivity-sensor holder, seal	
• Device variant with G2" nut	• PVDF, FKM • PP, FKM • PEEK, FKM
• Device variant with 2"-clamp process connection	• PEEK, EPDM
Adapter for clamp	stainless steel 316L 1.4404

6.5 Electrical data

Operating voltage	• 12...36 V DC • connection to main supply: permanent through external safety extra-low voltage (SELV) and through limited power source (LPS) • filtered and regulated • oscillation rate: ±10 %
Power source (not supplied)	• Limited power source according to UL/EN 60950-1 standards • or limited energy circuit according to UL/EN 61010-1, Paragraph 9.4
Current consumption	
• without the consumption of the current outputs and the transistor outputs	• max. 1 W (max. 25 mA at 12 V DC; starting current ~100 mA)
• with the consumption of the current outputs and the transistor outputs	• max. 40 W (max. 1 A for the transistor outputs)

Transistor output	polarized
• type	• NPN (/sink) or PNP(/source). Through wiring and through software setting
• NPN output	• 1...36 V DC, 700 mA max. (or 500 mA max. if 2 transistor outputs are wired)
• PNP output	• supply voltage, 700 mA max. (or 500 mA max. if 2 transistor outputs are wired)
• protection	• galvanically insulated, protected against overvoltages, polarity reversals and short-circuits
Current output	
• specification	• 4...20 mA, sink or source, through wiring and through software setting, 22 mA to indicate a fault (software setting)
• type of connection	• 3-wire
• maximum loop impedance	• 1100 Ω at 36 V DC, 610 Ω at 24 V DC, 100 Ω at 12 V DC
• Response time (10...90 %)	• 150 ms (default value)

7 ASSEMBLY

7.1 Safety instructions

WARNING

Risk of injury due to non-conforming assembly.

▸ The device must only be assembled by qualified and skilled staff with the appropriate tools.

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

▸ Avoid unintentional activation of the installation.

▸ Guarantee a defined or controlled restart of the process subsequent to any intervention on the device.

7.2 Mount the display module

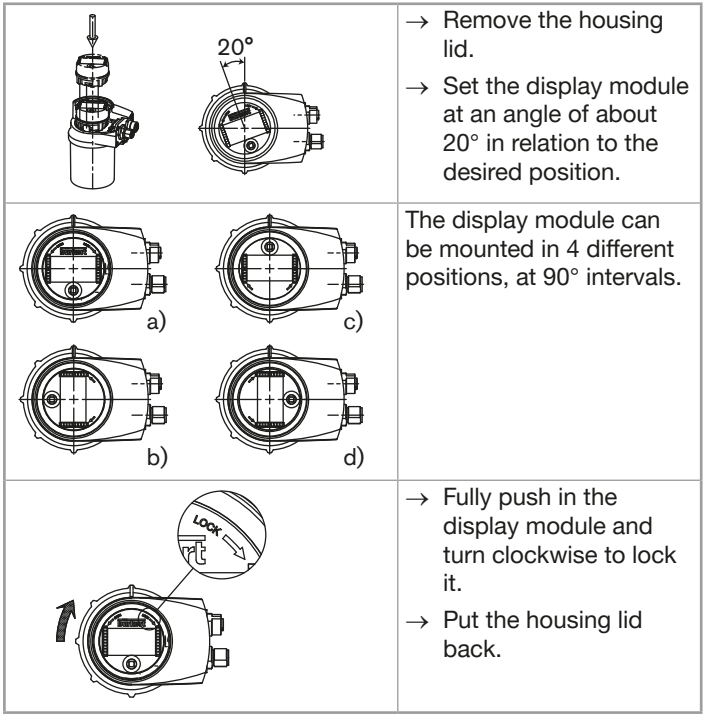
NOTICE

The tightness of the device is not guaranteed when the housing lid is removed.

▸ Prevent the projection of liquid inside the housing.

The device may be damaged if a metal component comes into contact with the electronics.

▸ Prevent contact of the electronics with a metallic item.



→ Remove the housing lid.

→ Set the display module at an angle of about 20° in relation to the desired position.

The display module can be mounted in 4 different positions, at 90° intervals.

→ Fully push in the display module and turn clockwise to lock it.

→ Put the housing lid back.

Fig. 3: Mounting the display module

8 INSTALLATION

8.1 Safety instructions

DANGER

Risk of injury due to electrical voltage.

- Before carrying out work on the system or the device, disconnect the electrical power for all the conductors and isolate it.
- If the device is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.
- All equipment connected to the device must be double insulated with respect to the mains according to the standard UL/EN 61010-1.
- Observe all applicable accident protection and safety regulations for electrical equipment.

Risk of injury due to pressure in the installation.

- Before any intervention in the installation, stop the circulation of fluid, cut off the pressure and drain the pipe.
- Before any intervention in the installation, make sure there is no pressure in the pipe.
- Observe the dependency between the fluid temperature and the fluid pressure.

DANGER

Risk of burns due to high fluid temperatures.

- Use safety gloves to handle the device.
- Before opening the pipe, stop the circulation of fluid and drain the pipe.
- Before opening the pipe, make sure the pipe is completely empty.

Risk of injury due to the nature of the fluid.

- Respect the prevailing regulations on accident prevention and safety relating to the use of dangerous fluids.

WARNING

Risk of injury due to non-conforming installation.

- The electrical and fluid installation can only be carried out by qualified and skilled staff with the appropriate tools.
- Install appropriate safety devices (correctly rated fuse and/or circuit-breaker).
- Respect the installation instructions for the fitting used.

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

- Avoid unintentional activation of the installation.
- Guarantee a defined or controlled restart of the process after any intervention on the device.

WARNING

Risk of injury if the dependency between the fluid pressure and the fluid temperature is not respected.

- Observe the dependency between the fluid temperature and the fluid pressure for the device. Refer to chapter 6.3.
- Observe the dependency between the fluid temperature and the fluid pressure for the fitting used. Refer to the Operating Instructions of the fitting used.

8.2 Install a device variant with G2" nut in a pipe

The device is inserted into a Type S020 fitting that is mounted on the pipe.

→ Mount the fitting on the pipe. Obey the instructions of the Operating Instructions of the fitting used.

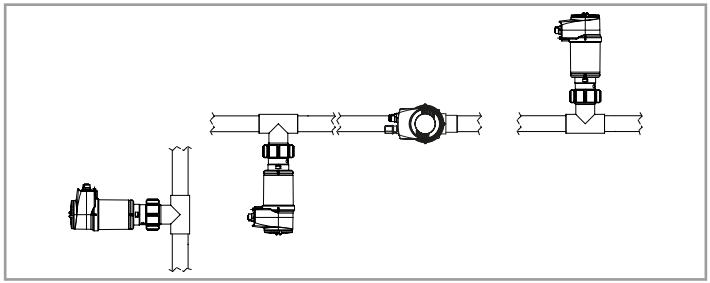


Fig. 4: Positions for the mounting on the pipe

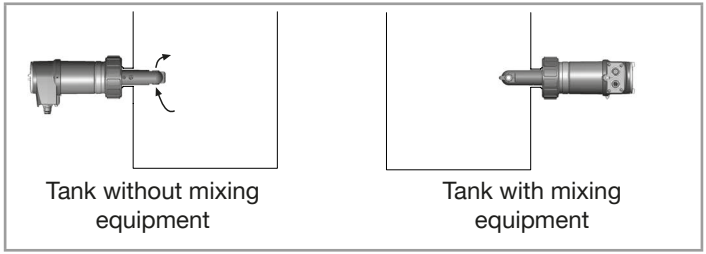
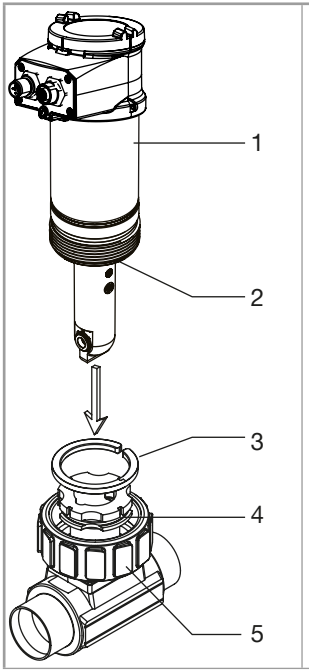


Fig. 5: Positions for the mounting on a tank

→ Fit the display module. Refer to chapter 7.2. The display module is needed to calibrate the conductivity sensor and to set the device parameters.

→ Calibrate the zero point of conductivity (see chapter 9.7).

→ Install the device in the fitting as shown in Fig. 6:



→ Make sure the seal (mark 2) is on the conductivity sensor.

→ Make sure the material of the seal is compatible with the fluid to be measured.

→ Put the nut (mark 5) on the fitting.

→ Put the snap ring (mark 3) into the groove (mark 4).

→ Engage the device (mark 1) into the fitting.

→ Screw the nut (mark 5) manually on the device.

Fig. 6: Installation of a device variant with G2" nut in a Type S020 fitting

→ Wire according to instructions in chapter 8.4.

8.3 Install a device variant with 2" clamp in a pipe

DANGER

Risk of injury if the stainless steel adapter of the device is loose.

A device with a clamp connection is not tight if the adapter is loose.

▸ Do not loosen the adapter of the device.

The device is installed in a pipe as of DN32.

→ Choose a location on the pipe such as:
- the building of air bubbles is prevented,
- the sensor is completely and continuously immerged in the fluid.

→ Install in the pipe a fitting with a 2" clamp connection according to ASME BPE for the device.

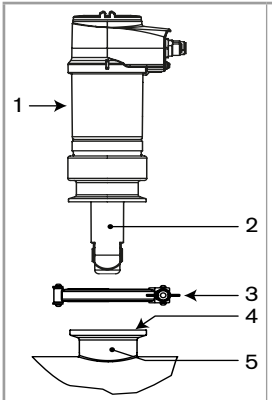
→ Mount the fitting on the pipe obeying the instructions of the Operating Instructions of the fitting used (not delivered). Fig. 7 shows an example for the fitting (mark 5)

→ Mount the fitting on the pipe obeying the instructions of the operating instructions of the fitting used.

→ Fit the display module. Refer to chapter 7.2. The display module is needed to calibrate the conductivity sensor and to set the device parameters.

→ Calibrate the conductivity sensor (see chapter 9.7).

→ Install the device in the fitting as shown in Fig. 7.



→ Select a seal (mark 4) that is compatible with the 2" clamp connection of the device and with the fluid.

→ Put the seal (mark 4) on the fitting (mark 5).

→ Insert the device (mark 1) in the fitting (mark 5):
- the electrical connections must be parallel to the pipe,
- the sensor (mark 2) must be positioned in the fluid vein.

→ Tighten the clamp collar (mark 3) by hand.

Fig. 7: Installation of a device variant with 2" clamp process connection in the pipe

→ Wire the device according to instructions in chapter 8.4.

8.4 Wiring

DANGER

Risk of injury due to electrical voltage.

- Before carrying out work on the system or the device, disconnect the electrical power for all the conductors and isolate it.
- If the device is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.
- All equipment connected to the device shall be double insulated with respect to the mains according to the standard UL/EN 61010-1.
- Observe all applicable accident protection and safety regulations for electrical equipment.

- Use a high-quality electrical power supply. The power supply must be filtered and regulated.
- Make sure the installation is equipotential. Refer to chapter 8.4.2.
- Protect the power supply of the device with a 100 mA time-delay fuse and a switch.
- Protect the power supply of each transistor output with a 750 mA fuse.
- Once the device is wired, set the "HWMode" parameter depending on the wiring carried out, sink/NPN or source/PNP (see chapter 9.6).

8.4.1 Mating connector with article number 917116

To wire the product, you can use mating connectors from Bürkert. For example, you can use the 5-pin M12 female connector with article number 917116.

Table 1: Specifications of the cable and conductors for the M12 female connector with article number 917116

Specification	Recommended value
• Electromagnetic protection (EMC)	• Shielded
• Cross section of the conductors	• max. 0.75 mm^2
• Diameter of the cable	• 3...6.5 mm
• Maximum operating temperature of a cable	• equal to or higher than 80 °C

8.4.2 Equipotentiality of the installation

To ensure the equipotentiality of the installation (power supply - device - fluid):

→ Connect together the various earth spots in the installation to eliminate the potential differences that may occur between different earthes.

→ Observe faultless earthing of the shield of the power supply cable, at both ends.

→ Observe faultless earthing of the device with the grounding terminal.

→ If the device is installed on plastic pipes, earth together the metallic equipment such as pumps or valves, that is as close as possible to the device.

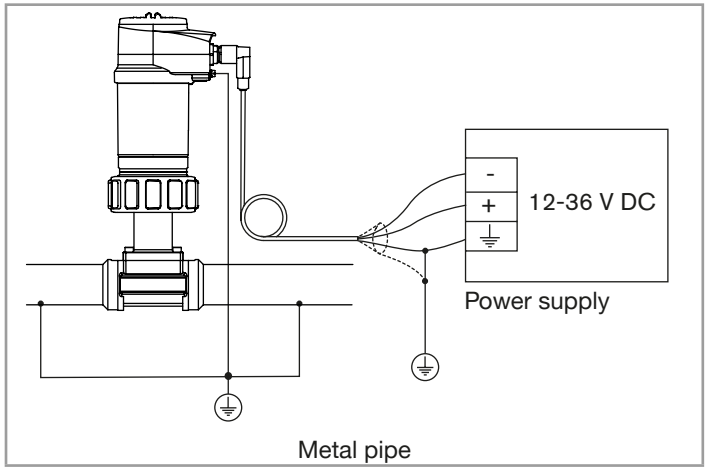


Fig. 8: Equipotentiality skeleton diagram with pipes in metal

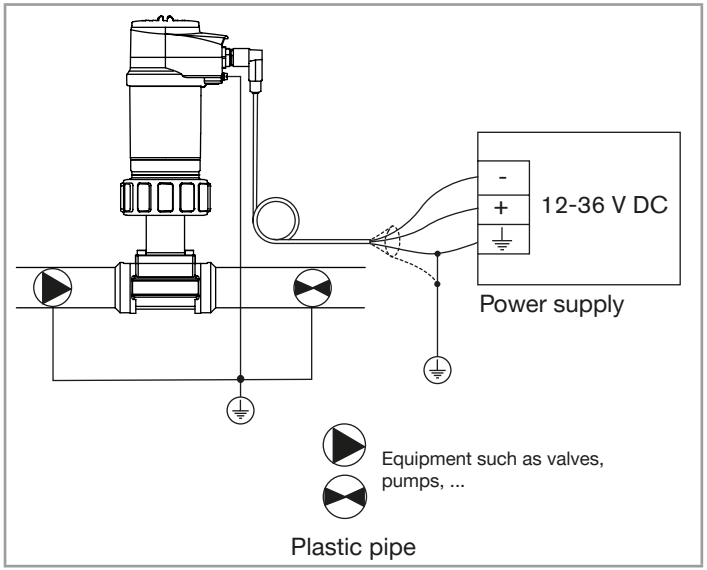


Fig. 9: Equipotentiality skeleton diagram with pipes in plastic

8.4.3 Device variant with 1 connector

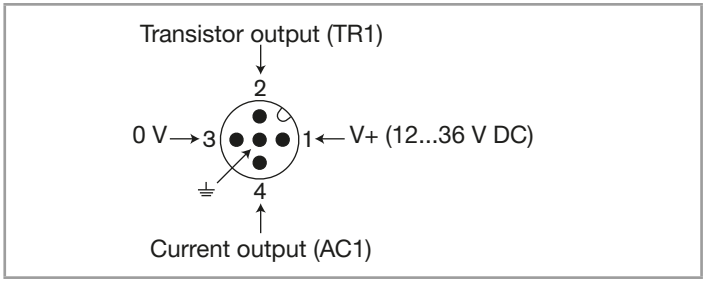


Fig. 10: Pin assignment

Pin of the M12 female cable available as an accessory (article number 438680)	Colour of the wire
1	brown
2	white
3	blue
4	black
5	grey or green/ yellow

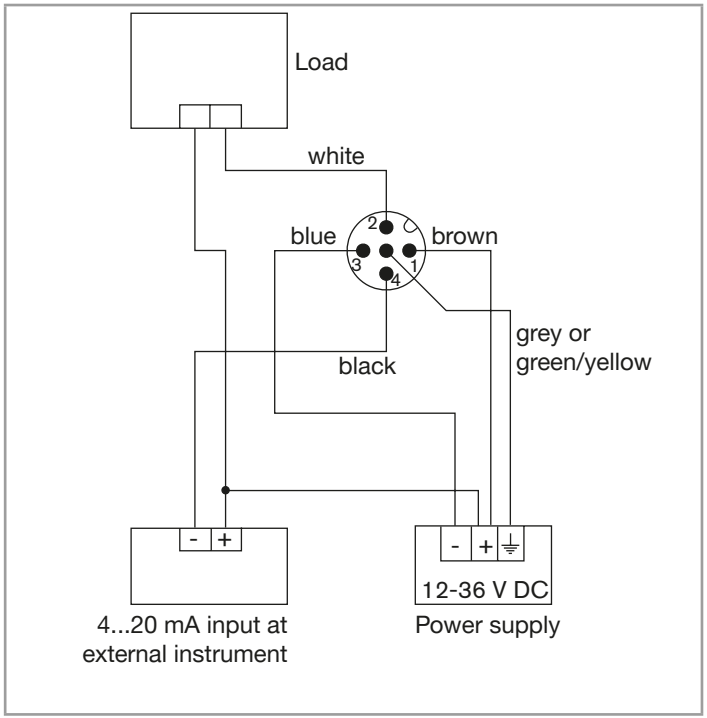


Fig. 11: Transistor output, NPN wiring, and current output, wiring in sinking mode, device variant with 1 connector (parameter setting "NPN/sink")

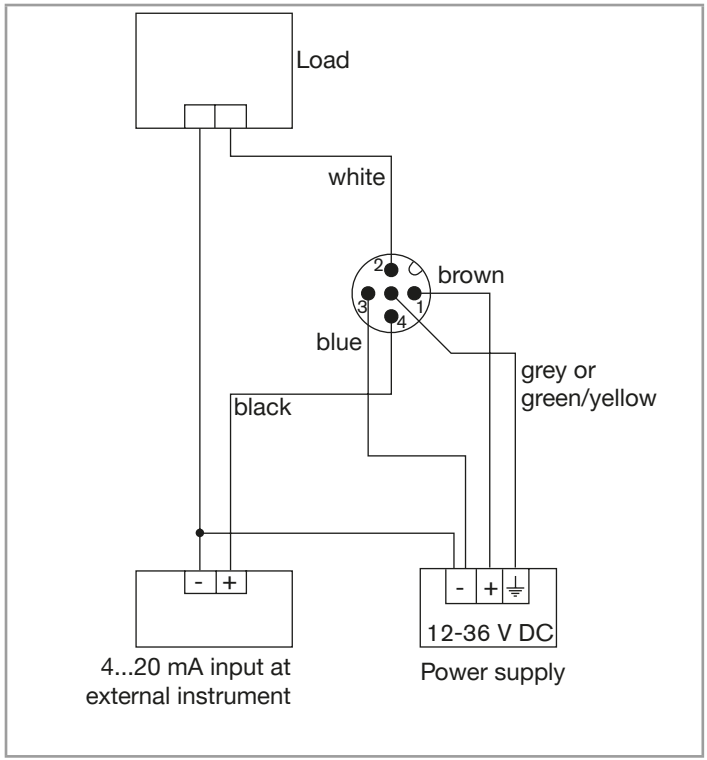


Fig. 12: Transistor output, PNP wiring, and current output, wiring in sourcing mode, device variant with 1 connector (parameter setting "PNP/source")

8.4.4 Device variant with 2 connectors

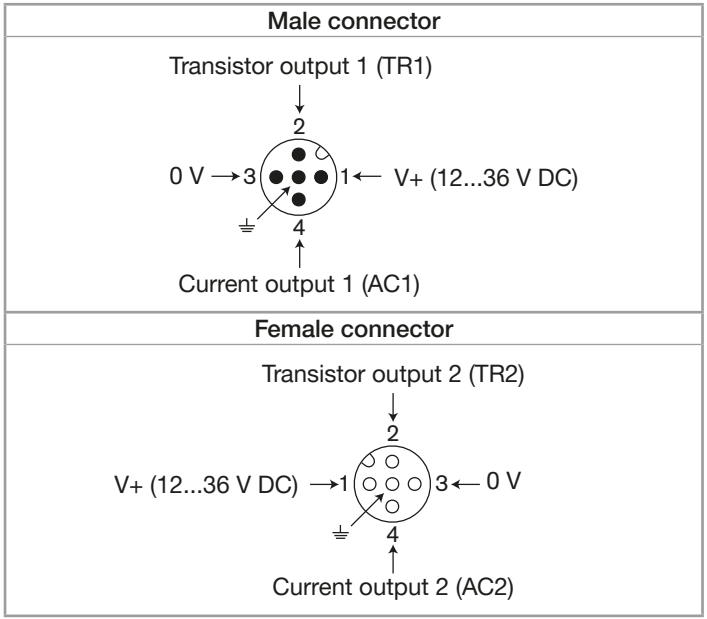


Fig. 13: Pin assignment

Connect the power supply for the device to the male connector; the supply is then transferred internally to pins 1 and 3 of the female connector in order to ease wiring of the load to the female connector.

Pin of the female or male M12 cables available as accessories (article number 438680 respectively 559177)	Colour of the wire
1	brown
2	white
3	blue
4	black
5	green/yellow or grey

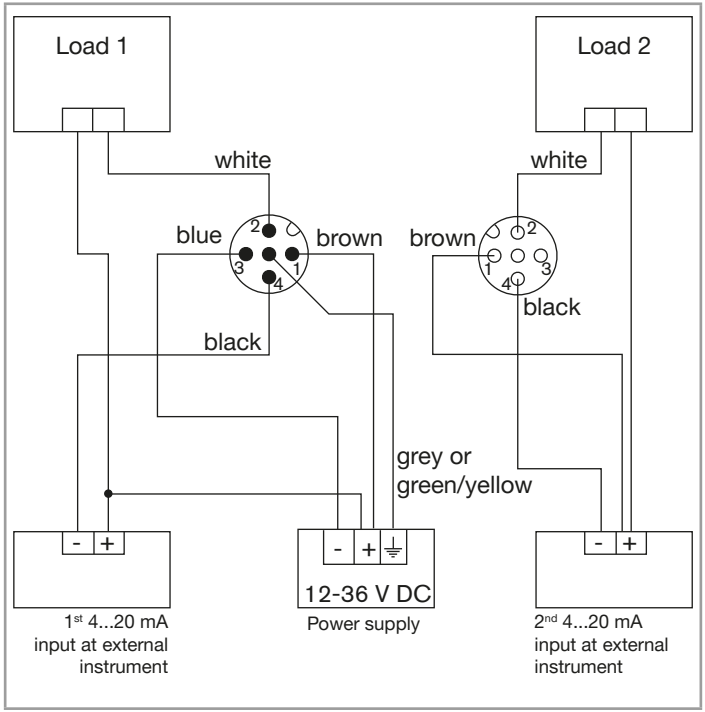


Fig. 14: Both transistor outputs, NPN wiring, and both current outputs, wiring in sinking mode, device variant with 2 connectors (parameter setting "NPN/sink")

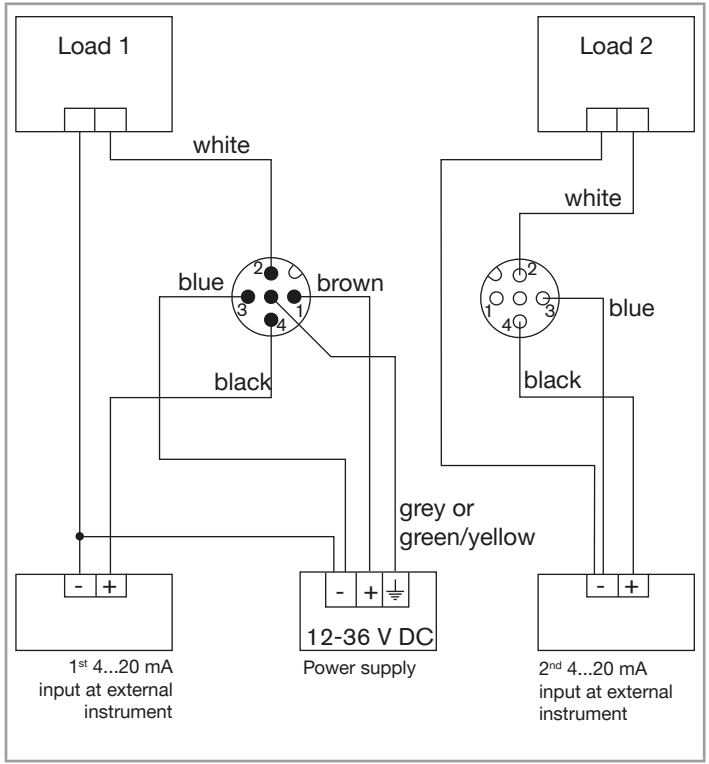


Fig. 15: Both transistor outputs, PNP wiring, and both current outputs, wiring in sourcing mode, device variant with 2 connectors (parameter setting "PNP/source")

9 ADJUSTMENT AND START-UP

- The settings can only be done on a device with a display module.
- Do not remove the display module while making the settings on the device.

9.1 Safety instructions

WARNING

Risk of injury due to non-conforming adjustment.

Non-conforming adjustment could lead to injuries and damage the device and its surroundings.

- The operators in charge of operating must have read and understood the contents of this quickstart.
- In particular, observe the safety recommendations and intended use.
- The device/installation must only be operated by suitably trained staff.

WARNING

Danger due to non-conforming start-up.

Non-conforming start-up could lead to injuries and damage the device and its surroundings.

- Before start-up the device, calibrate the conductivity sensor. Refer to chapter 9.7.
- Before start-up, make sure that the staff in charge have read and fully understood the contents of this quickstart.
- In particular, observe the safety recommendations and intended use.
- The device / the installation must only be commissioned by suitably trained staff.
- Set the correction factor of the fitting used (see chapter 9.8).

9.2 Navigation button

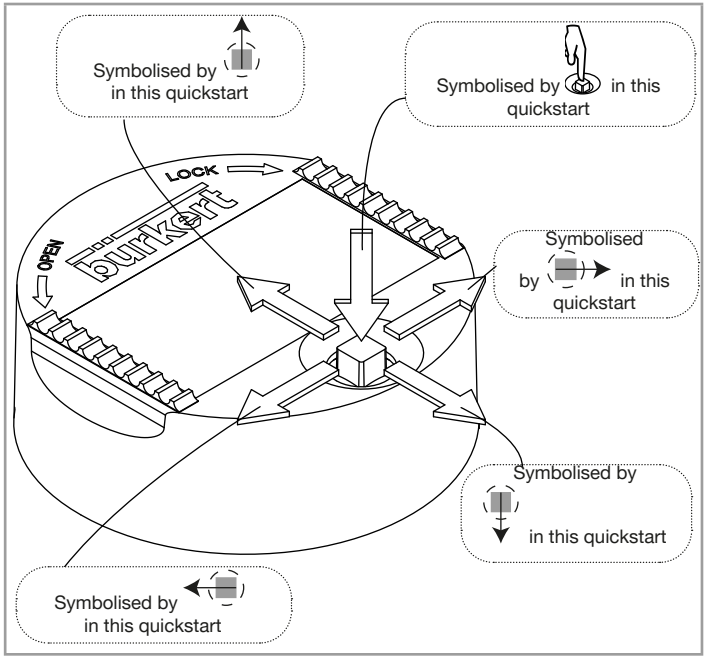


Fig. 16: Using the navigation button

You want to...	Press...
...browse in the Process level	• next screen:  • previous screen: 
• ...access the Settings level • ...display the Param menu	 for at least 2 sec., from any screen of the Process level
...browse in the menus of the Settings level	• next menu:  • previous menu: 
...access the menu displayed	
...browse in the menu functions	• next function:  • previous function: 
...select the highlighted function	

You want to...	Press...
...browse in the dynamic functions bar (MEAS, BACK, ABORT, OK, YES, NO)	• next function:  • previous function: 
...confirm the highlighted dynamic function	
...modify a numerical value	
- increment the figure selected	- 
- decrement the figure selected	- 
- select the previous figure	- 
- select the next figure	- 
- allocate the "+" or "-" sign to the numerical value	-  to the extreme left of the numerical value then  until the desired sign is displayed
- move the decimal point	-  to the extreme right of the numerical value then  until the decimal point is in the desired place

9.3 Dynamic functions

You want to...	Choose...
...go back to the Process level, without confirming the modifications made	dynamic function "MEAS"
...validate the input	dynamic function "OK"
...go back to the parent menu	dynamic function "BACK"
... abort the current operation and go back to the parent menu	dynamic function "ABORT"
...answer the question asked	dynamic function "YES" or "NO"

9.4 Display module

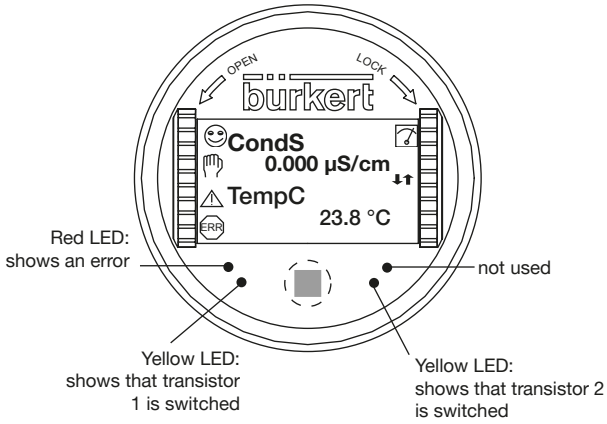


Fig. 17: Display module

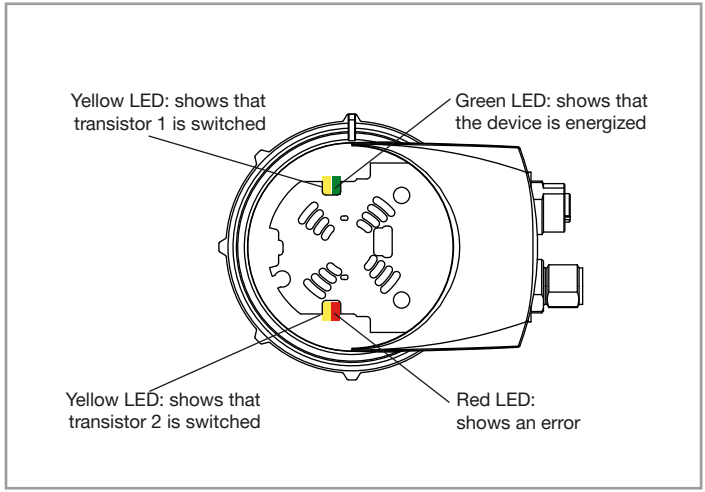


Fig. 18: LEDs on the electronic board

The LEDs of the display module are duplicated on the electronic board that is located under the display module: these LEDs can only be seen if the device has no display module.

Icon	Meaning and alternatives
	Sensor in good condition, fluid conductivity and fluid temperature within the set ranges. If the monitoring of the conductivity and/or the fluid temperature and/or the fluid conductivity has been activated, the alternative icons in this position are: • , associated with ⚠: • , associated with ERR:
	The device is measuring. The alternative icons in this position are: • HOLD flashing: function HOLD is active • T: running check that the outputs are working and behaving correctly
	"maintenance" message
⚠	"warning" message
ERR	"error" message

9.5 Operating levels

The device has 2 operating levels: the Process level and the Configuration level.

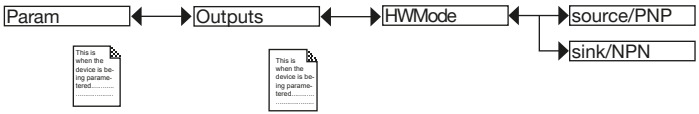
When the device is energized or the display module is mounted on an energized device, the display indicates the display software version and then the first screen of the Process level.

→ To browse in the Process level, see chapter 9.2.

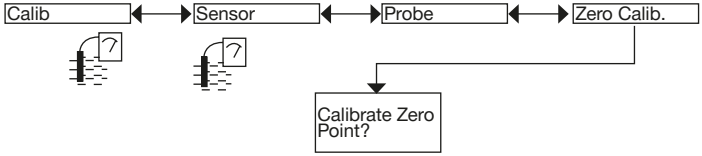
→ To access the Configuration level and to browse in the menus, see chapter 9.2. The Configuration level has 5 menus: „Param“, „Calib“, „Diagnostic“, „Test“, „Info“.

The access codes to the menus „Param“, „Calib“, „Diagnostic“ and „Test“ are only required if they have been customized.

9.6 Choose the connection mode of the outputs

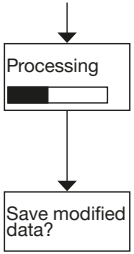


9.7 Calibrate the zero point of conductivity



→ Put the cleaned and dried conductivity sensor in contact with the ambient air.

→ Choose “Yes”.

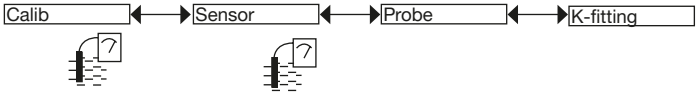


The device automatically calibrates the zero point of conductivity in less than 1 second.

→ Save or not the calibration result by choosing "Yes" or "No".

9.8 Enter the correction factor of the fitting used

The correction factor depends on the shape, the material and the diameter of the fitting used. The following table gives the correction factors of the Type S020 fittings.



→ Enter the correction factor of the fitting used. Refer to Table 2.

Table 2: Correction factors of the Type S020 fittings, depending on the shape, the material and the DN of the fittings

DN	Fittings with true union connections or fittings with weld ends			Fittings with internal or external thread connections or fittings with weld end connections		Measurement chamber	Welding sockets or fusion spigots		
	PVDF	PP	PVC	Brass	Stainless steel		Stainless steel	PVDF	PP
<32	1.08	1.08	1.08	0.99	0.99	-	-	-	-
32	1.08	1.08	1.08	0.99	0.99	0.99	-	-	-
40	1.04	1.04	1.04	0.99	0.99	0.99	-	-	-
50	1.02	1.02	1.02	0.99	0.99	0.99	0.99	-	-
65	-	-	-	-	-	-	0.99	1.02	1.02
80	-	-	-	-	-	-	0.99	1.02	1.02
100	-	-	-	-	-	-	1.00	1.02	1.02
>100	-	-	-	-	-	-	1.00	1.00	1.00

10 MAINTENANCE AND TROUBLESHOOTING

10.1 Safety instructions

Risk of injury due to electrical voltage.

- Before carrying out work on the system or the device, disconnect the electrical power for all the conductors and isolate it.
- If the device is installed either in a wet environment or outdoors, all the electrical voltages must be of max. 35 V DC.
- All equipment connected to the device shall be double insulated with respect to the mains according to the standard UL/EN 61010-1.
- Observe all applicable accident protection and safety regulations for electrical equipment.

Risk of injury due to pressure in the installation.

- Before any intervention in the installation, stop the circulation of fluid, cut off the pressure and drain the pipe.
- Before any intervention in the installation, make sure there is no pressure in the pipe.
- Observe the dependency between the fluid temperature and the fluid pressure.

DANGER

Risk of burns due to high fluid temperatures.

- Use safety gloves to handle the device.
- Before opening the pipe, stop the circulation of fluid and drain the pipe.
- Before opening the pipe, make sure the pipe is completely empty.

Risk of injury due to the nature of the fluid.

- Respect the prevailing regulations on accident prevention and safety relating to the use of dangerous fluids.

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.

→ If there is a problem, refer to the Operating Instructions at: country.burkert.com.

11 PACKAGING, 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.
- Protect the electrical interfaces using protective plugs.

12 STORAGE

NOTICE

Poor storage can damage the device.

- Store the device in a dry place away from dust.
- Storage temperature of the device: –10...+60 °C.

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.

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FLUID CONTROL SYSTEMS

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