

5. Commissioning


Observe all previous safety instructions.


5.1 Installation requirements



The following installation requirements must be satisfied:

- Continuous power supply and presence of measuring water through flow rate as specified on the data sheet.
- Constant through flow rate.
- There must be disinfectants present in the measuring water.
- There must be galvanic isolation at the electrical connections (if not already present in the sensor, see data sheet, 2.8, page 4).
- Make sure that the measuring water does not evolve gas at the measurement point.

5.2 Preparation of the sensors

Caution	
	<ul style="list-style-type: none"> • Handling chemicals (electrolyte). • The electrolyte is not subject to the CLP regulation. Specific warnings are therefore not required. No hazardous substances are released.

	<ul style="list-style-type: none"> • Protective clothing is not actually mandatory. • But protective gloves are recommended in the event of prolonged contact. • Do not allow it to come into contact with the eyes. If it does, rinse the eyes thoroughly with water. • Do not swallow
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	<p>Please note</p> <ul style="list-style-type: none"> • Do not touch the membrane cap or the electrode shaft. Do not allow these parts to come into contact with greasy substances. • This will cause the sensor to malfunction. • If necessary, return the sensor for inspection. • Electrolytes may have exceeded their shelf life. Check the expiry date before filling the sensor. • If possible, store the electrolyte bottle upside down (avoids bubbles when filling). • Avoid the formation of bubbles when filling the electrolyte into the sensor.
	

5.2.1 Preparation of the sensors

- ▶ Pull the protective cap ③ off the membrane cap ②.
- ▶ Unscrew the membrane cap ② from the sensor body ①.

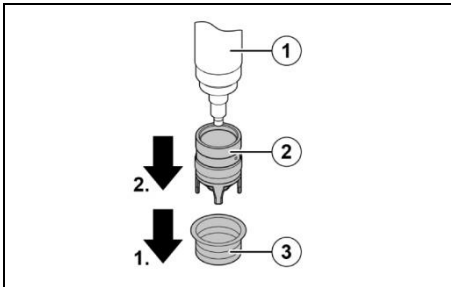


Fig. 3: Unscrewing the membrane cap

- ① Sensor body
- ② Membrane cap
- ③ Protective cap

- ▶ Put down the membrane cap on a clean surface.
- ▶ Fill the membrane cap with electrolyte up to the rim, as free of bubbles as possible.

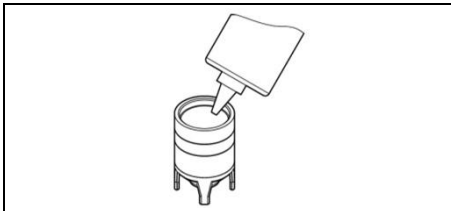


Fig. 4: Filling the membrane cap

- ▶ Place the sensor body ① upright on the membrane cap ②.
- ▶ Rotate the sensor body anticlockwise until the thread is felt to engage.

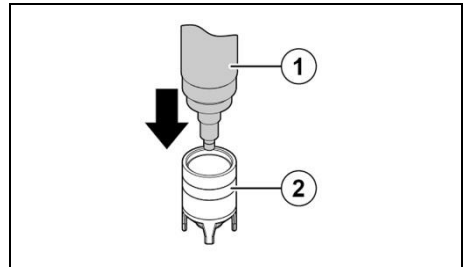


Fig. 5: Placing the sensor body on the sensor cap

- ▶ Slowly screw the sensor body into the membrane cap.
- ▶ Make sure that the valve opening is not closed off (e.g. by the fingers).



Please note

- The first resistance to screwing the parts together comes from the sealing O-ring.
- Screw the cap on further until it has closed up against the shaft.

- ✓ Once the membrane cap has been fully screwed on:

- ▶ Neither touch nor strike the membrane.
- ▶ Use water to wash off any electrolyte from the surface.

➔ The sensor is now prepared for commissioning.

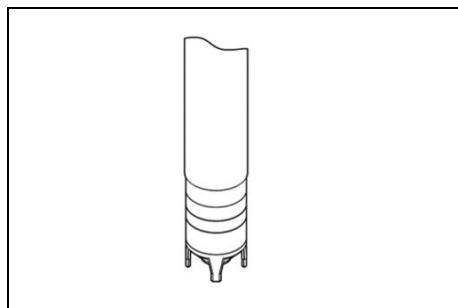


Fig. 6: Prepared sensor

5.3 Insertion into the flow chamber

- ✓ The sensor must have been prepared for installation (see section 5.2, page 19).
- ▶ Insert the sensor into a DF flow chamber or any suitable flow chamber.

In order to insert the sensor correctly into the flow chamber:

- ▶ Comply with the instructions in the operating instructions for the flow chamber that is used.
- ▶ Insert the sensor into a flow chamber of the type DF or any other suitable flow chamber.
- ▶ Do not touch the diaphragm. Not even with the flow plug or other parts in the flow chamber.
- ▶ Always keep the sensor moist after commissioning.
- ▶ The sample water must always contain the corresponding medium (e.g. chlorine). Observe the permissible max. absence time of the parameter to be measured, e.g. chlorine, see data sheet, (see section 2.8, page 12).
- ▶ Note the running-in times.








Please Note







- Do not fall below the minimum flow rate of the respective sensor.
- If the flow rate falls below this value and the measured value is used for control, restore the minimum flow rate or stop the process.
- Avoid incoming flows that form air bubbles. Air bubbles that accumulate on

	<p>the membrane of the sensor may cause a falsified measured value that can lead to incorrect dosing in your control loop.</p> <ul style="list-style-type: none">• All defined parameters must be adhered to (e.g. pressure, pH, temperature ranges, see data sheet, (see section 2.8, page 12).
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5.4 Electrical connection

Connection of the sensor and connection with the combination electrode, the associated controllers, actuators and systems may only be carried out by qualified personnel (see section 2.1.2, p. 5).

Warning	
	<ul style="list-style-type: none">• For details on connection to the combination electrode and external devices, see also “Intended use”, section 2.3, page 6!• Depending on the sensor, the controller may need to be electrically isolated from the sensor.• The power supply must not fall below or exceed the specified voltage and must not be subject to interference at any time.• Voltage fluctuations in the power supply will cause
	
	
	
	

	<p>incorrect readings and signals, resulting in incorrect dosing.</p> <ul style="list-style-type: none">• Possible consequences: Dangerous dosing conditions that may acutely threaten humans, animals, plants and the environment. Damage to or destruction of connected devices/systems. The intended purpose of the connected equipment, e.g. disinfection, extending the shelf life of containers, food-stuffs, water, etc., fertilisation etc. may be partially or completely impaired.• In case of danger, switch the system(s) to base load or shut them down and isolate them.• Initiate emergency response plans and inform everyone involved immediately.• Take all international, national and regional measures applicable to the relevant situation into account and implement them.• If necessary, evacuate people, animals, and property from the danger zone.• Inform the relevant public authorities and,• Seek emergency medical assistance, if necessary.
	
	
	
	
	

5.5 Connection types

- ✓ The sensor must have been inserted into the flow chamber (see section 5.3, page 21.)

The following types of electrical connections to the sensor are available:

5.5.1 Connection with 4 ... 20 mA signal output

a) M12 screwed plug

The sensor is provided with a 5-pin M12 screwed plug protected against polarity reversal.

The connection pins are assigned as follows:

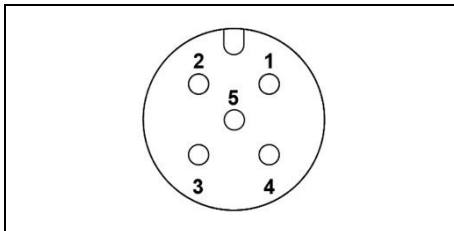


Fig. 7: Connection pin assignment (5-pin)

- 1 (not assigned)
- 2 +U
- 3 -U
- 4 (not assigned)
- 5 (not assigned)

b) Connection with a 2-pole screwed terminal block

The sensor is provided with a 2-pole screwed terminal block.

- ▶ Insert the sensor cable through the cable gland in the hood.
- ▶ Connect the cores to the terminals in the sensor electronics.
- ▶ Screw the hood finger-tight into the sensor body until the O-ring seal is made.
- ▶ Tighten the cable gland so as to secure the cable.

5.5.2 Connection with Modbus signal transmission

The sensor is provided with a 5-pin M12 screwed plug protected against polarity reversal. The connection pins are assigned as follows.

- 1 (reserved)
- 2 +9 ... +30 V
- 3 GND
- 4 RS485 B
- 5 RS485 A

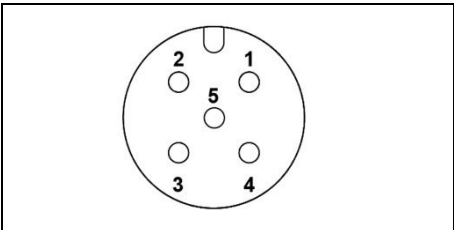


Fig. 8: Connection pin assignment (5-pin)

5.5.1 Connection with 0 ... +/- 2000-mV signal output

The sensor is provided with a 5-pin M12 screwed plug protected against polarity reversal. The connection pins are assigned as follows

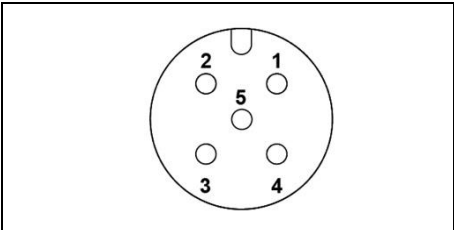


Abb.: 9 Connection pin assignment (5-pin)

	Analog signal processing		Digital signal processing
	0 ... -2000 mV	0 ... +2000 mV	0 ... ± 2000 mV
1	Measuring signal	Measuring signal	Measuring signal
2	+U	+U	+U
3	-U	Power GND	Power GND
4	Signal-GND	Signal-GND	Signal-GND
5	(not assigned)	(not assigned)	(not assigned)

Table 5: Signal processing