

Installation Instructions

Kit COV22

For the maintenance of oxygen sensors COS22/
COS22D/COS22E

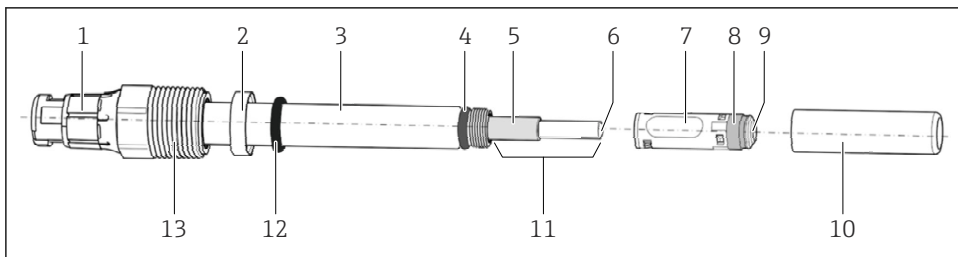


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1 Sensor overview

The exploded drawing shows the sensor structure, taking the example of the COS22D/E sensor.



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1 Structure of the COS22D/E sensor


- 1 Memosens plug-in head
- 2 Thrust collar
- 3 Sensor shaft
- 4 O-ring sensor cap sleeve
- 5 Anode (Ag/AgCl)
- 6 Cathode (Pt)
- 7 Membrane body
- 8 Membrane ring
- 9 Membrane
- 10 Sensor cap sleeve
- 11 Glass inner body with anode and cathode
- 12 Process seal
- 13 Process connection Pg 13.5

2 Intended use

- The components of the kits are to be used exclusively as maintenance parts for the COS22 / COS22D/E . Any other use is not permitted!
- Use only original parts from Endress+Hauser.
- In the W@M Device Viewer, check if the spare part is suitable for the existing device.

3 Authorized installation personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Installation Instructions and must follow the instructions they contain.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

 Repairs not described in the Operating Instructions provided must only be carried out directly at the manufacturer's site or by the service organization.

4 Safety instructions

CAUTION

Risk to health due to the removal of sensors from the process!

- ▶ When removing the sensor from the process, pay attention to pressure, process temperature and the corrosiveness or toxicity of the medium.

CAUTION

Risk to health due to contact with the process medium!

- ▶ Pay attention to the warnings in the safety data sheets.
- ▶ Wear protective gloves, protective goggles and protective clothing, particularly when working with reagents, chemicals or process solutions.
- ▶ In case of contact with eyes or skin, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.

Potential impact on the process

Before decommissioning an active device, the potential impact on the overall process must be taken into account! This applies in particular when using the switching contacts, the analog signal outputs or the communication interface of the associated measuring instrument to control process variables. Coordinate service tasks with the operator!

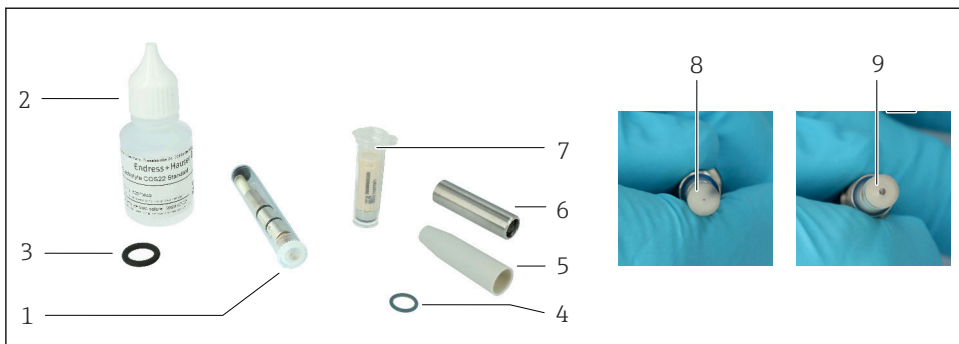
Electrical safety

The COS22 / COS22D/E sensor works exclusively with protective extra-low voltage. There is therefore no electrical hazard.

5 Scope of delivery

The COV22 service kit has a product structure. The quantity and design of a kit's contents therefore depend on the version ordered (see product structure below).

COV22		Approval	
	AA	Non-hazardous area	
	AC	Hazardous area	
Measuring range			
	12	0 to 2 mg/l	
	22	0 to 20 mg/l	
Material of membrane cap			
	AA	Stainless steel 1.4435, 316 L	
	BA	Titanium	
	CA	Alloy C22	
Material of O-rings			
	1	EPDM	
	2	FKM	
	5	FFKM	
Number of process seals			
	A	1 piece	
	C	3 pieces	
	E	5 pieces	
	J	10 pieces	
	Z	None	
Number of membrane bodies			
	A	1 piece	
	C	3 pieces	
	E	5 pieces	
	J	10 pieces	
	Z	None	
Electrolytes			
	E1	1x 25 ml	
	Z3	None	
Internal bodies			



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2 Maintenance kit COV22

- 1 Glass inner body
- 2 Electrolyte
- 3 Process seals
- 4 O-rings for sensor cap sleeve
- 5 Removal and O-ring mounting tool
- 6 Sensor cap sleeve
- 7 Membrane body
- 8 Standard sensor (detailed view: glass inner body with cathode)
- 9 Trace sensor (detailed view: glass inner body with cathode)

6 Additional documentation

Detailed information on the device can be found in the Operating Instructions for the sensor and in the other documentation available via:


- www.endress.com/device-viewer
- Smartphone/tablet: Endress+Hauser Operations app

7 Replacement of spare parts

CAUTION

The standard electrolyte is a strong irritant! Risk of injury!

- ▶ Pay attention to the safety instructions (see Section 4).

 The following sections 7.1 to 7.4 describe a complete maintenance procedure for the sensor. Individual steps can be skipped if necessary.

O-rings and seals must be replaced no later than when mechanical damage is present.

Electrolyte service life with air-saturated water:

- COS22/COS22D/E standard sensor: >1.5 years
- COS22/COS22D/E trace sensor: >3 months

The electrolyte must always be changed if the membrane body is detached. In addition, used electrolyte must be topped up.

The membrane body must be replaced if the membrane is damaged or overstretched.

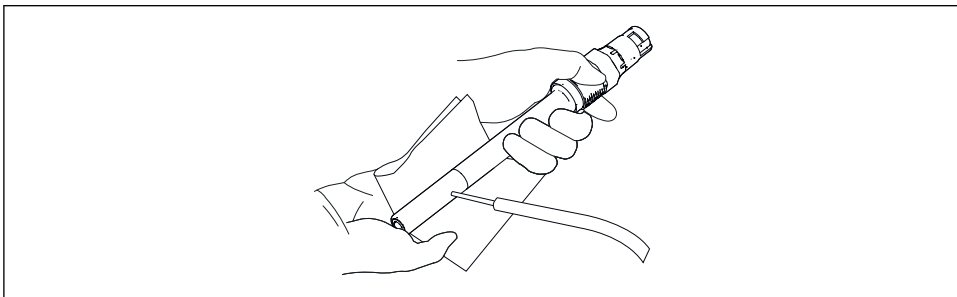
The inner body must be replaced if it shows deposits.

Do not clean the glass inner body mechanically. Polishing the glass inner body can cause impaired functioning or total failure of the sensor. Wiping gently with a soft cloth is permitted, however.

7.1 Carrying out full maintenance

Remove the sensor cap sleeve.

1. Remove the sensor from the process and clean it. A cleaning agent appropriate to the type of contamination should be used for this purpose.



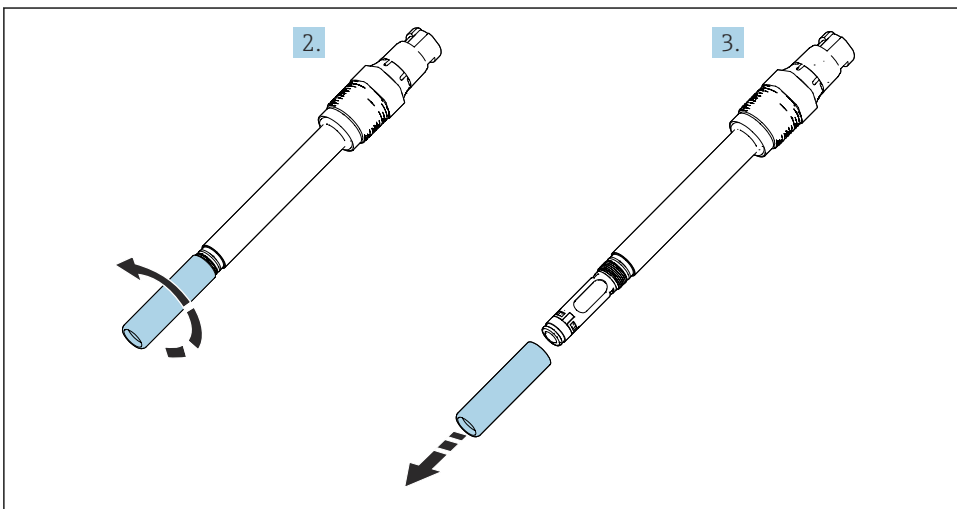
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CAUTION

Danger due to leaking electrolyte!

- ▶ Since leaking electrolyte can be highly corrosive, you must wear protective gloves, goggles and protective clothing.

2. Unscrew the sensor cap sleeve.

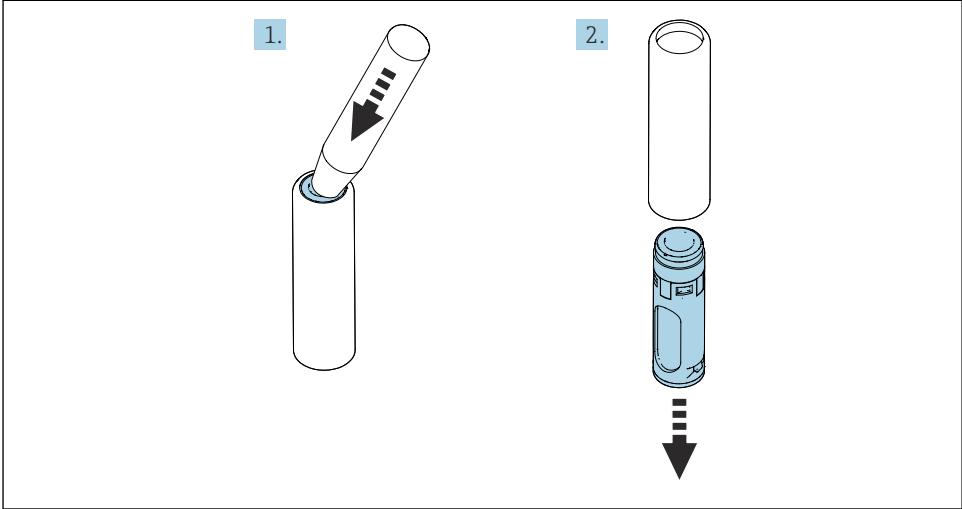


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3. Remove the sensor cap sleeve.

Removing the membrane body

1. Using the removal and O-ring mounting tool supplied, push the membrane body out of the sensor cap sleeve towards the back.



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2. Remove the membrane body.

i The membrane body must be replaced if the membrane is damaged or overstretched. The membrane body can be reused if the membrane is OK. **Recommendation:** Use a new membrane body!

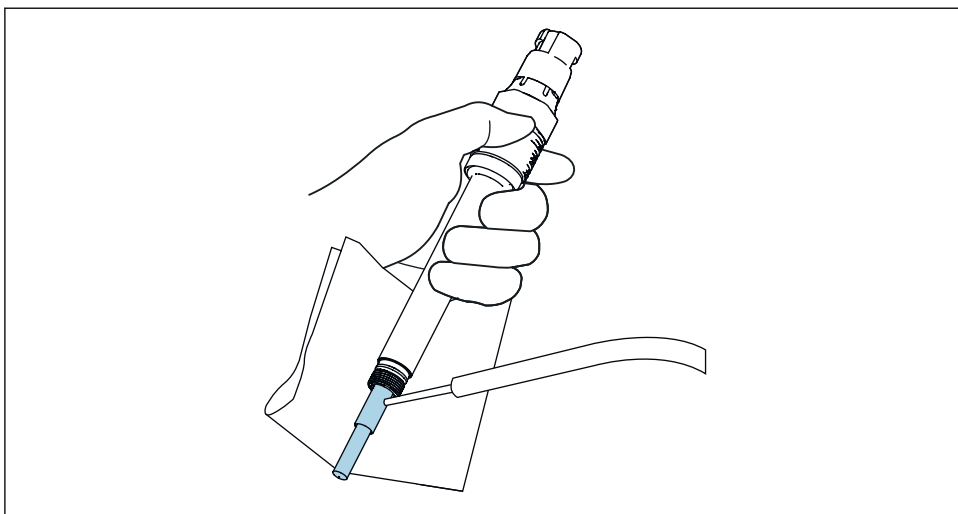


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i The O-ring (1) is an integral part of the **membrane body** spare part. This O-ring cannot be purchased individually!

The material of the O-ring depends on the selected version of the spare parts kit (O-ring material).

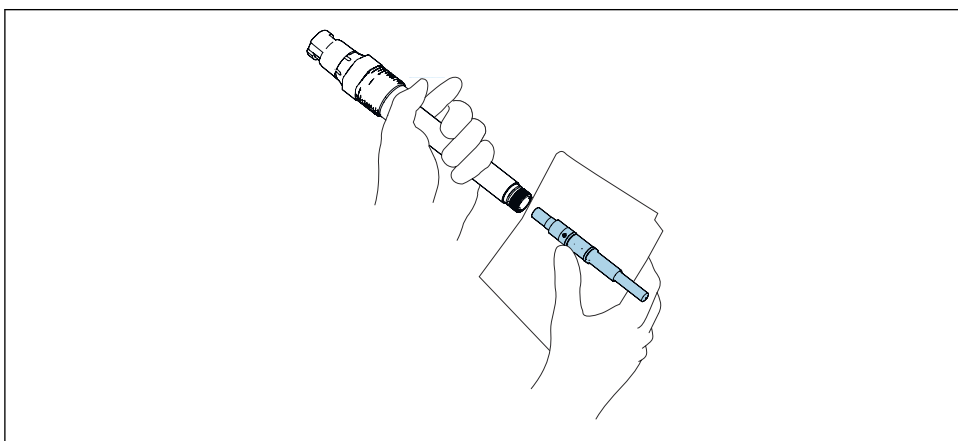
3. Clean and dry the glass inner body. Dab only, do not wipe!



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Removing the glass inner body

1. Remove the glass inner body, making sure not to turn it. The glass inner body has plug-in contacts.

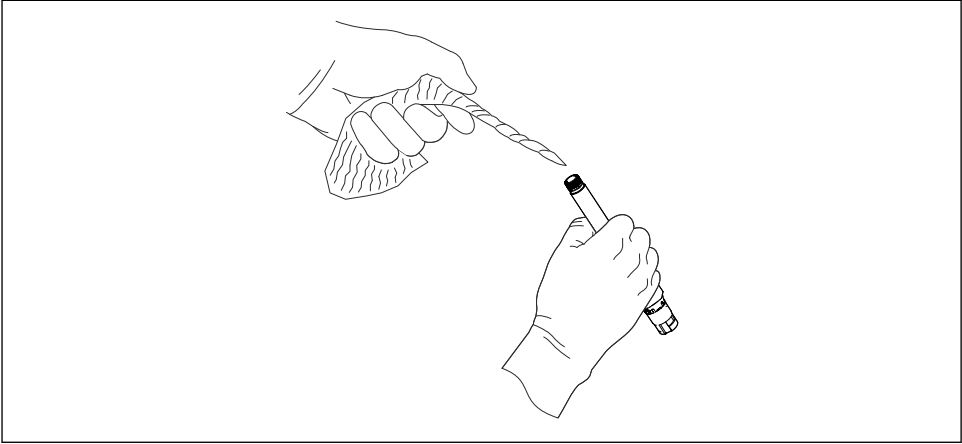


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2. If the glass inner body should be reused:
Clean and dry the entire glass inner body including the O-rings.

3. Dry the inside of the sensor shaft and remove all traces of moisture.


i If available, use dry, cleaned compressed air. If compressed air is not available, use a lint-free cloth.



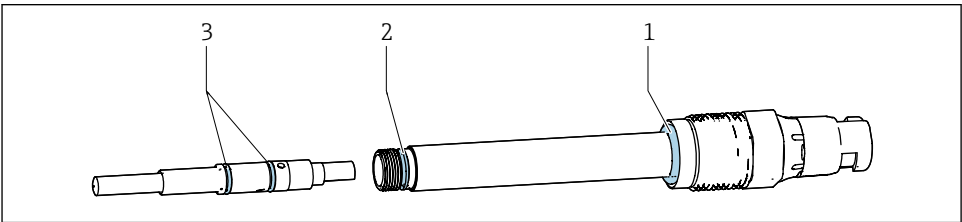
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Checking the process seal and O-ring of the sensor cap sleeve

- Check the process seal and O-ring of the sensor cap sleeve for damage. If in doubt, always replace it!

i Pay attention to the material of the process seal and the sensor cap sleeve cap o-ring (see order code →  5)!

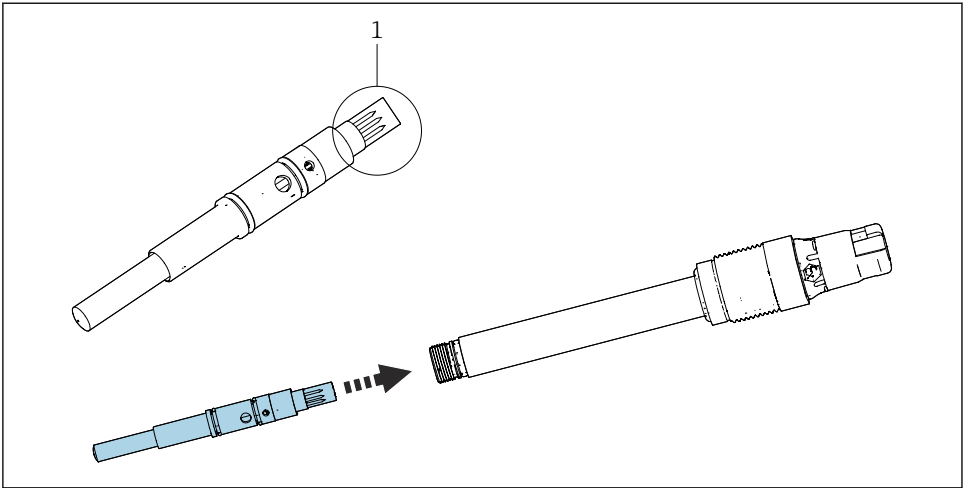
The O-rings (3) are an integral part of the **glass inner body** spare part. These O-rings cannot be purchased individually!



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Inserting the glass inner body

- Insert the glass inner body back into the sensor shaft. Pay attention to the guide for the plug-in contacts (1)!



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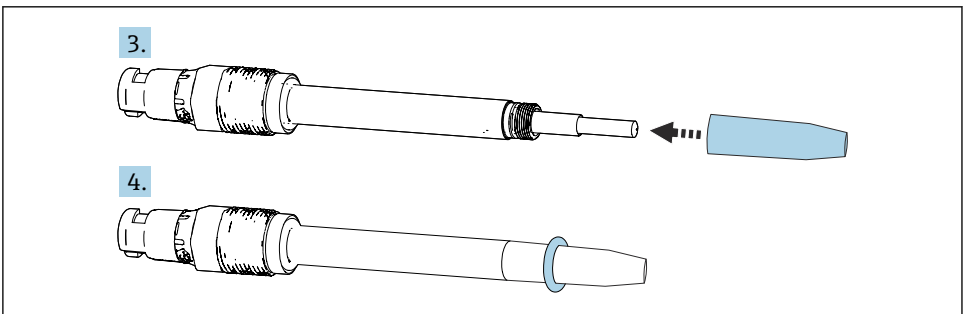
Mounting the process seal or O-ring of the sensor cap sleeve

1. To mount the O-ring on the sensor cap sleeve, place the removal and O-ring mounting tool on the sensor.
2. Slide the O-ring over the removal and O-ring mounting tool onto the sensor until it has reached its end position.



Only replace this O-ring if it is damaged. On the other hand, in SIP and CIP applications (sterilization in place, cleaning in place) this O-ring should also always be replaced each time the membrane body is replaced.

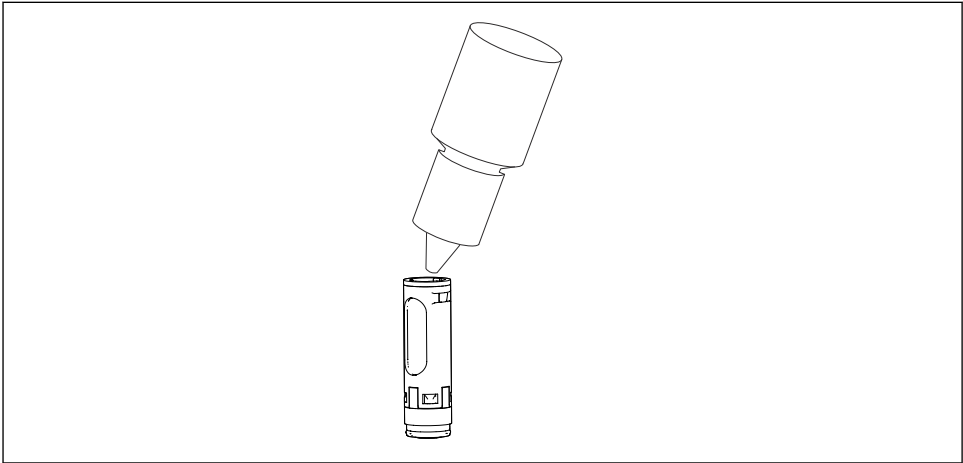
3. To mount the process seal, fit the removal and O-ring mounting tool on the sensor.
4. Slide the process seal over the removal and O-ring mounting tool onto the sensor until it has reached its end position.



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Refilling the electrolyte

1. Hold the membrane body upright and fill it with electrolyte up to the halfway point. Make sure you use the correct electrolyte type (trace/standard)!

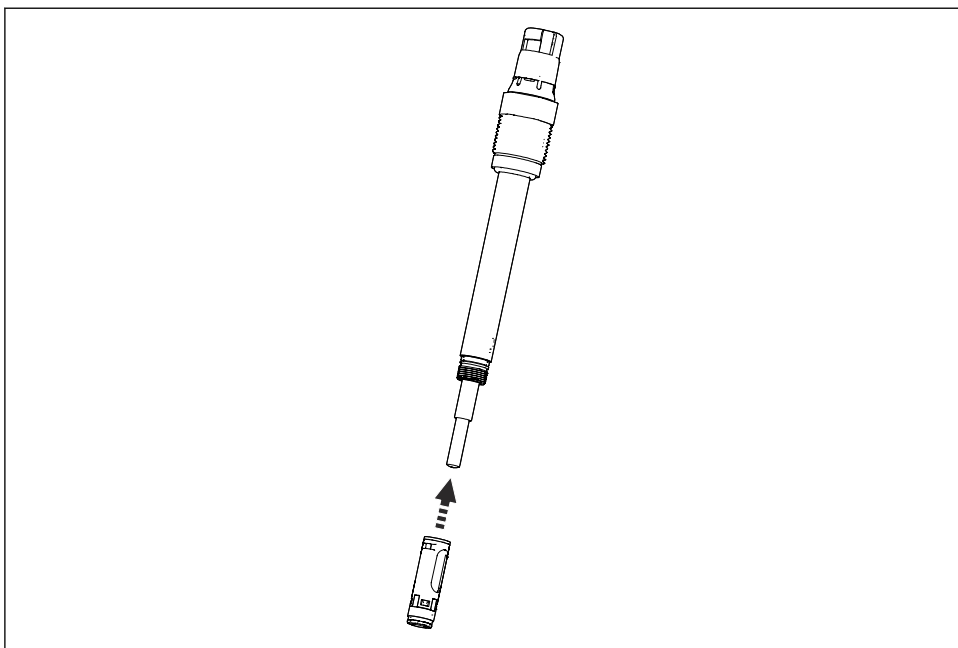


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2. Remove all air bubbles from the electrolyte by tapping the side of the membrane body (using a pen or pencil, for example).

Inserting the membrane body

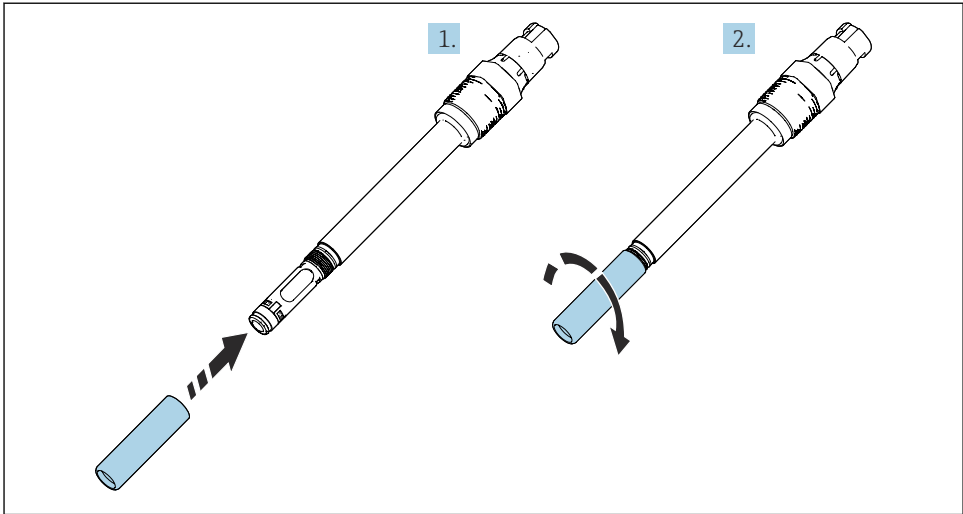
1. Hold the sensor shaft as vertically as possible.
2. Now slide the membrane body slowly onto the glass inner body until the end stop. Wipe away any electrolyte that may leak out with a paper towel.



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Screwing on the sensor cap sleeve

1. Fit the sensor cap onto the sensor head.
2. Screw the sensor cap sleeve onto the sensor shaft as far as it will go so that a gap is no longer visible between the sensor cap sleeve and the sensor shaft.



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Resetting the counters

1. Reset the counters in the transmitter after each sensor maintenance including electrolyte or sensor cap sleeve changes.

i Warnings can also be configured for the counters to assist with sensor maintenance. The menu paths specified refer to the Liquiline CM44x:

Menu path for electrolyte replacement

Menu/Calibration/Oxygen (amp.)/Change electrolyte

Menu path for sensor cap change

Menu/Calibration/Oxygen (amp.)/ Change Membrane Cap

2. Then press the **Save** key to confirm the process.

i The current electrolyte charge can be viewed in the menu/Diagnostics/Sensor information/ Oxygen (amp.)/Sensor operation/ Charge.

The number of calibrations per sensor cap sleeve is displayed at Menu/Diagnostics/ Sensor information/Oxygen (amp.)/ Sensor operation/number of calibrations cap.

CAUTION

Risk of material damage!

- Before the calibration, wait for the necessary polarization time in air to elapse (at least 2 hrs in the case of COS22 / COS22D/E-xx1xxxx; at least 12 hrs in the case of COS22 / COS22D/E-xx3xxxx).

Performing a calibration

1. Perform calibration.
2. Put the measuring system back into operation.



The calibration must be performed after every sensor maintenance!
Follow the Operating Instructions for the measuring instrument used.

8 Disposal

8.1 Sensors



If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.



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