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Operating Instructions
FlowFit CPA25

Flow assembly for 12-mm sensors for
pH/ORP, conductivity and oxygen measurement

Endress+Hauser
People for Process Automation

Table of contents

1 About this document

1.1 Warnings

Structure of information	Meaning
⚠ DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
⚠ WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
⚠ CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2 Symbols

- Additional information, tips
- Permitted
- Recommended
- Forbidden or not recommended
- Reference to device documentation
- Reference to page
- Reference to graphic
- Result of a step

1.3 Symbols on the device

- Reference to device documentation
- Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

2 Basic safety instructions

2.1 Requirements for the 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 Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

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

2.2 Intended use

The Flowfit CPA25 flow assembly is designed for the installation of up to 3x PG 13.5 sensor slots with a nominal shaft length of approx. 120 mm (4.72 in).

The assembly is used to implement measuring points for nonhazardous liquids in the water / wastewater treatment sectors and in industrial auxiliary processes.

Thanks to its design, it can be used in pressurized systems.

Use of the device for any purpose other than that described, poses a threat to the safety of people and of the entire measuring system and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-designated use.

2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations

2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.
2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

- If faults cannot be rectified:
  products must be taken out of service and protected against unintentional operation.

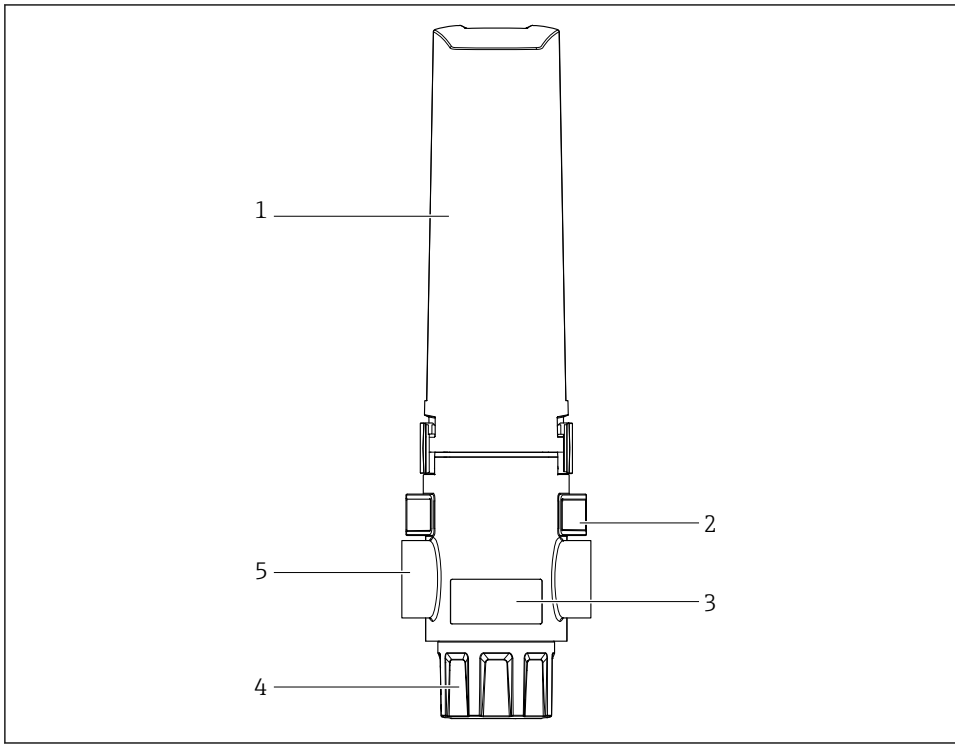
2.5 Product safety

2.5.1 State-of-the-art technology

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

3 Product description

3.1 Product design



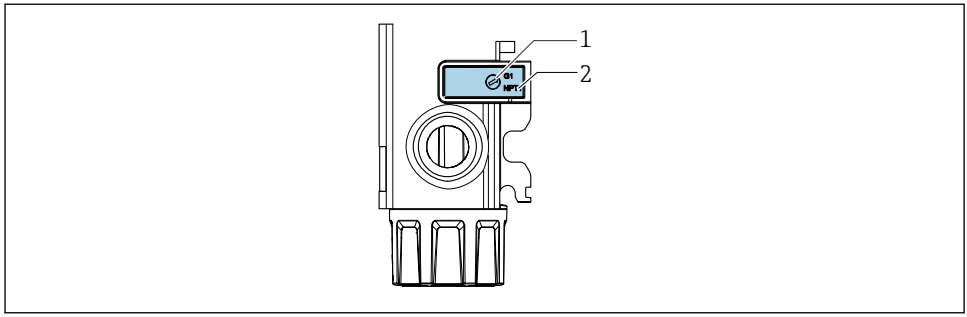
1 Overview of CPA25

1 *Splash cover*
2 *Mounting hole*
3 *Nameplate*
4 *Service cap*
5 *Process connection*

3.1.1 Operating principle

Process connections

The type of process connection provided can be identified from the direction of the arrow.



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2 Indication of process connection type

1 Arrow position
2 Type of process connection

The flow cell can be ordered with the following connections:
- G1" female thread
- NPT1" female thread

The following process connection adaptations are possible, depending on the ordered version:
- G1" to G1/2" female thread
- G1" to G3/4" female thread
- G1" to hose connection with hose internal diameter ID19 (3/4")

► Seal process connections with suitable sealing material (e.g. Teflon tape).

4 Incoming acceptance and product identification

4.1 Incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify the supplier of any damage to the packaging.
   Keep the damaged packaging until the issue has been resolved.
2. Verify that the contents are undamaged.
   ↳ Notify the supplier of any damage to the delivery contents.
   Keep the damaged goods until the issue has been resolved.
3. Check that the delivery is complete and nothing is missing.
   ↳ Compare the shipping documents with your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
   ↳ The original packaging offers the best protection.
   Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local Sales Center.

4.2 Product identification

4.2.1 Nameplate

The nameplate provides you with the following information on your device:
- Order code
- Serial number
- Permitted pressure
- Permitted temperature

► Compare the information on the nameplate with the order.

4.2.2 Product identification

Product page

www.endress.com/CPA25

Interpreting the order code

The order code and serial number of your product can be found in the following locations:
- On the nameplate
- In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.
2. Page search (magnifying glass symbol): Enter valid serial number.
3. Search (magnifying glass).
   ↳ The product structure is displayed in a popup window.
4. Click the product overview.
   ↳ A new window opens. Here you fill information pertaining to your device, including the product documentation.

4.2.3 Manufacturer address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
D-70839 Gerlingen

4.3 Scope of delivery

The scope of delivery comprises:
- Assembly in the version ordered
- Splash cover
- Service cap
- Auxiliary tool for mounting sensor
- Anti-bend protector for KCl supply

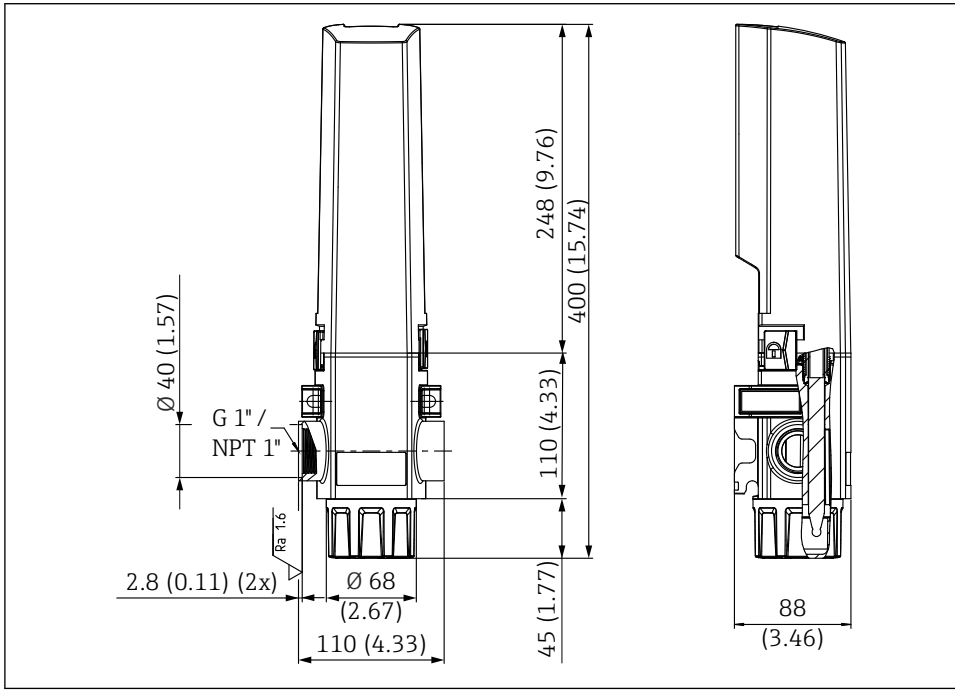
- Blind plug (3x)
- Operating Instructions
- Optionally selected accessories

▶ If you have any queries:
Please contact your supplier or local sales center.

5 Mounting

5.1 Mounting requirements

5.1.1 Dimensions and process connections



3 Dimensions. Unit of measurement mm (in)

5.1.2 Mounting instructions

⚠ WARNING

Risk of injury from high pressure, high temperature or chemical hazards if process medium escapes.

- ▶ Wear protective gloves, protective goggles and protective clothing.
- ▶ Mount or dismantle the assembly only when vessels or pipes are empty and unpressurized.

⚠ WARNING

If pressure is too high, this poses a hazard for the measuring point.

- ▶ Pay attention to the specifications of the assembly.
- ▶ If pressure can exceed the pressure limit, even briefly, take suitable measures, e.g. use a pressure-reducing valve.

- The assembly is designed for installation in pipe networks. Suitable supply lines and discharge lines must be provided by the customer onsite.
- The seal to the process connections that seals the assembly from the supply and discharge lines must be provided by the customer onsite.

5.2 Mounting the assembly

WARNING

If process medium and cleaning medium escape, there is a risk of injury due to high pressure, high temperatures or chemicals.

- ► Wear protective gloves, protective goggles and protective clothing.
- ► Mount the assembly only if vessels or pipes are empty and unpressurized.
- ► Before exposing the assembly to the process pressure, verify that all connections are sealed.

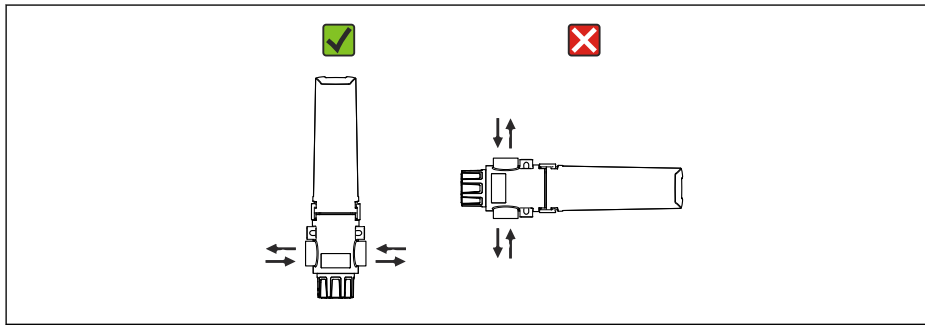
NOTICE

Damage to measuring point if excessive force applied.

- ► Secure the assembly.
- ► Secure the pipe sections so they are free of external mechanical stress.

5.2.1 Orientation

►



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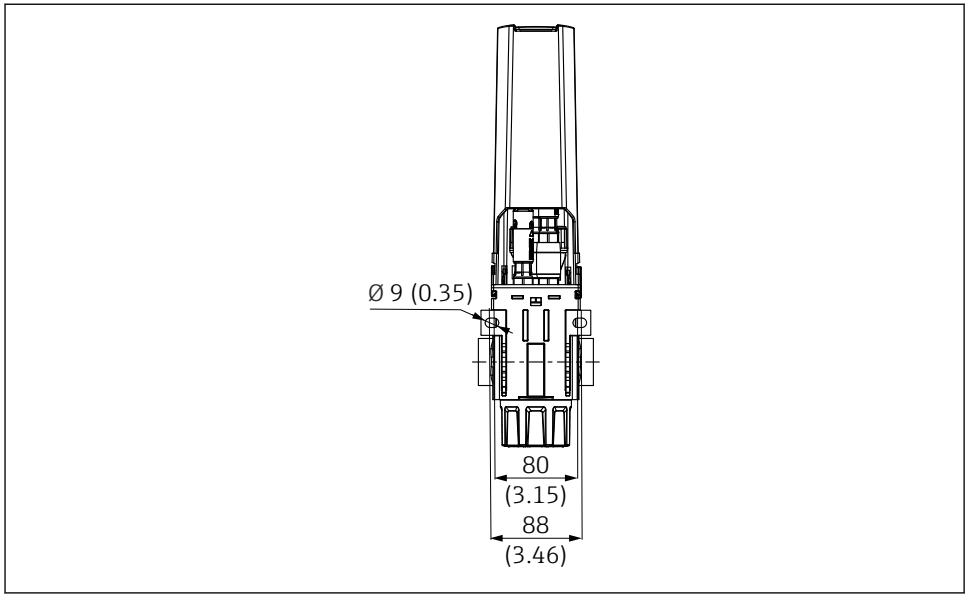
Only mount the assembly vertically.

↳ This allows the medium to flow through horizontally.

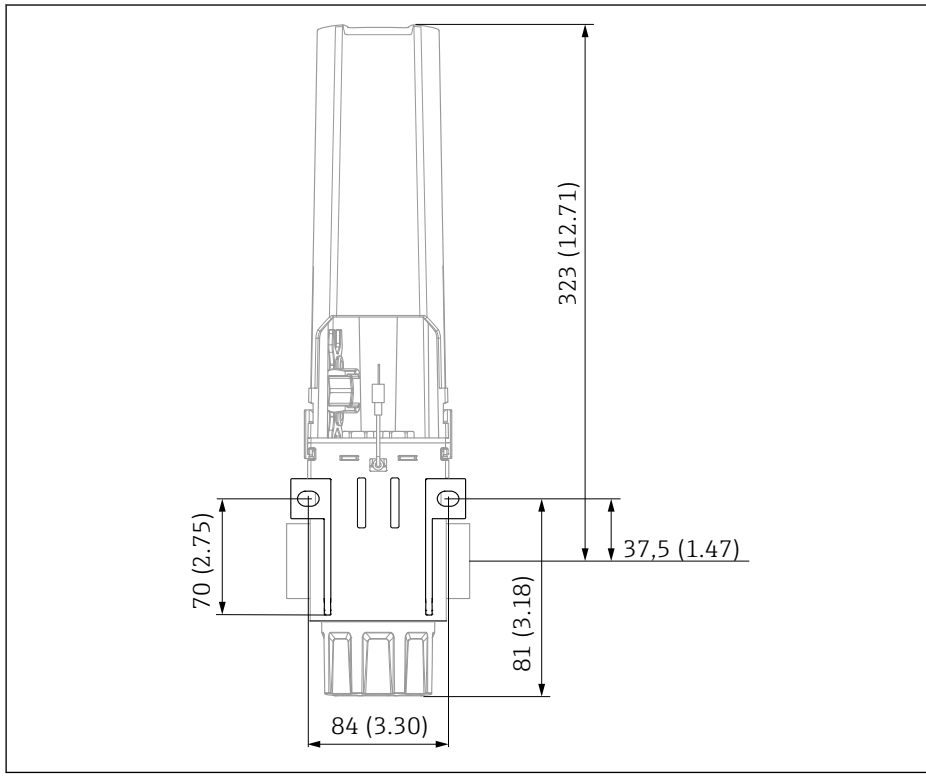
5.2.2 Wall holder



4 Dimensions of bore for wall holder. Unit of measurement mm (in)

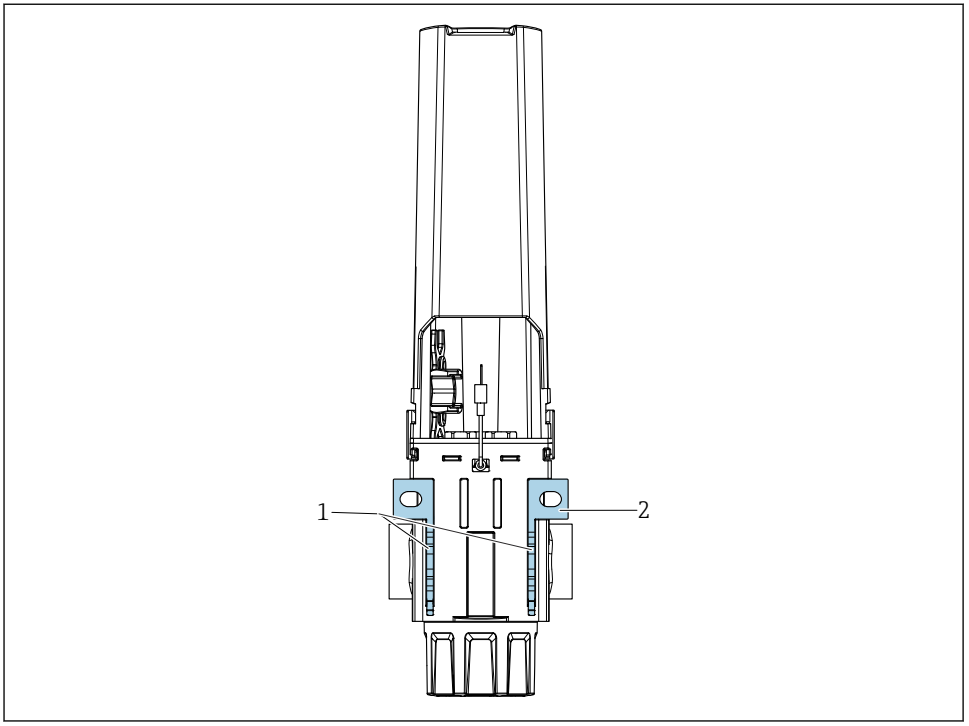
The assembly has an integrated wall holder.

▶



Screw the assembly onto a wall or mounting plate with suitable screws (see the dimensions).

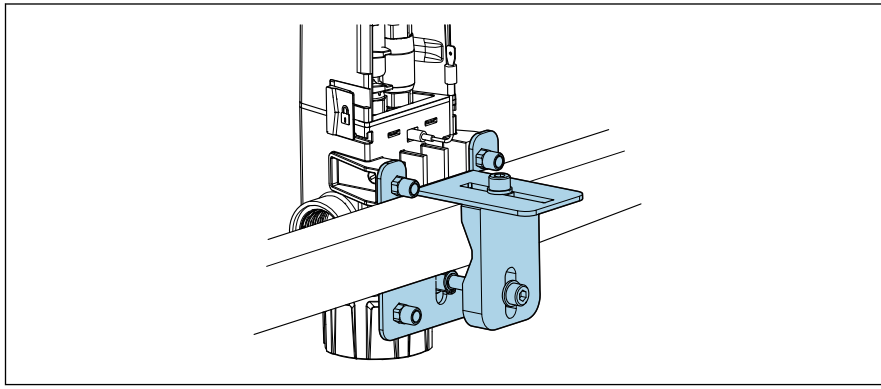
5.2.3 Securing on railings or pipes



1 Mounting holes for cable ties for strain relief including pipe holder
2 Boreholes, to secure the assembly on the holder.

The assembly can be secured on railings or pipes (round or square) with a maximum diameter or side length of 60 mm (2.36 in).

► Secure the assembly on railings or pipes with the optional mounting aid.



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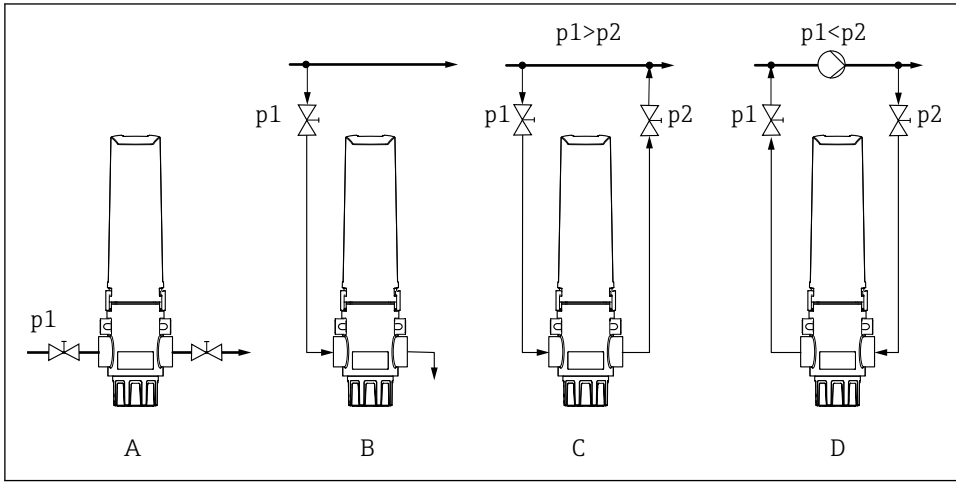
5 Mounting aid

5.2.4 Installing the assembly in the process



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6 Installation versions with and without a bypass

A	B	C	D
Installation in the main pipe	Branch pipe (bypass without recirculation)	Bypass with recirculation	Bypass with recirculation
▪ No bypass required ▪ No medium lost ▪ Limit size of main pipe ▪ The line must be interrupted for operation ▪ Limited to mounting and sensor specifications	▪ Measuring point can be more easily disconnected from the main pipe ▪ No pressure loss in the main pipe ▪ Only one valve required for separation ▪ Sample medium is discarded	▪ Measuring point can be more easily disconnected from the main pipe ▪ No medium lost ▪ No pump required ▪ Pressure loss in the main pipe (throttle required) ▪ Flow limits	▪ Measuring point can be more easily disconnected from the main pipe ▪ No medium lost ▪ No pump required ▪ Pump required ▪ Flow limits

Bypass installation

An installation in the bypass or branch pipe is preferable to installing directly in the process pipe.

1. Mount the assembly in a horizontal pipe.
2. Select the desired bypass mounting.→ 6, 17
3. Block off the bypass pipe without interrupting the process by using an upstream and downstream shutoff valve.
   ↳ This makes it possible to clean the sensor, for example, without affecting the process.
4. Make sure pressure conditions are correct to guarantee the flow.
   ↳ In this way, flow through the assembly is possible in a bypass configuration.

Recommended accessories for the flow

Accessories	Use
1 shutoff valve	For branch pipe (bypass without recirculation)
2 shutoff valves	For bypass solution
Dirt filter	If the medium contains large particles
Pressure-reducing valve	If the process pressure exceeds the permitted value (even briefly)

Installing supply and discharge line

1. Mount the supply line on the assembly, making sure to use a suitable seal (use a seal or a thread with Teflon tape for example).
2. Mount the discharge line on the assembly, making sure to use a suitable seal (use a seal or a thread with Teflon tape for example).
3. Check that the conduit is seated correctly.
   ↳ There should be no tension on the pipes and no bending of any kind.

5.2.5 Installing the sensors

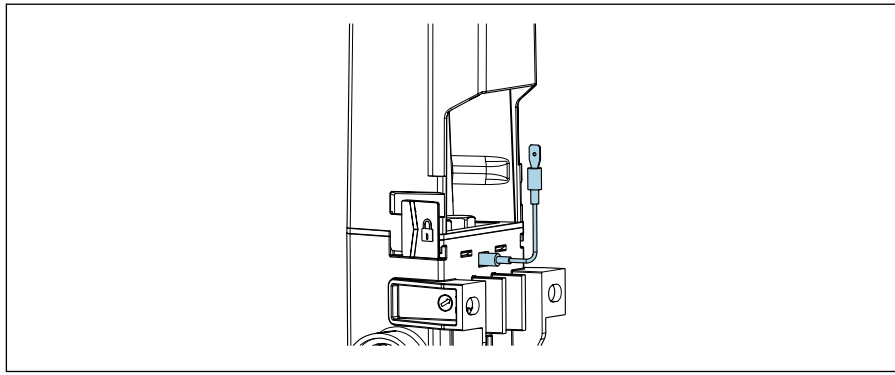
WARNING

Leaking process medium. Risk of injury from high pressure, high temperatures or chemical hazards!

- ▶ Wear protective gloves, protective goggles and protective clothing.
- ▶ Mount or dismantle the sensors only when vessels or pipes are empty and unpressurized.

Up to 3 sensors with a PG 13.5 thread and a 120 mm (0.47 in) shaft length can be installed in the assembly. An alternative would be to combine 2 sensors with KCl supply and another sensor without a KCl supply.

Required tools:
- Socket wrench (AF 17 or AF 19 for Memosens) or
- Enclosed hybrid open-ended wrench AF17 / AF19

1. Remove the blind plug with the O-ring at a free sensor slot and keep it in a safe place.
2. Remove the protective cap from the sensor.
3. Verify that there is an O-ring and thrust ring on the sensor.
4. Screw in the sensor with a socket wrench (AF 17 or AF 19 for Memosens) with approx. 3 Nm (2.21 lbf ft).
5. Connect the transmitter's measuring cable to the sensor.
6. For KCl sensors: connect the KCl supply.
7. 

   7 *PML (optional)*

   Optionally connect the PML with cable lug 6.3 mm (0.24 in).
8. Make sure that all unused sensor slots are sealed with blind plugs.

The blind plug only consists of the O-ring and the plug. A thrust collar is not required. The O-ring is the same size as the O-ring on the sensor.

The PML cannot be retrofitted.

Cable routing

NOTICE

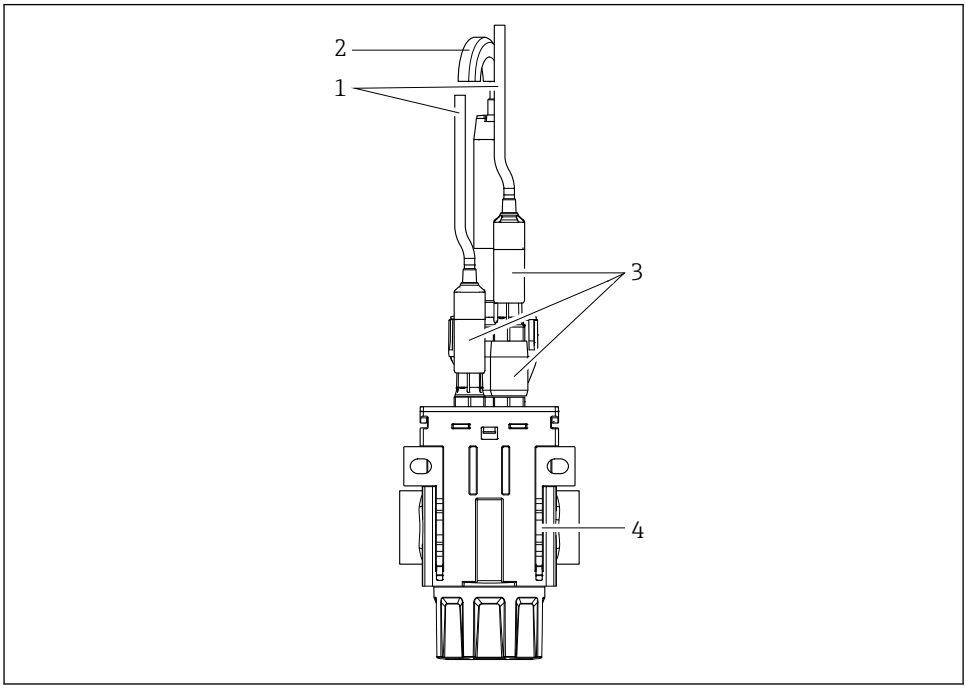
Excessive tensile strain on cables or the KCl hose can damage the sensors, measuring point and cables.

- ▶ Securely attach the cables.
- ▶ Ensure sufficient strain relief.

NOTICE

Cables and hoses can be damaged from bending.

- ▶ Observe the bending radii of the measuring cables.
- ▶ Use an optional rerouter for the KCl hose.



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1 Anti-bend protector for KCl hose
2 Sensor cables routed correctly
3 Sensors
4 Mounting holes for cable ties

1. Secure the cables and hoses on the back of the assembly in the cable ducts provided.
2. Make sure the cables and hoses are long enough.
3. Do not bend the cables and hoses.
4. Using cable ties, secure the sensor cables and KCL hose at the mounting holes (4).

5.3 Post-mounting check

Put the sensor into operation only if you can answer "yes" to the following questions:
- Are the sensor and cable undamaged?
- Is the orientation correct?
- Is the sensor installed in an assembly and not suspended from the cable?

6 Commissioning

Before first commissioning, check if:

- all seals are correctly seated (on the assembly and on the process connection)
- the sensor is correctly installed and connected
- the service cap is straight and fully screwed onto the flow cell

⚠ WARNING

Risk of injury from high pressure, high temperature or chemical hazards if process medium escapes.

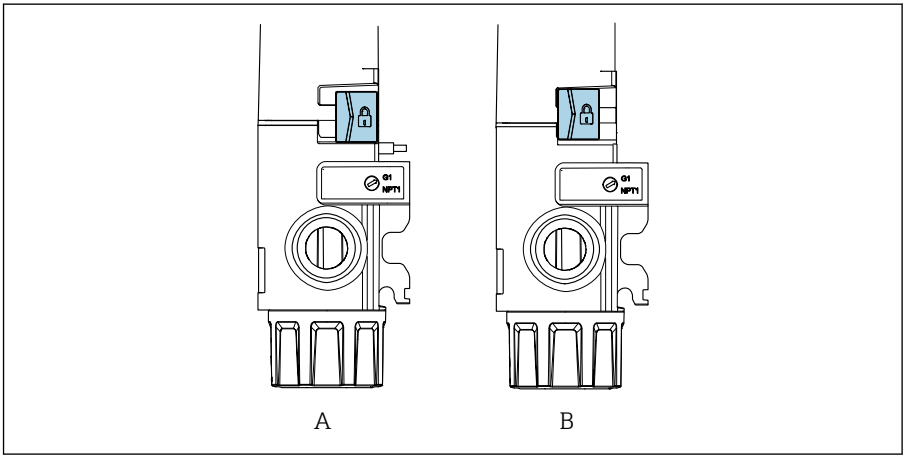
- ▶ Before subjecting the assembly to the process pressure, verify that all connections are tightly sealed!
- ▶ If you are using a shutoff valve on the rinse chamber as the vent cock, the blind plug must remain on the outlet side of the rinse chamber! Otherwise, the assembly must not be introduced into the process!

7 Operation

Locking and unlocking the splash cover

The splash cover protects the sensors and cable connections from splash water, dust and dirt. The cover is secured by two bolts located on either side. The lock slides engage in the locked and unlocked position.

1.



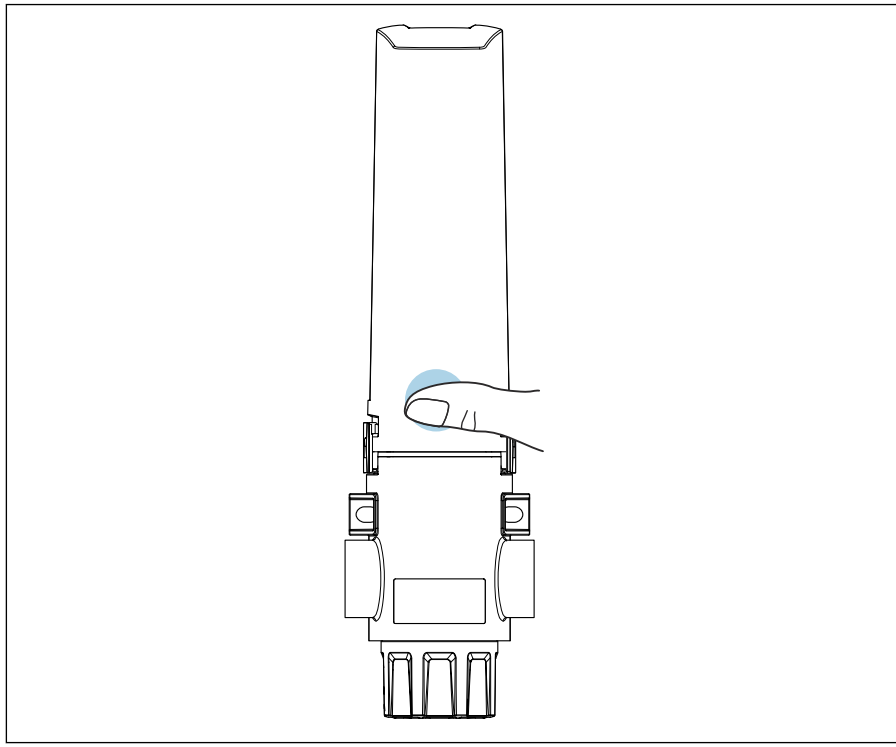
8 Locking the splash cover

A Locked
B Unlocked

Slide the locking mechanism of the splash cover to the right (B).

↳ The splash cover is unlocked.

2.



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9 Removing the cover

To open the assembly, exert a slight force on the cover with your thumbs.

↳ The splash cover can now be removed. The sensors can now be accessed.

3. To lock, fit the splash cover back on and slide the locking mechanism to the left (A).

↳ The splash cover is locked.

8 Diagnostics and troubleshooting

Problem	Possible cause	Tests and/or remedial measures
Medium leaking at the pipe connection	Sealing material missing, is damaged or compression is insufficient.	▶ Check whether the pipe threaded connection has been tightened correctly. ▶ Check whether seals (e.g. Teflon tape) are provided on the pipe threaded connections and are undamaged. ▶ If no seals are used, use a suitable sealing material (e.g. Teflon tape) or renew the sealing material ▶ Clean the sealing surfaces and seal, provide the seal with a thin film of lubricant, replace the seal if necessary.
Medium leaking at the sensor or blind plug	Seals (O-rings) are insufficiently compressed, missing or damaged.	▶ Check whether the sensor or blind plug has been installed correctly. ▶ Check the presence of a thrust collar and seal on the sensor or the seal on the blind plug. ▶ Clean the sealing surfaces and seal, provide the seal with a thin film of lubricant, replace the seal if necessary.
Medium leaking at the service cap	Seal (O-ring) is insufficiently compressed, missing or damaged.	▶ Check whether the service cap has been tightened correctly. ▶ Retighten the service cap if it is loose. ▶ Check whether the seal in the service cap is present and is free from damage. ▶ Clean the sealing surfaces and seal, provide the seal with a thin film of lubricant, replace the seal if necessary.
Medium leaking at the PAL pin (option)	Damage to the seal (O-ring).	▶ Clean the sealing surfaces and seal, provide the seal with a thin film of lubricant, replace the seal if necessary.
Medium leaking due to damaged sealing surfaces or threads	Damage to assembly	▶ Contact Endress+Hauser Support.

Please contact Endress+Hauser Support if the problem cannot be rectified or if other errors occur.

9 Maintenance

⚠ WARNING

Risk of injury if medium escapes

- ▶ Before each maintenance task, ensure that the process pipe is empty and rinsed.
- ▶ The assembly may contain residual medium; please rinse thoroughly before commencing work.

9.1 Maintenance schedule

NOTICE

Risk of injury from high pressure, high temperature or chemical hazards if process medium escapes.

- ▶ Ensure that the process has stopped before you perform any maintenance tasks.
- ▶ Wear protective gloves, protective goggles and protective clothing.
- ▶ Mount or dismantle the assembly only when vessels or pipes are empty and unpressurized.

A maintenance log is recommended to adapt to the correct maintenance intervals.

The specified intervals serve as a guide. For harsh process or ambient conditions, it is recommended that the interval be shortened accordingly. Cleaning intervals for the sensor and assembly are dependent on the medium.

Following cleaning or replacement, apply a generous layer of silicone grease to the seals, see silicone grease kit 71573128.

Interval	Maintenance measures
During initial commissioning / when putting back into service after maintenance	▶ Check that all connections are sealed tightly: ▪ Pipe connections ▪ Service cap ▪ Blind plug
Regularly (Approx. 24 hours after initial commissioning/re-commissioning)	Visual inspection: ▶ Clean and lubricate the assembly depending on the dirt and deposits. ▶ Check that all connections are sealed tightly and retighten if necessary: ▪ Pipe connections ▪ Service cap, retighten where necessary ▪ Blind plug

Interval	Maintenance measures
Monthly	▶ Check that the measuring point is intact. ▶ Replace the seals if medium is escaping. 1. Remove the service cap. 2. Check the sensor for deposit buildup and damage. 3. If deposits are found: check the cleaning cycle (cleaning media, temperature, duration, flow rate). When process pressure is applied and cleaning is disabled, there should be no discharge of medium from the assembly's service cap or sensor and pipe connections. ▶ Check for defective process seal(s).
Biannually or Specify the maintenance interval as needed.	▶ Clean the assembly thoroughly. ▶ Remove any residual medium. ▶ Replace all seals in contact with the medium.

9.2 Maintenance tasks

9.2.1 Cleaning agent

⚠ WARNING

Organic solvents containing halogens

Limited evidence of carcinogenicity! Dangerous for the environment with long-term effects!

▶ Do not use organic solvents that contain halogens.

⚠ WARNING

Thiocarbamide

Harmful if swallowed! Limited evidence of carcinogenicity! Possible risk of harm to the unborn child! Dangerous for the environment with long-term effects!

▶ Wear protective goggles, protective gloves and appropriate protective clothing.
▶ Avoid all contact with the eyes, mouth and skin.
▶ Avoid discharge into the environment.

The most common types of soiling and the appropriate cleaning agents in each case are shown in the following table.

Pay attention to the material compatibility of the materials to be cleaned.

Type of soiling	Cleaning agent
Greases and oils	Hot water or tempered, surfactant-containing (basic) agents or water-soluble organic solvents (e.g. ethanol)
Limescale deposits, metal hydroxide buildup, lyophobic biological buildup	approx. 3% hydrochloric acid

Type of soiling	Cleaning agent
Sulfide deposits	Mixture of 3% hydrochloric acid and thiocarbamide (commercially available)
Protein buildup	Mixture of 3% hydrochloric acid and pepsin (commercially available)
Fibers, suspended substances	Pressurized water, possibly surface-active agents
Light biological buildup	Pressurized water

▶ Choose a cleaning agent to suit the degree and type of soiling.

9.2.2 Cleaning the assembly

⚠ WARNING

Risk of injury if medium escapes

- ▶ Before each maintenance task, ensure that the process pipe is empty and rinsed.
- ▶ The assembly may contain residual medium; please rinse thoroughly before commencing work.

Precondition:

Remove the service cap to clean the assembly and the installed sensors.

1. Remove deposits and dirt in the service cap
2. Remove light dirt and fouling with suitable cleaning solutions.
3. Remove stubborn dirt using a soft brush and a suitable cleaning agent.
4. For very persistent dirt, soak the parts in a cleaning solution. Then clean the parts with a brush.
5. Optional: remove the sensors and clean the sensor guide with a suitable brush.

9.2.3 Cleaning the sensor

⚠ WARNING

Risk of injury due to residual medium and elevated temperatures.

- ▶ When handling parts that are in contact with the medium, protect against residual medium and elevated temperatures.
- ▶ Wear protective goggles and safety gloves.

⚠ WARNING

Risk of injury if medium escapes when the cover is removed.

- ▶ Wear safety gloves and safety goggles
- ▶ When mounting again, make sure the seal is seated correctly.

The assembly has a service cap to clean and calibrate the sensors and assembly.

In event of minor deposit build-up:

1. Place the sensor in warm water.
2. Clean the sensor with a mild dishwashing detergent.

→ Documentation of the connected sensor

9.2.4 Replacing the seals

CAUTION

Risk of injury due to residual medium and elevated temperatures

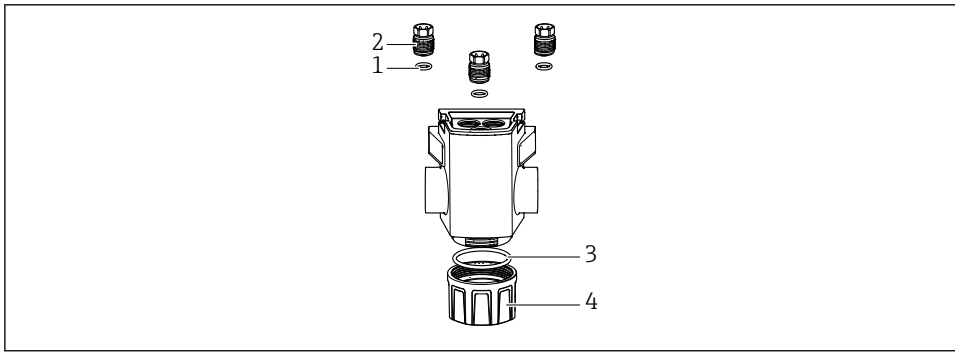
- When handling parts that are in contact with the medium, protect against residual medium and elevated temperatures. Wear protective goggles and safety gloves.

Preparatory steps

To replace the seals in the assembly, you must interrupt the process and remove the assembly completely.

1. Interrupt the process.
2. Remove the sensors.
3. Remove the assembly.
4. Clean the assembly.
5. Clean the sensor guides with a brush.

Replacing the seals



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1 Seal, blind plug
2 Blind plug
3 Seal, service cap
4 Service cap

1. Unscrew the blind plug (2) and service cap (4).
2. Remove the seals (1, 3); use an O-ring picker to do so.
3. Lubricate the new seals.
4. Insert the new seals (1, 3) into the assembly.
5. Seal the pipe connections and adapters with a suitable sealing material, e.g. PTFE tape.
6. Screw the blind plug (2) and service cap (4) back on.
7. Install the assembly in the process.
8. Install the sensors in the assembly.

9. Restart the process.

10 Repair

10.1 General information

The repair and conversion concept provides for the following:
- The product has a modular design
- Spare parts are grouped into kits which include the associated kit instructions
- Only use original spare parts from the manufacturer
- Repairs are carried out by the manufacturer's Service Department or by trained users
- Certified devices can only be converted to other certified device versions by the manufacturer's Service Department or at the factory
- Observe applicable standards, national regulations, Ex documentation (XA) and certificates

1. Carry out the repair according to the kit instructions.
2. Document the repair and conversion and enter, or have entered, in the Life Cycle Management tool (W@M).

▶ Following repairs, check that the device is complete, in a safe condition and functioning correctly.

10.2 Spare parts

Device spare parts that are currently available for delivery can be found on the website:

https://portal.endress.com/webapp/SparePartFinder

▶ Quote the serial number of the device when ordering spare parts.

10.3 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure the swift, safe and professional return of the device:

▶ Refer to the website www.endress.com/support/return-material for information on the procedure and conditions for returning devices.

10.4 Disposal

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.

11 Accessories

The following are the most important accessories available at the time this documentation was issued.

Listed accessories are technically compatible with the product in the instructions.

1. Application-specific restrictions of the product combination are possible.
   Ensure conformity of the measuring point to the application. This is the responsibility of the operator of the measuring point.
2. Pay attention to the information in the instructions for all products, particularly the technical data.
3. For accessories not listed here, please contact your Service or Sales Center.

11.1 Device-specific accessories

11.1.1 Sensors

pH sensors

Memosens CPS11E
- pH sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps11e

Technical Information TI01493C

Orbisint CPS11
- pH sensor for process technology
- With dirt-repellent PTFE diaphragm
- Product Configurator on the product page: www.endress.com/cps11

Technical Information TI00028C

Memosens CPS31E
- pH sensor for standard applications in drinking water and swimming pool water
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps31e

Technical Information TI01574C

Ceraliquid CPS41
- pH electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps41

Technical Information TI00079C

Memosens CPS41E
- pH sensor for process technology
- With ceramic junction and KCl liquid electrolyte
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps41e

Technical Information TI01495C

Memosens CPS61E
- pH sensor for bioreactors in life sciences and for the food industry
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps61e

Technical Information TI01566C

Memosens CPS71E
- pH sensor for chemical process applications
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps71e

Technical Information TI01496C

Ceragel CPS71
- pH electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps71

Technical Information TI00245C

Memosens CPS91E
- pH sensor for heavily polluted media
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps91e

Technical Information TI01497C

Orbipore CPS91
- pH electrode with hole junction for media with high dirt load
- Product Configurator on the product page: www.endress.com/cps91

Technical Information TI00375C

ORP sensors

Memosens CPS12E
- ORP sensor for standard applications in process and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps12e

Technical Information TI01494C

Orbisint CPS12
- ORP sensor for process technology
- Product Configurator on the product page: www.endress.com/cps12

Technical Information TI00367C

Memosens CPS42E
- ORP sensor for process technology
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps42e

Technical Information TI01575C

Ceraliquid CPS42
- ORP electrode with ceramic junction and KCl liquid electrolyte
- Product Configurator on the product page: www.endress.com/cps42

Technical Information TI00373C

Memosens CPS72E
- ORP sensor for chemical process applications
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps72e

Technical Information TI01576C

Ceragel CPS72
- ORP electrode with reference system including ion trap
- Product Configurator on the product page: www.endress.com/cps72

Technical Information TI00374C

pH-ISFET sensors

Memosens CPS47E
- ISFET sensor for pH measurement
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps47e

Technical Information TI01616C

Memosens CPS77E
- Sterilizable and autoclavable ISFET sensor for pH measurement
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps77e

Technical Information TI01396

Combined pH/ORP sensors

Memosens CPS16E
- pH/ORP sensor for standard applications in process technology and environmental engineering
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps16e

Technical Information TI01600C

Memosens CPS76E
- pH/ORP sensor for process technology
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps76e

Technical Information TI01601C

Memosens CPS96E
- pH/ORP sensor for heavily polluted media and suspended solids
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cps96e

Technical Information TI01602C

Conductivity sensors

Memosens CLS82E
- Hygienic conductivity sensor
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cls82e

Technical Information TI01529C

Oxygen sensors

Oxymax COS22E
- Sterilizable sensor for dissolved oxygen
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cos22e

Technical Information TI00446C

Oxymax COS22D / COS22
- Sterilizable sensor for dissolved oxygen
- With Memosens technology or as an analog sensor
- Product Configurator on the product page: www.endress.com/cos22d or www.endress.com/cos22

Technical Information TI00446C

Memosens COS81E
- Hygienic optical oxygen sensor with maximum measurement stability over multiple sterilization cycles
- Digital with Memosens 2.0 technology
- Product Configurator on the product page: www.endress.com/cos81e

Technical Information TI01558C

11.1.2 Process connections

- G1" to G1/2" female thread; Order No. 71604519
- G1" to G3/4" female thread; Order No. 71604521

11.1.3 Mounting accessories

Railing holder; Order No. 71573126

11.2 Service-specific accessories

- Splash cover; Order No. 71572887
- Service cap; Order No. 71573088
- Cover without PML; Order No. 71573103
- Cover with PML 316L/EPDM; Order No. 71573106
- Cover with PML titanium/EPDM; Order No. 71573116
- Cover with PML 316L/FKM; Order No. 71573119
- Cover with PML titanium/FKM; Order No. 71573121
- Blind plugs PG13.5; Order No. 71573122

11.2.1 Cleaning accessories

Cleaning brushes; Order No. 71573123

11.2.2 Seals

- EPDM seals; Order No. 71572882
- FKM seals; Order No. 71572884
- Silicone grease for seals; Order No. 71573128

12 Technical data

12.1 Environment

12.1.1 Ambient temperature range

-15 to +60 °C (5 to +140 °F)

12.1.2 Storage temperature

-15 to +60 °C (5 to +140 °F)

12.2 Process

Thermoplastics have temperature-dependent mechanical properties.

► Observe these properties when selecting components.

12.2.1 Process temperature range

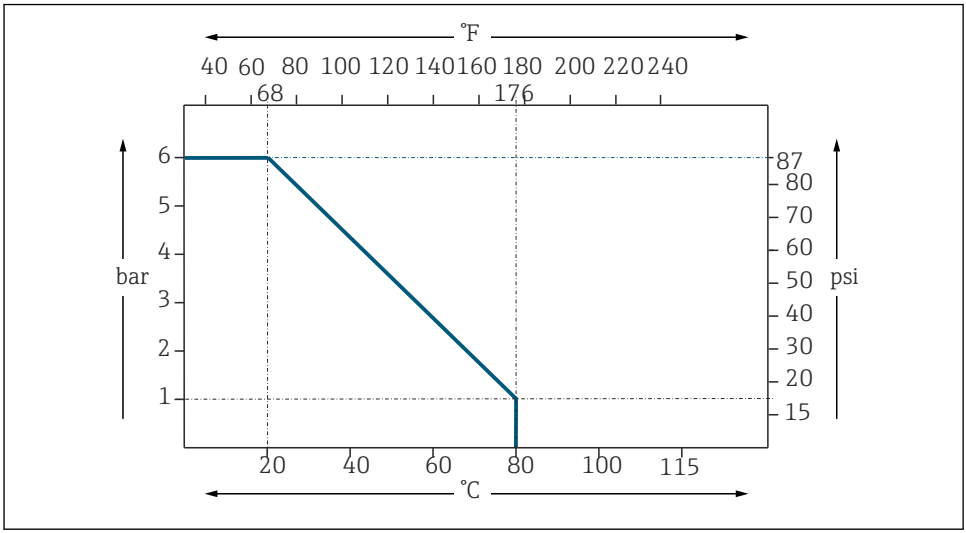
0 to 80 °C (32 to 176 °F)

12.2.2 Process pressure range

0 to 6 bar (0 to 87 psi) relative

Maximum pressure at up to 20°C (68°F)
6 bar (87 psi) gauge pressure

Maximum pressure at 80°C (176°F)
1 bar (14.5 psi) gauge pressure



10 Temperature/pressure ratings

12.2.3 Flow limit

Flow velocity

► Pay attention to limitations of the sensors.

Depending on the flow velocity, the zeta value of the assembly is between: 4.5 to 5.5

12.3 Mechanical construction

12.3.1 Design, dimensions

→ Section "Installation"

12.3.2 Weight

Approx. 0.8 kg (1.8 lbs)

12.3.3 Materials

Component	Material
Flow housing	PP
Service cap	PP
Splash cover	PP
Adapters	PP
Blind plug	PVDF
PAL option 1 (option 1 and 2 mutually exclude one another)	1.4404/316L
PAL option 2 (option 1 and 2 mutually exclude one another)	3.7035/ Ti Grade 2

12.3.4 Process connections

Depending on version:
- 2 x G1 (female)
- 2 x NPT 1" (female)

Optional adapters:
- G1" to G1/2" female thread
- G1" to G3/4" female thread

Seal is supplied by customer:
e.g. PTFE tape

12.3.5 Sensor connections

3x PG13.5

Supported shaft length

120 mm (4.72 in)

Maximum number of sensors installed

3 sensors possible, e.g.:
- 2 with Memosens connection
- 1 with KCl connection

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