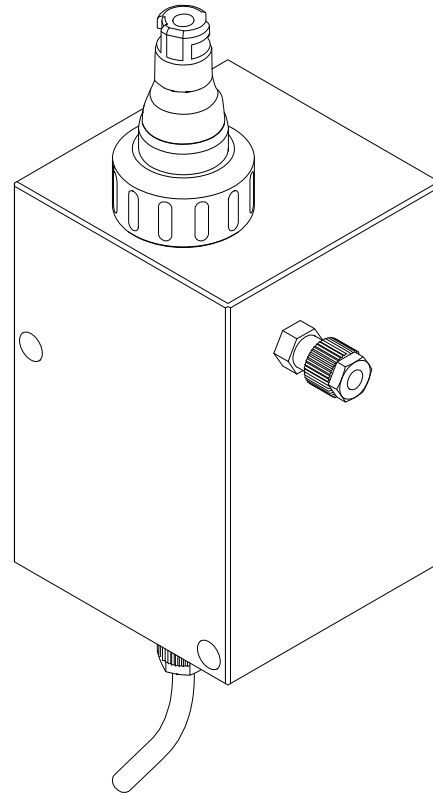
Operating Instructions
Flowfit CCA151

Flow assembly for disinfections sensors CCS5xD



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1 Document information

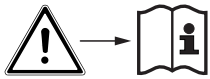
1.1 Warnings

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 used

Symbol	Meaning
	Additional information, tips
	Permitted or recommended
	Not permitted or not recommended
	Reference to device documentation
	Reference to page
	Reference to graphic
	Result of a step

1.2.1 Symbols on the device

Symbol	Meaning
	Reference to device documentation

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 Designated use

The flow assembly has been specially developed to hold the membrane-covered disinfection sensors CCS5xD.

Thanks to its design, it can be used in pressurized systems → 28.

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 Occupational safety

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

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.

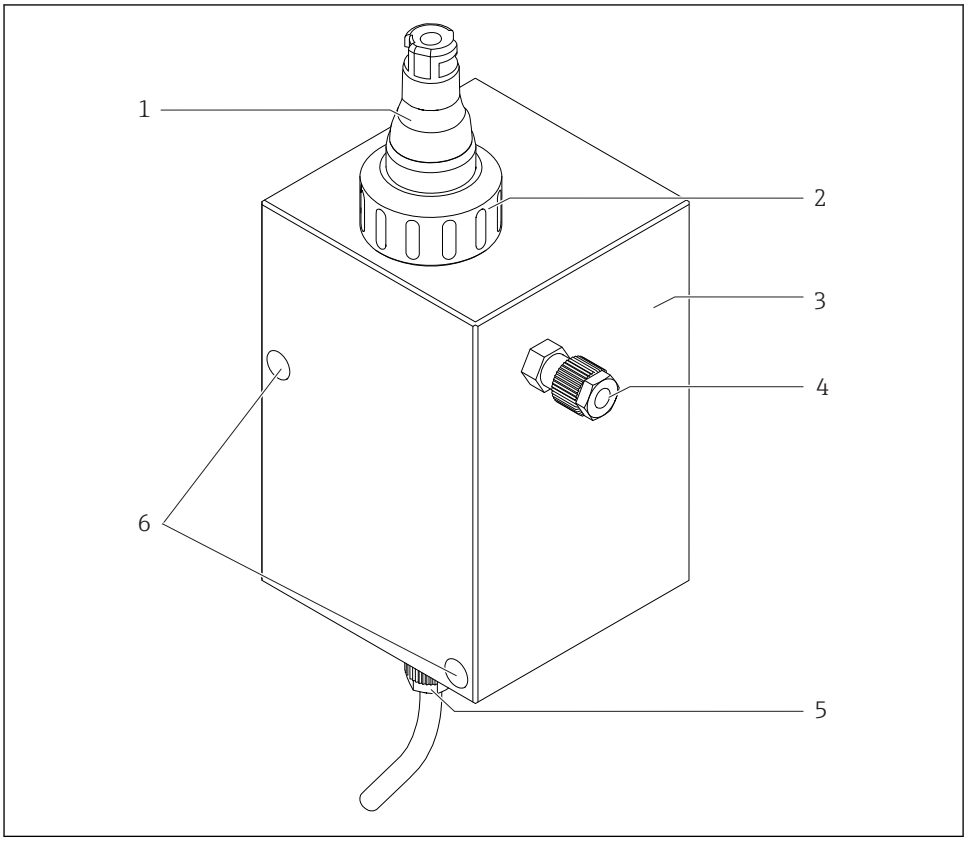
2.5 Product safety

2.5.1 State of the art

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 European standards have been observed.

3 Product description

3.1 Product design



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1 *Disinfection sensor CCS5xD (membrane-covered, Ø25 mm), e.g. CCS50D*
2 *Coupling nut (for securing a disinfection sensor)*
3 *Flowfit CCA151 flow assembly*
4 *Outlet from Flowfit CCA151 flow assembly (internal thread G 1/8") and hose connection*
5 *Inlet to Flowfit CCA151 flow assembly (internal thread G 1/8")*
6 *Openings (M5 Allen screw x 60) for securing Flowfit CCA151 flow assembly*

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 (→ Technical data).

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:
- Manufacturer identification
- Order code
- Extended order code
- Serial number
- Ambient and process conditions
- Safety information and warnings

▶ Compare the information on the nameplate with the order.

4.2.2 Product identification

Product page

www.endress.com/cca151

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. Open the product website.
2. At the bottom of the page, select the link **Online Tools** and then select **Access device specific information** .
   ↳ An additional window opens.
3. Enter the order code from the nameplate into the search field. Then select **Show details** .
   ↳ Details of each feature (selected option) of the order code are displayed.

Manufacturer address

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

Scope of delivery

The scope of delivery comprises:
- Assembly in the version ordered
- Operating Instructions

Certificates and approvals

RL 2014/34/EU (ATEX)
The assembly does not fall within the scope of the directive. However, if conditions for safe use are adhered to, it may be deployed in the hazardous area.

RL 2014/68/EU PED
The assembly was manufactured in accordance with Article 3, paragraph 3, Pressure Equipment Directive 97/23/EC in accordance with good engineering practice.

5 Installation

5.1 Installation conditions

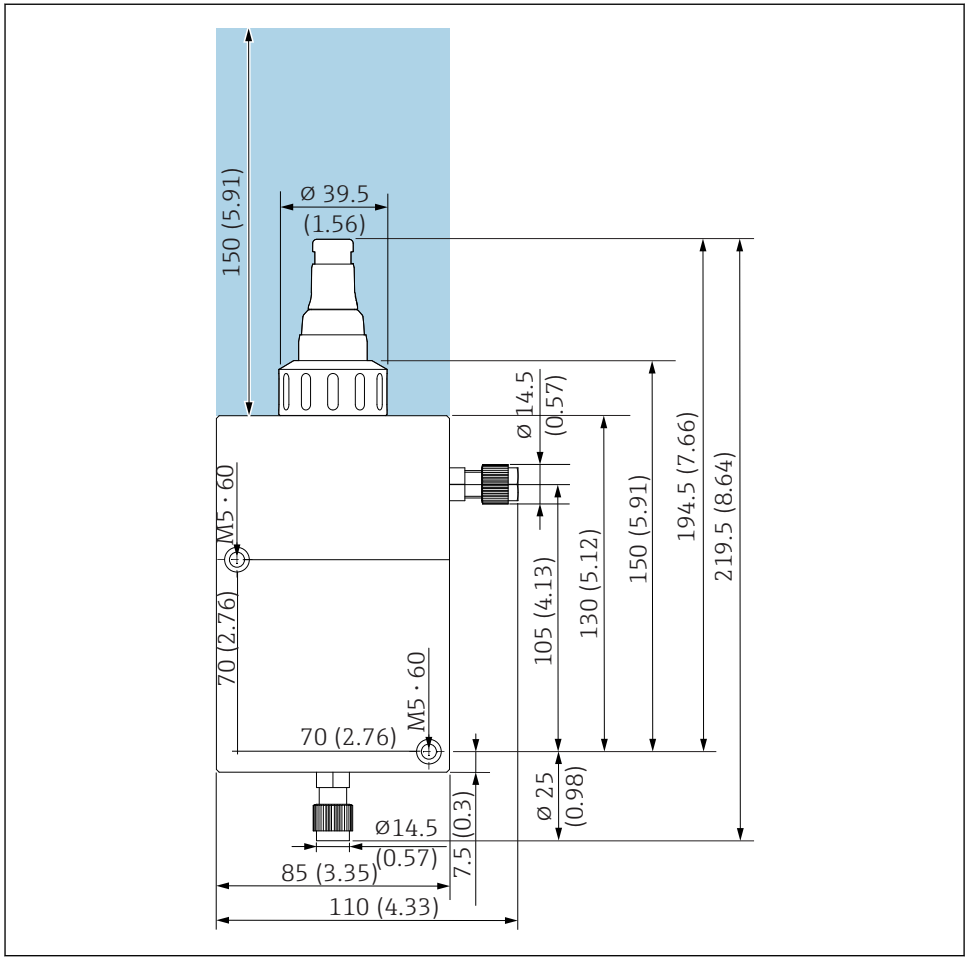
5.1.1 Installation position

The assembly is designed for installation on panels, walls or level surfaces. G 1/8" connections and a hose connection with an external diameter of 6 mm and an internal diameter of 4 mm are provided for this purpose.

The assembly is designed in such a way that it must be installed vertically.

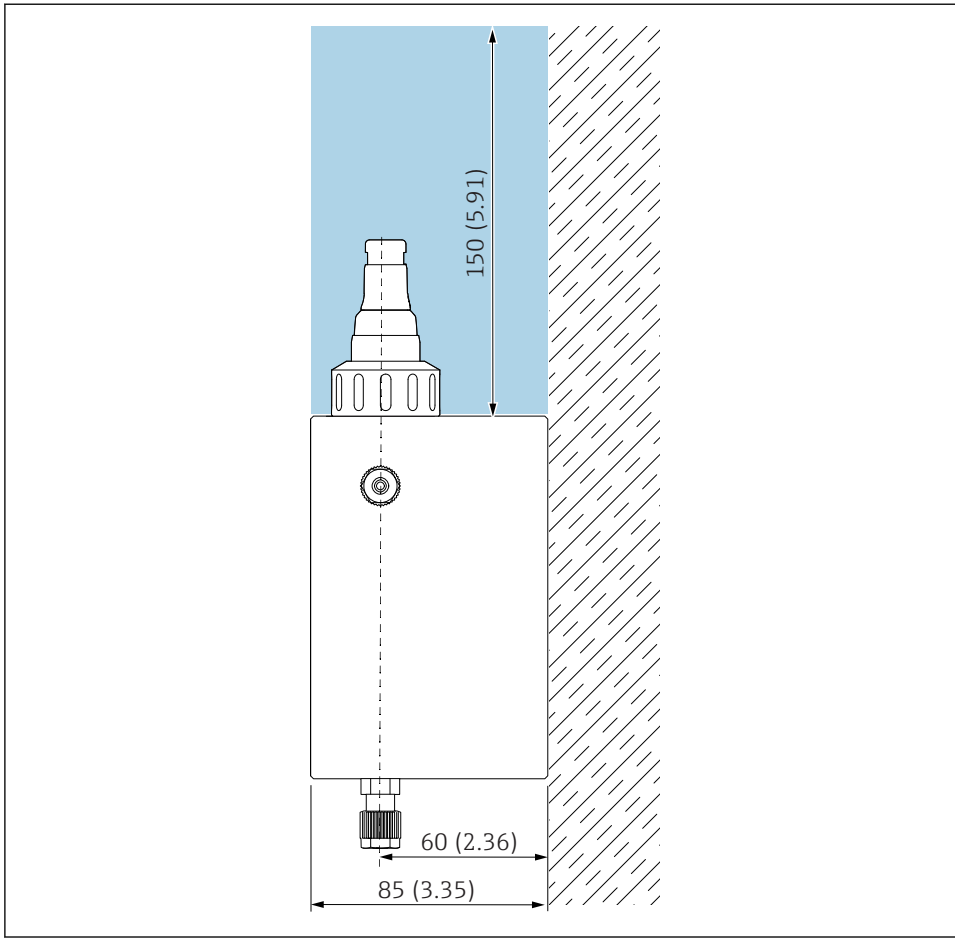
The sensor that is used can restrict the orientation.

5.1.2 Dimensions



1 Front view

To allow the sensor to be removed and for operation with Memosens data cables, the spacing required for mounting is 150 mm (5.91 in).



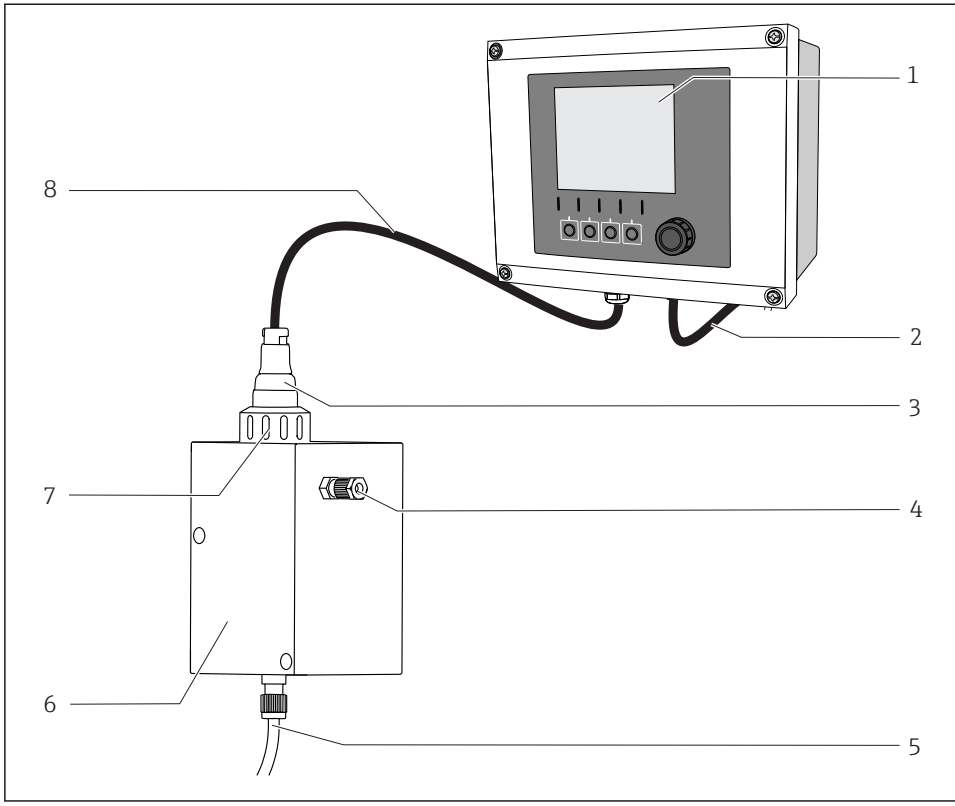
2 *Side view*

To allow the sensor to be removed and for operation with Memosens data cables, the spacing required for mounting is 150 mm (5.91 in).

5.2 Mounting the assembly

5.2.1 Measuring system

A complete measuring system comprises:
- Disinfection sensor CCS50D (membrane-covered, Ø25 mm) with corresponding installation adapter
- Flowfit CCA151 flow assembly
- Measuring cable CYK10
- Transmitter, e.g. Liquiline CM44x or CM44xR
- Optional: Extension cable CYK11



3 Example of a measuring system

1 *Transmitter Liquiline CM44x*
2 *Power cable for transmitter*
3 *Disinfection sensor CCS5xD (membrane-covered, Ø25 mm), e.g. CCS50D*
4 *Outlet from Flowfit CCA151 flow assembly*
5 *Inlet to Flowfit CCA151 flow assembly*
6 *Flowfit CCA151 flow assembly*
7 *Coupling nut for installing sensor CCS50D in Flowfit CCA151 flow assembly*
8 *Measuring cable CYK10*

5.2.2 Mounting assembly on a vertical surface

▶ To secure the assembly to a wall, use the wall mounting kit which can be ordered as an accessory→ 28.

For detailed information on mounting the assembly on a wall using the wall mounting kit, see kit instructions for wall mounting kit

5.2.3 Mounting assembly in the process

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 the assembly only if vessels or pipes are empty and unpressurized.

Prior to installation, check the flange seal between the flanges.

1. Mount assembly on vertical surface→ 15.
2. Connect to the vessel or pipe via the process connection.

Bypass operation

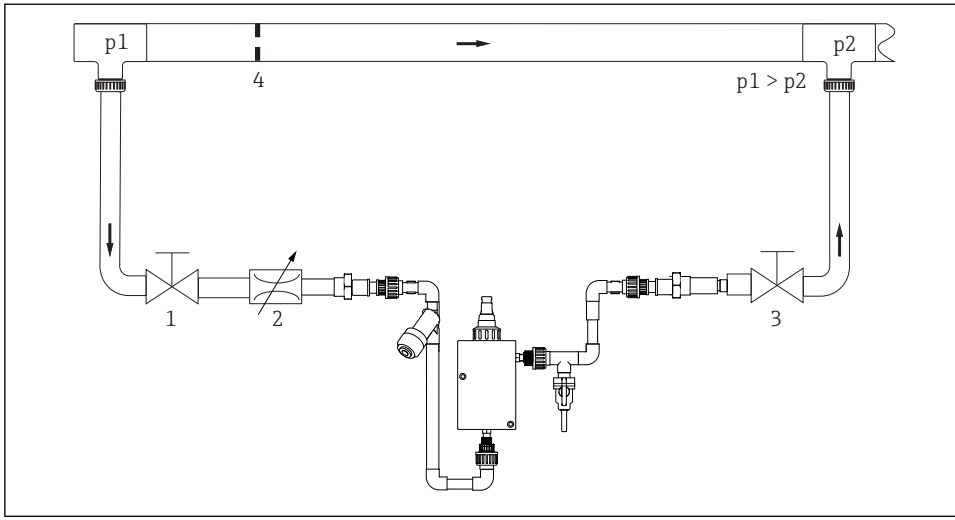
To achieve flow through the assembly with a bypass, pressure p1 must be higher than pressure p2.

This requires the installation of an orifice plate or throttle valve in the main pipe.

p1 must not exceed the permitted operating pressure for the assembly of 4 bar (58 psi).

If the sensor is installed, the sensor's pressure specifications must also be observed.

1. Mount the assembly vertically.
2. Connect the medium using the usual commercial connection fittings. Depending on requirements, use the usual sealing materials, e.g. PMMA-compatible thread adhesive, Teflon tape or O-ring made of FKM.
3. Installing the assembly in the bypass is preferable to installing it directly in the process line. The bypass line can be blocked off without interrupting the process (a shut-off valve is required upstream and downstream). This allows, for example, the sensor to be cleaned without restricting the process.
4. Install a dirt trap (filter) with a mesh size of 500 µm upstream from the assembly. If a pressure-reducing valve is used, it usually includes a dirt trap.
5. Set flow value upstream from the assembly, e. g. by installation of a flow setting.
6. Install a DN5-8 tap downstream from the assembly outlet to allow samples to be taken for reference measurements in accordance with the DPD method.



4 *Connection example with bypass and orifice plate in the main pipe*

1 *Shut-off valve (provided by customer)*
2 *Pressure-reducing valve (at p1 > 4 bar (58 psi)) (provided by customer)*
3 *Shut-off valve (provided by customer)*
4 *Orifice plate in process line (provided by customer)*

Open outlet operation

p must not exceed the permitted operating pressure for the assembly of 4 bar (58 psi).

If the sensor is installed, the sensor's pressure specifications must also be observed.

If the medium pressure is above 4 bar (58 psi), a pressure-reducing valve is required.

1. Mount the assembly vertically.
2. Connect the medium using the usual commercial connection fittings. Depending on requirements, use the usual sealing materials, e.g. PMMA-compatible thread adhesive, Teflon tape or O-ring made of FKM.
3. Installing the assembly in the bypass is preferable to installing it directly in the process line. The bypass line can be blocked off without interrupting the process (a shut-off valve is required upstream and downstream). This allows, for example, the sensor to be cleaned without restricting the process.
4. Install a dirt trap (filter) with a mesh size of 500 µm upstream from the assembly. If a pressure-reducing valve is used, it usually includes a dirt trap.
5. Set flow value upstream from the assembly, e. g. by installation of a flow setting.
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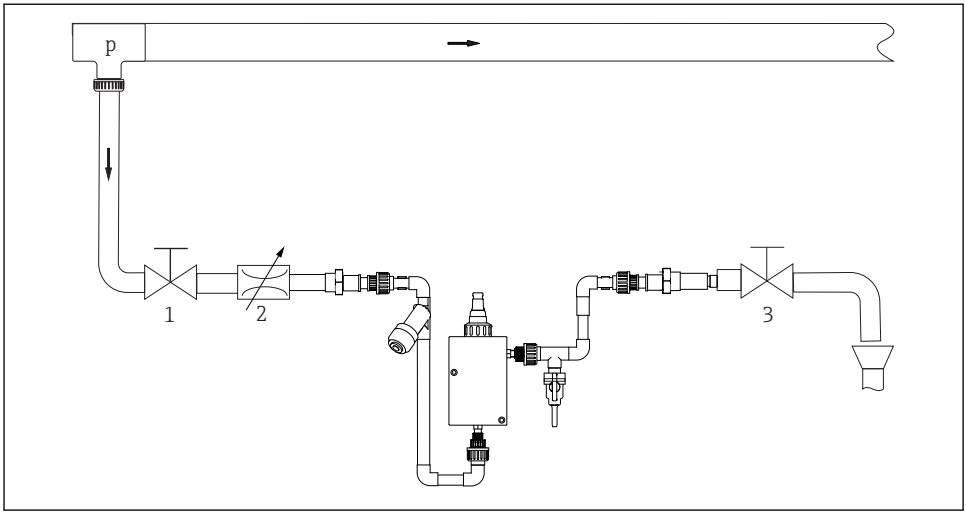


5 Connection example with open outlet

1 Shut-off valve (provided by customer)
2 Pressure-reducing valve (at p > 4 bar (58 psi)) (provided by customer)
3 Shut-off valve (provided by customer)

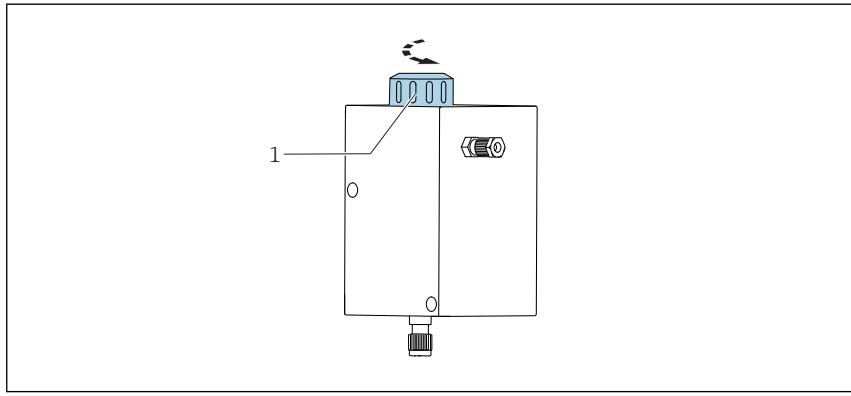
5.3 Installing sensor in assembly

The CCS50D disinfection sensor (membrane-covered, Ø25 mm) is designed for installation in the Flowfit CCA151 flow assembly.

Please note the following during installation:
- The flow rate must be at least 5 l/h (1.32 gal/h).
- If the medium is fed back into an overflow basin, pipe or similar, the resulting counterpressure on the sensor may not exceed 1 bar (14.5 psi) and must remain constant.
- Negative pressure at the sensor, e.g. due to medium being returned to the suction side of a pump, must be avoided.

Preparing assembly

1. The assembly is supplied to the customer with a coupling nut screwed onto the assembly: unscrew coupling nut from assembly.



6 Flowfit CCA151 flow assembly

1 Thread adapter nut

2. The assembly is supplied to the customer with a dummy plug inserted in the assembly: remove dummy plug from assembly.

Removing protection cap from sensor

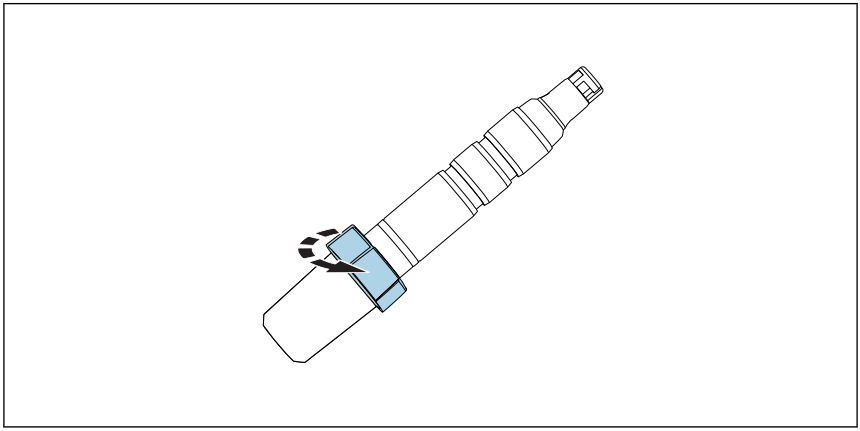
NOTICE

Negative pressure causes damage to the sensor's membrane cap.

▶ If the protection cap is attached, carefully remove protection cap from sensor.

1. When supplied to the customer and when in storage, the sensor is fitted with a protection cap: First release just the top part of the protection cap by turning it.

↳



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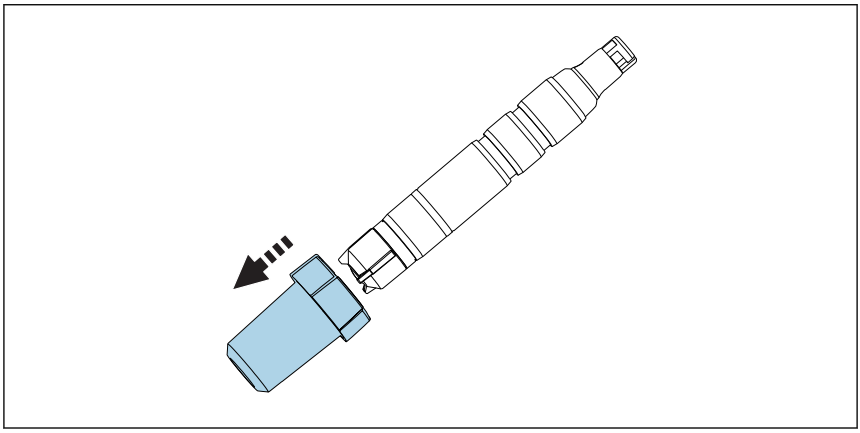
7 Releasing top part of protection cap by turning

2. Carefully remove protection cap from sensor.

↳



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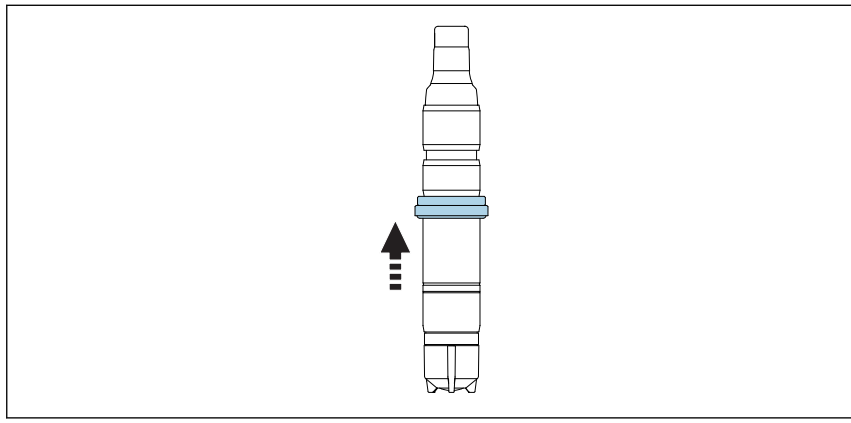
8 Carefully remove protection cap.

Fit the adapter to the sensor.

The required adapter (clamping ring) can be ordered as a sensor accessory or as a separate accessory.

1. Slide the adapter for CCA151 (clamping ring) from the membrane cap towards the sensor head and into the lower groove.

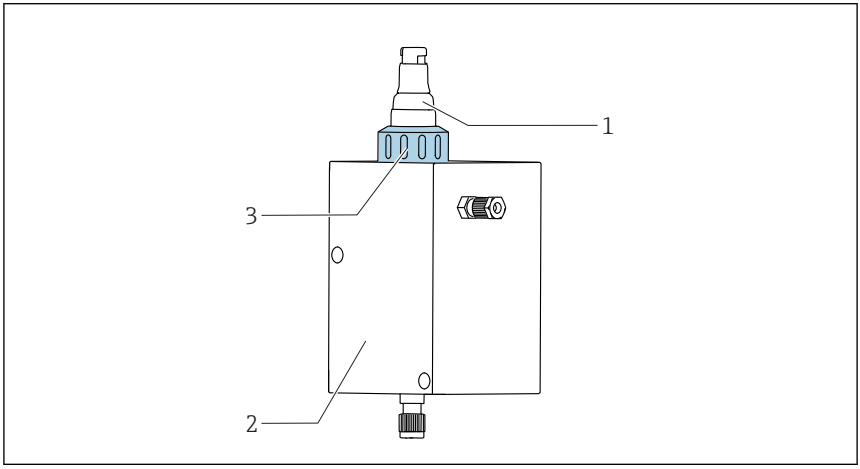


9 Slide the adapter (clamping ring) upwards from the membrane camp to the senor shaft and into the lower groove.

Installing sensor in assembly

2. Slide the sensor with adapter for CCA151 (clamping ring) into the opening in the assembly.

3. Screw coupling nut onto assembly on block.



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1 Disinfection sensor CCS50D
2 Flowfit CCA151 flow assembly
3 Coupling nut for securing a CCS50D disinfection sensor

5.4 Post-installation check

1. After mounting, check all connections to ensure they are fully secured and leak-tight.
2. Check all hoses for damage.

6 Commissioning

Prior to commissioning, ensure that:
- all seals are correctly seated (on the assembly and on the process connection)
- the sensor is correctly installed and connected

⚠ 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 sealed.

7 Maintenance

WARNING

Risk of injury if medium escapes

- ▶ Before each maintenance task, ensure that the process pipe is empty and rinsed.

7.1 Maintenance schedule

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.

Interval	Maintenance work
Monthly	▶ Verify that process connections are leak-tight.
	1. Remove sensor and check for deposits. 2. If deposits are present, check cleaning cycle (cleaning agents, temperature, duration, flow volume).
Biannually	▶ Replace seals in contact with medium.

7.2 Maintenance tasks

To ensure stable and reliable measurements, the assembly and the sensor must be cleaned regularly. The frequency and intensity of the cleaning process depend on the medium.

7.2.1 Cleaning the assembly

A typical example of a cleaning interval would be 6 months in the case of drinking water.

1. All parts in contact with the medium, such as the sensor and the sensor guide, must be cleaned regularly. To do so, remove the sensor → 26.
2. Remove light dirt and fouling using a cloth moistened with suitable cleaning solutions.
3. Remove heavy soiling 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.

Cleaning agent

The choice of cleaning agent depends on the degree and type of contamination. The most common types of contamination and the appropriate cleaning agents can be found in the following table.

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

NOTICE

Health hazard due to solvents

- ▶ Do not use any halogen-containing, organic solvents or acetone. These solvents may destroy plastic components of the sensor and are also suspected carcinogens (e.g. chloroform).

NOTICE

Damage to sensor membrane

- ▶ The sensor membrane must not come into contact with surfactant-containing agents.

7.2.2 Cleaning the sensor

Cleaning the sensor

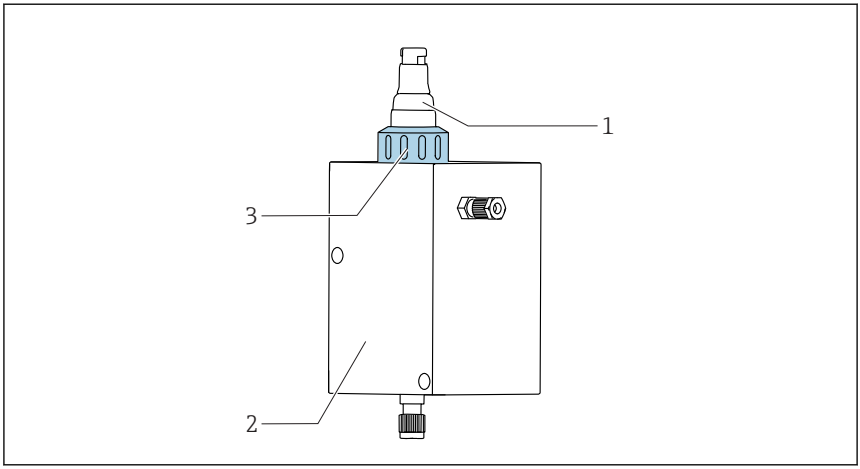
1. Prior to calibration if dirt is visible on the surface
2. Regularly during operation
3. Before returning it for repairs

For detailed information on "Cleaning the sensor", see Operating Instructions for sensor.

7.2.3 Removing sensor from assembly

Remove sensor from assembly CCA151

1. Unscrew coupling nut from assembly.



1 Disinfection sensor CCS50D
2 Flowfit CCA151 flow assembly
3 Coupling nut for securing a CCS50D disinfection sensor

2. Pull sensor out through opening in assembly.

8 Repairs

⚠ WARNING

Danger resulting from improper repair

- ▶ Damage to the assembly, which compromises pressure safety, must be repaired only by authorized and qualified personnel.
- ▶ Following each repair and maintenance task, the assembly must be checked for leaks using appropriate procedures. Following this, the assembly must again comply with the specifications in the technical data.

Replace all other damaged components immediately.

8.1 Spare parts

For more detailed information on spare parts kits, please refer to the "Spare Part Finding Tool" on the Internet:

www.endress.com/spareparts_consumables

Description and contents	Order No.
Kit CCA151, complete with blind plug ▪ Blind plug with O-ring ▪ Screw plug	71372020

8.2 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.

8.3 Disposal

The device contains electronic components. and must therefore be disposed of in accordance with regulations on the disposal of electronic waste.

- ▶ Observe the local regulations.

9 Accessories

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

▶ For accessories not listed here, please contact your Service or Sales Center.

9.1 Device-specific accessories

9.1.1 Disinfection sensor

CCS50D
- Membrane-covered amperometric sensor for chlorine dioxide
- With Memosens technology
- Product Configurator on the product page: www.endress.com/ccs50d

Technical Information TI01353C

9.1.2 Wall mounting kit

Wall mounting kit for CCA151
Order No. 71372109

10 Technical data

10.1 Environment

10.1.1 Ambient temperature range

-20 to +60 °C (-4 to 140 °F)

10.1.2 Storage temperature

-20 to +60 °C (-4 to 140 °F)

10.2 Process

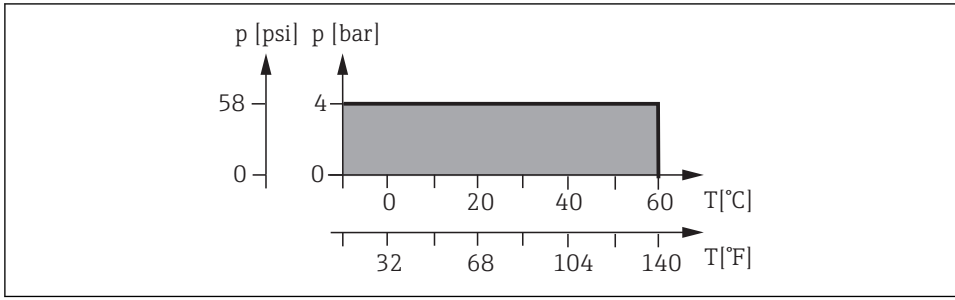
10.2.1 Process temperature

0 to 60 °C (32 to 140 °F), non-freezing

10.2.2 Process pressure

0 to 4 bar (0 to 58 psi) relative

10.2.3 Pressure-temperature ratings



10 Pressure-temperature ratings

10.2.4 Process connections

G1/8"

Hose specification: External diameter 6 mm, internal diameter 4 mm

10.2.5 Flow

remains stable for a minimum of 5 l/h (1.32 gal/hr) when using 25 mm (0.98 in) disinfection sensors with approx. 77 mm (3.03 in) immersion depth

10.3 Mechanical construction

→ 12

10.3.1 Weight

1.077 kg (2.37 lbs)

10.3.2 Materials

In contact with medium	
Assembly:	PMMA
Seals:	PVDF
Dummy plug:	PVC, FKM

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