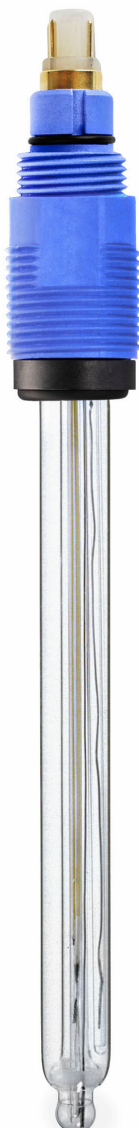




Technical Information

Orbitex W CPS21

pH sensors with open ring junction for wastewater technology



Application

- Municipal wastewater
- Electroplating wastewater
- Wastewater from metal processing plants

Your benefits

- Resistant to blocking media, quick response time and reliable measurement thanks to open ring junction
- Can be used under pressures up to 6 bar (87 psi) without counterpressure thanks to solid Polytex electrolyte
- Long service life due to optimized diffusion path of 180 mm (7.09 in) and thus a long poison diffusion path of the reference system
- TOP68/ESA plug-in head, water proof (IP 68)

Function and system design

Measuring principle

pH measurement

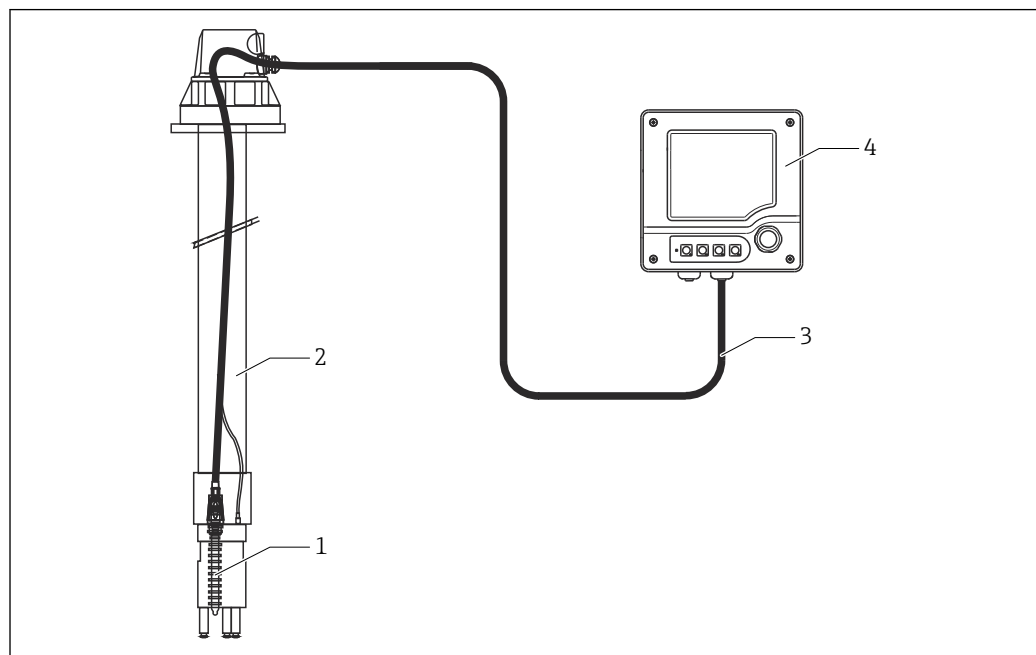
The pH value is used as a unit of measurement for the acidity or alkalinity of a medium. The membrane glass of the sensor supplies an electrochemical potential depending on the pH value of the medium. This potential is generated by the selective accumulation of H^+ ions on the outer layer of the membrane. As a result, an electrochemical boundary layer with an electrical potential difference forms at this point. An integrated Ag/AgCl reference system serves as the required reference electrode.

The measured voltage is converted to the corresponding pH value using the Nernst equation.

Measuring system

A complete measuring system comprises:

- CPS21 pH sensor
- Transmitter, e.g. Liquiline CM42
- Measuring cable, e.g. CPK9
- Immersion or flow assembly, e.g. Dipfit CPA111



A0047487

 1 Measuring system for pH measurement

1 CPS21 pH sensor

2 Dipfit CPA111 immersion assembly

3 CPK9 measuring cable for sensors with TOP68 plug-in head

4 Liquiline CM42 transmitter

Input

Measured variables

pH value

Temperature

Measuring range

- pH: 2 to 12
- Temperature: -15 to 60 °C (5 to 140 °F)

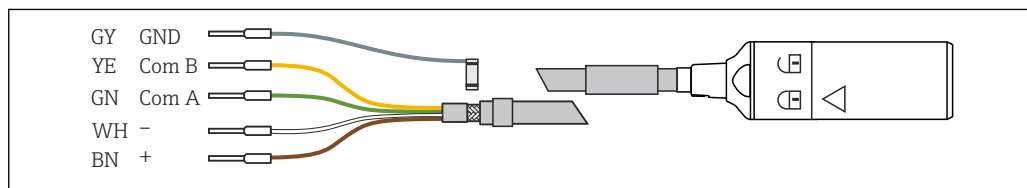


Pay attention to the operating conditions in the process.

Energy supply

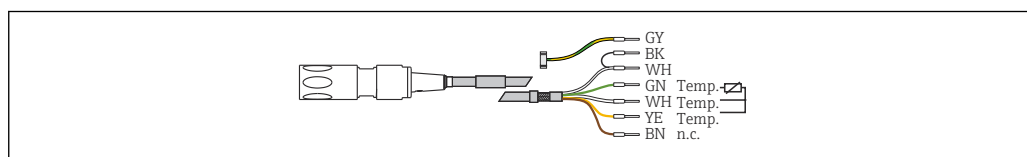
Electrical connection

Memosens sensors



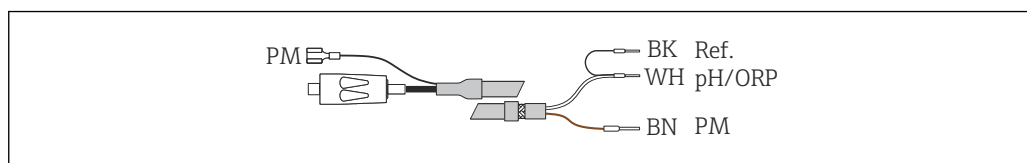
2 Measuring cable CYK10 or CYK20

Sensors with TOP68 plug-in head



3 Measuring cable CPK9

Sensors with GSA plug-in head



4 Measuring cable CPK1

- Please follow the connection instructions contained in the Operating Instructions for the transmitter.

Installation

Installation instructions

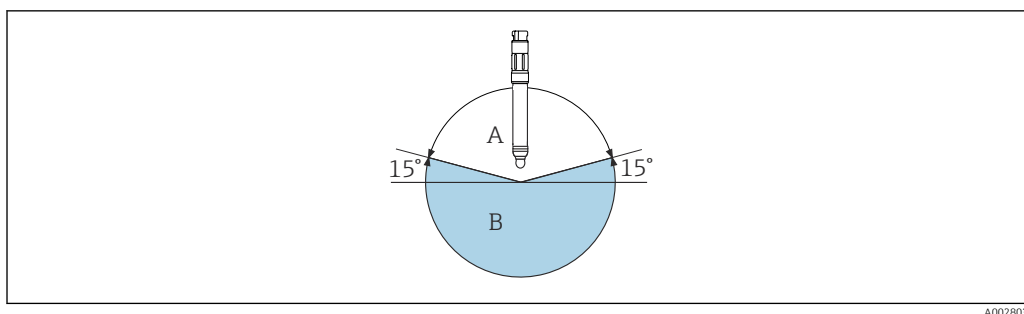
- Do not install the sensors upside-down.
- The angle of inclination from the horizontal must be at least 15°.

NOTICE

Angle of inclination of the sensor less than 15°

An air bubble forms in the glass bulb and there is then no guarantee that the pH membrane is completely covered with inner electrolyte!

- Select the installation angle of the sensor so that it does not drop below 15°.



A0028039

 5 Installation angle at least 15° from the horizontal

A Permitted orientation

B Incorrect orientation



Follow the Operating Instructions for the assembly used for detailed information on installing the assembly.

1. Before screwing in the sensor, make sure the assembly thread, the O-rings and the sealing surface are clean and undamaged and that the thread runs smoothly.
2. Hand-tighten the sensor with a torque of 3 Nm (2.21 lbf ft) (Only applies when installing in Endress+Hauser assemblies).

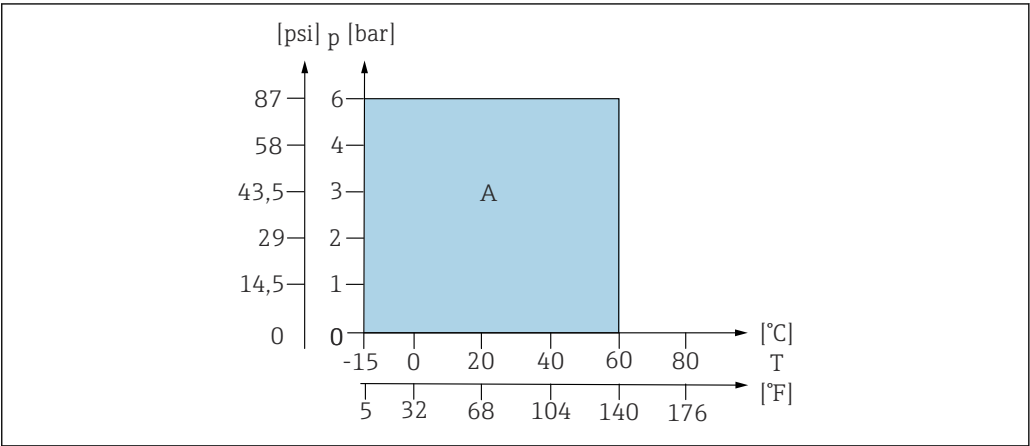
Environment

Operating temperature range	NOTICE Risk of damage from frost! ► Do not use the sensor at temperatures below -15 °C (5 °F) .
Storage temperature	0 to 50 °C (32 to 122 °F)
Degree of protection	IP 67: GSA plug-in head (with closed connector system) IP 68: TOP68 plug-in head, up to 135 °C (275 °F) (1 m (3.3 ft)) water column, 50 °C (122 °F), 168 h)
Electromagnetic compatibility (EMC)	Interference emission and interference immunity as per EN 61326: 2012

Process

Process temperature range	-15 to 60 °C (5 to 140 °F)
Process pressure range	0 to 6 bar (0 to 87 psi)
Conductivity	Min. 500 µS/cm

Pressure/temperature ratings



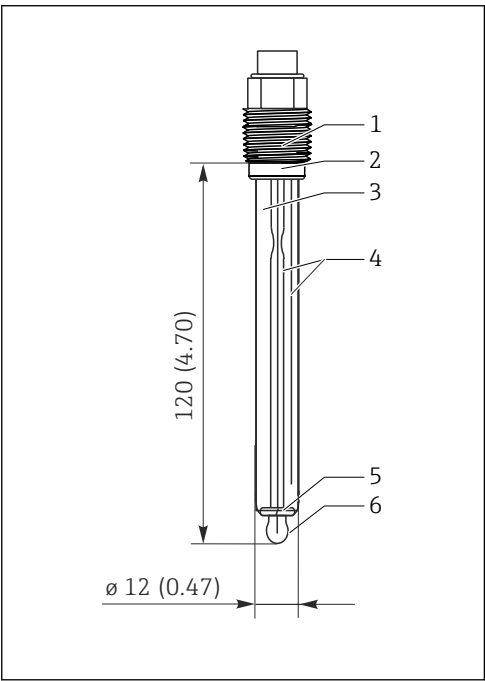
A0047490

6 Pressure/temperature rating

- A Application A
- B Atmospheric pressure

Mechanical construction

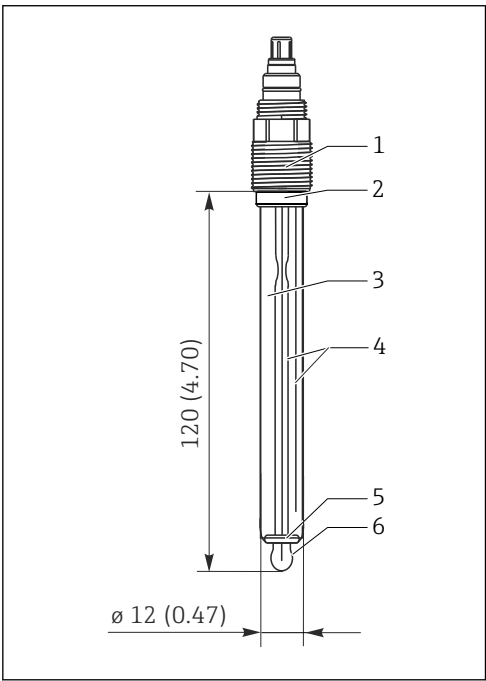
Design, dimensions



A0047488

7 CPS21 with GSA plug-in head

- 1 GSA plug-in head, Pg 13.5
- 2 Viton O-ring with thrust collar
- 3 Solid "Polytex" electrolyte
- 4 Ag/AgCl reference system
- 5 Open ring junction
- 6 pH glass membrane



A0047489

8 CPS21 with TOP68 plug-in head

- 1 TOP68 plug-in head, Pg 13.5
- 2 Viton O-ring with thrust collar
- 3 Solid "Polytex" electrolyte
- 4 Ag/AgCl reference system
- 5 Open ring junction
- 6 pH glass membrane

Weight

0.1 kg (0.2 lb)

Materials

Electrode shaft:
pH membrane glass:

Glass to suit process
Type A

Metal lead:	Ag/AgCl
Diaphragm:	Open ring junction

Temperature sensor

Plug-in head	ESA:	Threaded plug-in head Pg 13.5, TOP68, 16 bar (232 psi) overpressure protection (threefold)
	GSA:	Threaded plug-in head Pg 13.5

Process connections	Pg 13.5
----------------------------	---------

Reference system	Ag/AgCl with Polytex gel 3M KCl, AgCl-free
-------------------------	--

Certificates and approvals

Current certificates and approvals that are available for the product can be selected via the Product Configurator at www.endress.com:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select **Configuration**.

Ordering information

Product page	www.endress.com/cps21
---------------------	--

Product Configurator	1. Configure: Click this button on the product page. 2. Select Extended selection. ↳ The Configurator opens in a separate window. 3. Configure the device according to your requirements by selecting the desired option for each feature. ↳ In this way, you receive a valid and complete order code for the device. 4. Apply: Add the configured product to the shopping cart.
	 For many products, you also have the option of downloading CAD or 2D drawings of the selected product version. 5. Show details: Open this tab for the product in the shopping cart. ↳ The link to the CAD drawing is displayed. If selected, the 3D display format is displayed along with the option to download various formats.

Scope of delivery	The scope of delivery comprises: ■ Ordered version of the sensor ■ Operating Instructions ■ Safety instructions for the hazardous area (for sensors with Ex approval) ■ Supplementary sheet for optionally ordered certificates
--------------------------	---

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.

Assemblies
Dipfit CPA111

- Immersion and installation assembly made of plastic for open and closed vessels
- Product Configurator on the product page: www.endress.com/cpa111



Technical Information TI00112C

Dipfit CPA140

- pH/ORP immersion assembly with flange connection for very demanding processes
- Product Configurator on the product page: www.endress.com/cpa140



Technical Information TI00178C

Flowfit CPA240

- pH/ORP flow assembly for processes with stringent requirements
- Product Configurator on the product page: www.endress.com/cpa240



Technical Information TI00179C

Flowfit CYA27

- Modular flow assembly for multiparameter measurements
- Product Configurator on the product page: www.endress.com/cya27



Technical Information TI01559C

Ecofit CPA640

- Set comprising adapter for 120 mm pH/ORP sensors and sensor cable with TOP68 coupling
- Product Configurator on the product page: www.endress.com/cpa640



Technical Information TI00246C

Buffer solutions
High-quality buffer solutions from Endress+Hauser - CPY20

The secondary buffer solutions have been referenced to primary reference material of the PTB (German Federal Physico-technical Institute) or to standard reference material of NIST (National Institute of Standards and Technology) according to DIN 19266 by a laboratory accredited by the DAkkS (German accreditation body) according to DIN 17025.

Product Configurator on the product page: www.endress.com/cpy20

Measuring cable
Measuring cable CPK9

- Terminated measuring cable for connecting analog sensors with TOP68 plug-in head
- Selection in accordance with product structure
- Product Configurator on the product page: www.endress.com/cpk9



Technical Information TI00118C

Measuring cable CPK12

- Terminated measuring cable for connecting analog ISFET sensors with TOP68 plug-in head
- Selection in accordance with product structure
- Ordering information: Endress+Hauser sales office or www.endress.com

CPK1

- For pH/ORP sensors with GSA plug-in head
- Product Configurator on the product page: www.endress.com/cpk1
-

For ordering information, contact your sales office or see www.endress.com.



info@lennotech.com Tel. +31-152-610-900
www.lennotech.com Fax. +31-152-616-289

Endress+Hauser 
People for Process Automation