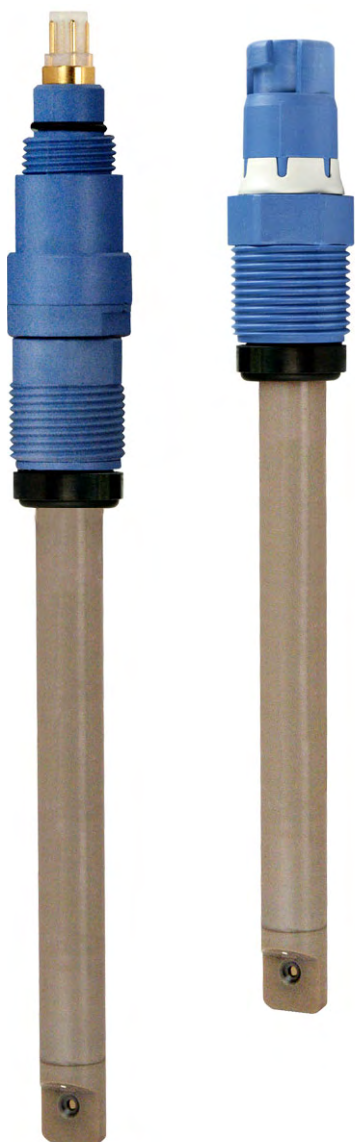
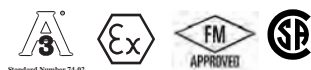


Technical Information

Tophit CPS471 and CPS471D

Sterilizable and autoclavable ISFET sensor for the pH measurement
Analog or digital sensors with Memosens technology



Application

- Hygienic and sterile applications
- Food industry and pharmaceutical industry
- Biotechnology

With ATEX, FM and CSA approval for application in hazardous areas

Your benefits

- Resistant to breaking
 - Sensor body made completely of PEEK
 - Direct installation into the process, reduces effort and costs for sampling and laboratory analysis
- Certified biocompatibility
- Double-chamber reference system:
 - poisoning resistant
 - polyacrylamide free gel
- Application possible at low temperatures
 - Short response time
 - Constantly high accuracy
- Sterilisable and autoclavable
- Longer calibration intervals than glass electrodes
 - Lower hysteresis with alternating temperatures
 - Low measuring error after high-temperature loading
 - Almost no acid and alkaline errors
- With built-in temperature sensor for effective temperature compensation
- Ideal for CIP processes when combined with an automatic retractable assembly

Further benefits offered by Memosens technology

- Maximum process safety through contactless inductive signal transmission
- Data safety through digital data transmission
- Easy handling due to storage of sensor-specific data
- Predictive maintenance possible thanks to registration of sensor load data

Performance characteristics

Response time

< 5 s
for buffer change from pH 4 to pH 7 under reference operating conditions



Note!
The response of the integrated temperature sensor can be slower with extreme temperature changes.

Reference operating conditions

Reference temperature: 25 °C (77 °F)
Reference pressure: 1013 mbar (15 psi)

Maximum measured error

pH: ± 0.2 % of measuring range
Temperature: Class B acc. to DIN / IEC 751

Repeatability

± 0.1 % of measuring range

Start-up drift

Everytime when switching on the measuring device a control loop is set up. During this time the measured value moves to the true value.

The settling time depends on the kind of interruption and the interruption time:

- Supply voltage interruption, sensor left in medium: approx. 3 to 5 minutes
- Interruption of the fluid film between pH sensitive ISFET and reference lead: approx. 5 to 8 minutes
- Longer dry storage of the sensor: up to 30 minutes

Installation

Installation angle

ISFET sensors can be installed in any position, as there is no liquid internal lead. However, in case of an overhead installation, a possible air cushion²⁾ in the reference system might interrupt the electrical contact between the medium and the diaphragm.

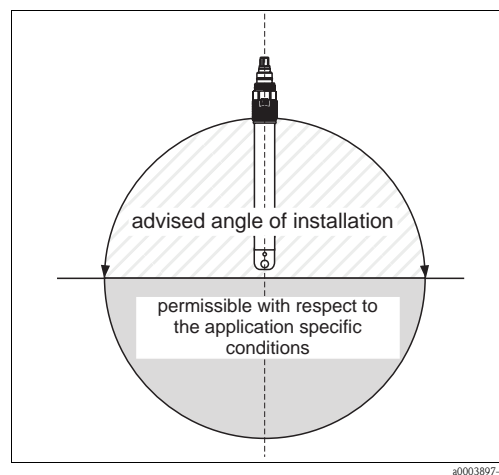



Fig. 10: Angle of installation



- Note!
- The installed sensor may be held under dry conditions for maximum 6 hours (also applies to overhead installation).
 - Make sure you comply with the instructions in the operating instructions for the assembly used.

2) The sensor is delivered without air cushions. Air cushion formation is possible in case of working with vacuum, e.g. cleaning out of tanks.

Sensor orientation

When installing the sensor, note the flow-past direction of the medium. The ISFET chip should be fixed at an angle of approx 45° to the flow-past direction (→  12). Fixing at the correct angle is very easy because of the rotatable plug-in head.

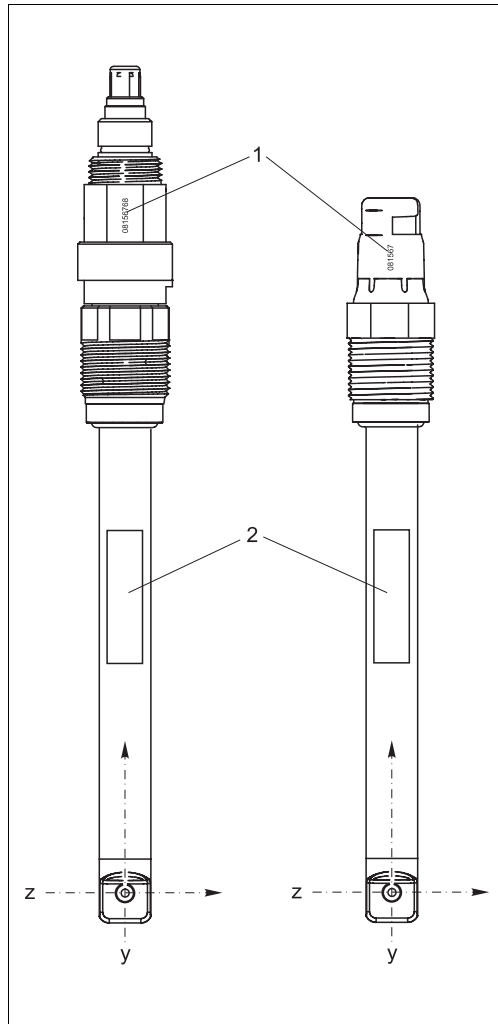


Fig. 11: Sensor orientation, front view

- 1 Serial number
- 2 Nameplate

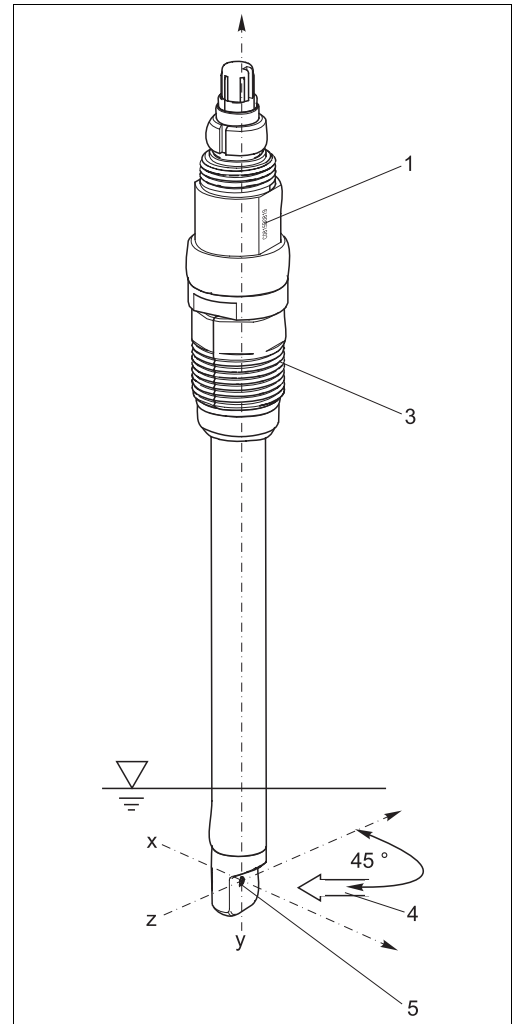



Fig. 12: Sensor orientation, 3d view

- 1 Serial number
- 3 rotatable part of the connection head
- 4 Medium flow-past direction
- 5 ISFET chip

When installing the sensor in an assembly, use the engraved serial number on the connection head for correct sensor orientation. The serial number is always located in the same plane as the ISFET chip and the nameplate (z-y-direction, →  11).

Mechanical construction

Design, dimensions

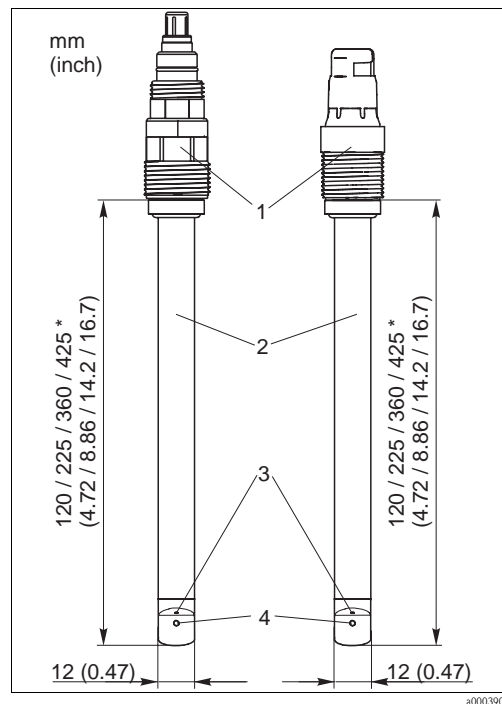


Fig. 15: Tophit CPS471

* depending on the sensor version

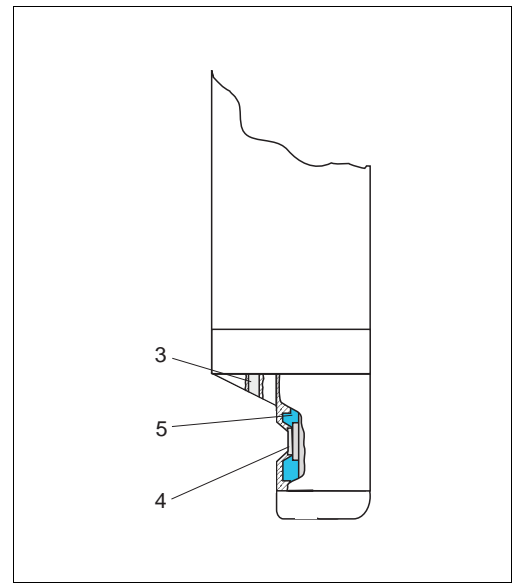


Fig. 16: Sensor head

- 1 Plug-in head
- 2 Sensor shaft
- 3 Reference electrode
- 4 ISFET chip
- 5 Seal (EPDM)

Weight 0.1 to 0.5 kg (0.2 to 1.1 lbs), depending on the sensor version

Material

Sensor shaft	PEEK (FDA, 3-A)
Seals	EPDM (FDA, 3-A)
Diaphragm	Ceramics

Process connection Pg 13.5

Surface roughness $R_a < 0.8 \mu\text{m}$ (31.5 μin)

Temperature sensor Pt 1000 (class B acc. to DIN IEC 751)

Plug-in head

CPS471:

- ESB; TOP68, rotatable

CPS471D:

- Memosens, rotatable

Diaphragm Ceramics, sterilizable

Ordering information

PEEK ISFET sensor for glass free pH measurement

- For hygienic applications (pharmaceuticals, biotechnology and food), EHEDG/3A/FDA certified
- Integrated Pt 1000 temperature sensor
- Double chamber reference system with poisoning resistant gel
- Polyacrylamide free gel and ceramics diaphragm
- Overhead installation possible
- Sealing material: EPDM
- Application range: pH 0 to 14, -15 to 135 °C (5 to 275 °F)
- For Ex and Non-Ex applications

Product structure CPS471

		Shaft length	
	2	120 mm	(4.72 in)
	4	225 mm	(8.86 in)
	5	360 mm	(14.2 in)
	6	425 mm	(16.7 in)
		Plug-in head	
	ESB	Threaded plug-in head, Pg 13.5, TOP68 rotatable	
		Options	
	1	Chip sealing: EPDM, hygienic	
CPS471-			complete order code

Product structure CPS471D

		Version	
	7	Basic version	
		Shaft length	
	2	120 mm	(4.72 in)
	4	225 mm	(8.86 in)
	5	360 mm	(14.2 in)
	6	425 mm	(16.7 in)
		Additional option	
	1	EPDM, hygienic version	
		Approval	
	G	ATEX II 1G EEx ia IIC T3/T4/T6	
	1	Non-hazardous location	
CPS471D-			complete order code

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