

# Safety Instructions

## Memosens pH/ORP sensors

pH and ORP measurement

Supplement to BA01988C, BA02142C  
Safety instructions for electrical apparatus in  
explosion-hazardous areas  
UK Ex II 1 G Ex ia IIC T3/T4/T6 Ga  
UK Ex II 1G Ex ia IIC T4/T6 Ga



**UK  
CA**



## UK-Declaration of Conformity

Endress+Hauser 

## People for Process Automation



|                |                                                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Company</b> | Endress+Hauser Conducta GmbH+Co. KG<br>Dieselstraße 24, 70839 Gerlingen, Germany<br>declares as manufacturer under sole responsibility, that the product |
| <b>Product</b> | Memosens pH/ORP sensors<br>CP5xxE-UA * * * * * * * * * *<br>xx = 11, 12, 16, 31, 41, 62, 61, 62, 71, 72, 76, 91, 92, 96                                  |

**Regulations** conforms to following UK statutory requirements:

|                                                                                                               |                  |
|---------------------------------------------------------------------------------------------------------------|------------------|
| The Electromagnetic Compatibility Regulations                                                                 | SI 2016 No. 1091 |
| The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations         | SI 2016 No. 1107 |
| The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations | SI 2012 No. 3032 |

**Standards** applied designated standards:

|              |        |                |        |
|--------------|--------|----------------|--------|
| EN 61326-1   | (2013) | EN IEC 60079-0 | (2018) |
| EN 61326-2-3 | (2013) | EN 60079-11    | (2012) |
| EN IEC 63000 | (2018) |                |        |

|                      |                                     |                                    |
|----------------------|-------------------------------------|------------------------------------|
| <b>Certification</b> | UK Type Examination Certificate No. | CML 21UKEX2129X                    |
|                      | Issued by Approved Body             | Eurofins E&E CML Limited-UK (2503) |
|                      | Quality assurance                   | Eurofins E&E CML Limited-UK (2503) |

Gerlingen, 19 October 2021  
Endress+Hauser Conducta GmbH+Co. KG

  
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Technology Certifications and Approvals

# Memosens pH/ORP sensors

pH and ORP measurement

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Associated documentation

This document is an integral part of Operating Instructions BA01988C, BA02142C.

Additional documentation

-  Competence Brochure CP00021Z
  - Explosion Protection: Guidelines and General Principles
  - [www.endress.com](http://www.endress.com)

Certificates

The certificates and declarations of conformity are available in the Downloads area of the Endress+Hauser website:  
[www.endress.com/download](http://www.endress.com/download)

UK Declaration of Conformity

Identification

- The nameplate provides you with the following information on your device:
- Manufacturer identification
  - Order code
  - Extended order code
  - Serial number
  - Safety information and warnings
  - Ex marking on hazardous area versions
- Compare the information on the nameplate with the order.

Type code

UK Ex

| Item type                                                                                        | Version                           |  |  |  |  |  |                 |
|--------------------------------------------------------------------------------------------------|-----------------------------------|--|--|--|--|--|-----------------|
| xPS11E<br>xPS12E<br>xPS16E<br>xPS41E<br>xPS42E<br>xPS61E<br>xPS62E<br>xPS71E<br>xPS72E<br>xPS76E | UA                                |  |  |  |  |  | * * ** * *** +* |
| x = C, OC<br>No Ex relevance                                                                     | UK Ex II 1G Ex ia IIC T3/T4/T6 Ga |  |  |  |  |  | No Ex relevance |

| Item type                            | Version                        |  |                 |   |    |   |     |
|--------------------------------------|--------------------------------|--|-----------------|---|----|---|-----|
| xPS31E<br>xPS91E<br>xPS92E<br>xPS96E | UA                             |  | *               | * | ** | * | *** |
| x = C, OC<br>No Ex relevance         | UK Ex II 1G Ex ia IIC T4/T6 Ga |  | No Ex relevance |   |    |   |     |

Certificates and approvals

Declaration of Conformity

With this declaration of conformity, the manufacturer guarantees that the product conforms to UK statutory requirements:

- The Electromagnetic Compatibility Regulations SI 2016 No. 1091
- The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations SI 2016 No. 1107
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations SI 2012 No. 3032

Compliance is verified by adherence to the standards listed in the Declaration of Conformity.

Ex approvals

**xPS11E / xPS12E / xPS16E / xPS41E / xPS42E / xPS61E / xPS62E / xPS71E / xPS72E / xPS76E:**  
 UK Ex II 1G Ex ia IIC T3/T4/T6 Ga

**xPS31E / xPS91E / xPS92E / xPS96E:**  
 UK Ex II 1G Ex ia IIC T4/T6 Ga

Approved Body

Eurofins E&E CML Limited (UK)

Safety  
Instructions

The inductive Memosens pH/ORP sensors CPS11E, CPS12E, CPS16E, CPS31E, CPS41E, CPS42E, CPS61E, CPS62E, CPS71E, CPS72E, CPS76E, CPS91E, CPS92E, CPS96E are suitable for use in hazardous areas in accordance with:  
UK type-examination certificate CML 21UKEX2129X

The corresponding UK Declaration of Conformity is an integral part of this document.

- It is not permitted to operate the sensor under electrostatically critical process conditions. Significant vapor and dust clouds, which have a direct impact on the Memosens sensor head, must be avoided.
- Ex-protected digital sensors with Memosens technology are identified by an orange-red ring on the plug-in head.
- When using devices and sensors, observe the regulations for electrical systems in hazardous areas (EN 60079-14).
- The procedures for electrical connection described in the Operating Instructions must be followed.
- This device was developed and manufactured in accordance with SI 2016 No. 1107 dated 2016 and also complies with the following standards:
  - EN IEC 60079-0 :2018 Electrical apparatus for explosive gas atmospheres
  - EN 60079-11:2012 Explosive atmospheres. Equipment protection by intrinsic safety "i"

Temperature tables

| Sensor                                                   | Temperature class | Process temperature $T_p$                                   | Ambient temperature $T_a$                                  |
|----------------------------------------------------------|-------------------|-------------------------------------------------------------|------------------------------------------------------------|
| xPS11E<br>xPS12E<br>xPS16E<br>xPS41E<br>xPS42E<br>xPS72E | T3                | $-15\text{ °C (5 °F)} \leq T_p \leq 135\text{ °C (275 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 70\text{ °C (158 °F)}$ |
|                                                          | T4                | $-15\text{ °C (5 °F)} \leq T_p \leq 120\text{ °C (248 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 75\text{ °C (167 °F)}$ |
|                                                          |                   | $-15\text{ °C (5 °F)} \leq T_p \leq 110\text{ °C (230 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 80\text{ °C (176 °F)}$ |
|                                                          |                   | $-15\text{ °C (5 °F)} \leq T_p \leq 100\text{ °C (212 °F)}$ | $-15\text{ °C (5 °F)} \leq T_a \leq 85\text{ °C (185 °F)}$ |
|                                                          |                   | $-15\text{ °C (5 °F)} \leq T_p \leq 90\text{ °C (194 °F)}$  | $-15\text{ °C (5 °F)} \leq T_a \leq 90\text{ °C (194 °F)}$ |
|                                                          | T6                | $-15\text{ °C (5 °F)} \leq T_p \leq 70\text{ °C (158 °F)}$  | $-15\text{ °C (5 °F)} \leq T_a \leq 70\text{ °C (158 °F)}$ |
| xPS61E<br>xPS62E<br>xPS71E<br>xPS76E                     | T3                | $0\text{ °C (32 °F)} \leq T_p \leq 140\text{ °C (284 °F)}$  | $0\text{ °C (32 °F)} \leq T_a \leq 70\text{ °C (158 °F)}$  |
|                                                          | T4                | $0\text{ °C (32 °F)} \leq T_p \leq 120\text{ °C (248 °F)}$  | $0\text{ °C (32 °F)} \leq T_a \leq 75\text{ °C (167 °F)}$  |
|                                                          |                   | $0\text{ °C (32 °F)} \leq T_p \leq 110\text{ °C (230 °F)}$  | $0\text{ °C (32 °F)} \leq T_a \leq 80\text{ °C (176 °F)}$  |
|                                                          |                   | $0\text{ °C (32 °F)} \leq T_p \leq 100\text{ °C (212 °F)}$  | $0\text{ °C (32 °F)} \leq T_a \leq 85\text{ °C (185 °F)}$  |
|                                                          |                   | $0\text{ °C (32 °F)} \leq T_p \leq 90\text{ °C (194 °F)}$   | $0\text{ °C (32 °F)} \leq T_a \leq 90\text{ °C (194 °F)}$  |
|                                                          | T6                | $0\text{ °C (32 °F)} \leq T_p \leq 70\text{ °C (158 °F)}$   | $0\text{ °C (32 °F)} \leq T_a \leq 70\text{ °C (158 °F)}$  |

| Sensor                     | Temperature class | Process temperature T <sub>p</sub>              | Ambient temperature T <sub>a</sub>             |
|----------------------------|-------------------|-------------------------------------------------|------------------------------------------------|
| xPS31E                     | T4                | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 80 °C (176 °F)  | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 90 °C (194 °F) |
|                            | T6                | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 70 °C (158 °F)  | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 70 °C (158 °F) |
| xPS91E<br>xPS92E<br>xPS96E | T4                | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 110 °C (230 °F) | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 80 °C (176 °F) |
|                            |                   | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 100 °C (212 °F) | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 85 °C (185 °F) |
|                            |                   | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 90 °C (194 °F)  | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 90 °C (194 °F) |
|                            | T6                | 0 °C (32 °F) ≤ T <sub>p</sub> ≤ 70 °C (158 °F)  | 0 °C (32 °F) ≤ T <sub>a</sub> ≤ 70 °C (158 °F) |

The temperature table above applies only under the following installation conditions, which are described in the following graphic →  8. If the installation conditions cannot be met, the maximum process temperature T<sub>p</sub> must not exceed the maximum ambient temperature T<sub>a</sub>.

Connection

Ex specification

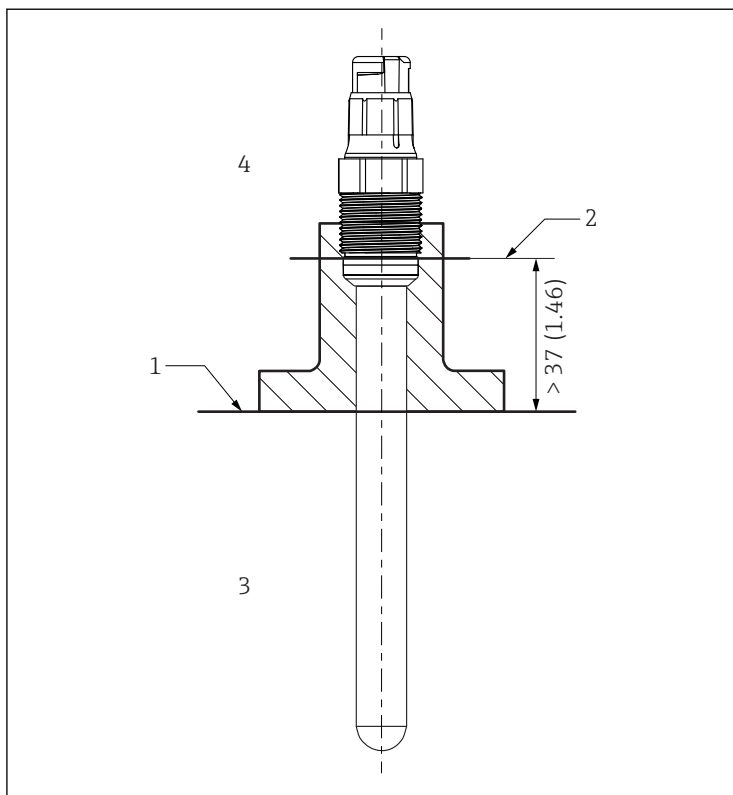
- The pH/ORP sensors of the series xPSxxE are approved in accordance with UK type-examination certificate CML 21UKEX2129X and are suitable for use in hazardous environments. The corresponding UK Declaration of Conformity is an integral part of this document.
- The approved digital pH/ORP sensors of the model series xPSxxE feature an intrinsically safe input with the following parameter set:

| Parameters     | Value  |
|----------------|--------|
| P <sub>I</sub> | 180 mW |

The approved xPSxxE digital pH/ORP sensors must be connected to a Memosens measuring cable with an intrinsically safe output with the following parameter:

| Parameters     | Value          |
|----------------|----------------|
| P <sub>O</sub> | Maximum 180 mW |

## Installation conditions



A0041281

### 1 Installation conditions

- 1 Limit
- 2 Distance between plug-in head (lower edge) and process medium, without ring and thrust collar
- 3 Process temperature  $T_p$
- 4 Ambient temperature  $T_a$

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