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Safety Instructions
Memosens pH/ORP sensors

pH and ORP measurement

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

Endress+Hauser
People for Process Automation

Memosens pH/ORP sensors

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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

Certificates

The certificates and declarations of conformity are available in the Downloads area of the Endress+Hauser website:

www.endress.com/download

Korean Certification of Compliance

21-KA4BO-0621X

IECEx certificate

IECEx BVS 19.0056X

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

Item type	Version							
xPS11E xPS12E xPS16E xPS41E xPS42E xPS61E xPS62E xPS71E xPS72E xPS76E	KA	*	*	**	*	***	+*	
x = C, OC No Ex relevance	KOR Ex ia IIC T3/T4/T6 Ga	No Ex relevance						

Item type	Version						
xPS31E xPS91E xPS92E xPS96E	KA	*	*	**	*	***	+*
x = C, OC No Ex relevance	KOR Ex ia IIC T4/T6 Ga	No Ex relevance					

Certificates and approvals

Ex approvals

The product meets the requirements of the "IEC Certification Scheme for Explosive Atmospheres". This is verified by compliance with the standards listed in the IECEx certificate. The IECEx certificate can be viewed on the following website: www.iecex.com.

xPS11E / xPS12E / xPS16E / xPS41E / xPS42E / xPS61E / xPS62E / xPS71E / xPS72E / xPS76E:

Ex ia IIC T3/T4/T6 Ga

xPS31E / xPS91E / xPS92E / xPS96E:

Ex ia IIC T4/T6 Ga

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:

- Korean Certification of Compliance 21-KA4BO-0621X
- IECEx certificate IECEx BVS 19.0056X including amendments

- 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 Directive 2014/34/EU dated February 26, 2014 and also complies with the following standards:
  - EN IEC 60079-0:2018/IEC 60079-0:2017 Hazardous areas Part 0: General requirements
  - EN 60079-11:2012/IEC 60079-11:2011 + Corrigendum:2012 Electrical apparatus for explosive atmospheres Part 11: Intrinsic safety "i"

Temperature tables

Sensor	Temperature class	Process temperature T_p	Ambient temperature T_a
xPS11E xPS12E xPS16E xPS41E xPS42E xPS72E	T3	−15 °C (5 °F)≤ T_p ≤ 135 °C (275 °F)	−15 °C (5 °F) ≤ T_a ≤ 70 °C (158 °F)
	T4	−15 °C (5 °F) ≤ T_p ≤ 120 °C (248 °F)	−15 °C (5 °F) ≤ T_a ≤ 75 °C (167 °F)
		−15 °C (5 °F) ≤ T_p ≤ 110 °C (230 °F)	−15 °C (5 °F) ≤ T_a ≤ 80 °C (176 °F)
		−15 °C (5 °F) ≤ T_p ≤ 100 °C (212 °F)	−15 °C (5 °F) ≤ T_a ≤ 85 °C (185 °F)
		−15 °C (5 °F) ≤ T_p ≤ 90 °C (194 °F)	−15 °C (5 °F) ≤ T_a ≤ 90 °C (194 °F)
	T6	−15 °C (5 °F) ≤ T_p ≤ 70 °C (158 °F)	−15 °C (5 °F) ≤ T_a ≤ 70 °C (158 °F)
xPS61E xPS62E xPS71E xPS76E	T3	0 °C (32 °F) ≤ T_p ≤ 140 °C (284 °F)	0 °C (32 °F) ≤ T_a ≤ 70 °C (158 °F)
	T4	0 °C (32 °F) ≤ T_p ≤ 120 °C (248 °F)	0 °C (32 °F) ≤ T_a ≤ 75 °C (167 °F)
		0 °C (32 °F) ≤ T_p ≤ 110 °C (230 °F)	0 °C (32 °F) ≤ T_a ≤ 80 °C (176 °F)
		0 °C (32 °F) ≤ T_p ≤ 100 °C (212 °F)	0 °C (32 °F) ≤ T_a ≤ 85 °C (185 °F)
		0 °C (32 °F) ≤ T_p ≤ 90 °C (194 °F)	0 °C (32 °F) ≤ T_a ≤ 90 °C (194 °F)

Sensor	Temperature class	Process temperature T_p	Ambient temperature T_a
	T6	0 °C (32 °F) ≤ T_p ≤ 70 °C (158 °F)	0 °C (32 °F) ≤ T_a ≤ 70 °C (158 °F)
xPS31E	T4	0 °C (32 °F) ≤ T_p ≤ 80 °C (176 °F)	0 °C (32 °F) ≤ T_a ≤ 90 °C (194 °F)
	T6	0 °C (32 °F) ≤ T_p ≤ 70 °C (158 °F)	0 °C (32 °F) ≤ T_a ≤ 70 °C (158 °F)
xPS91E xPS92E xPS96E	T4	0 °C (32 °F) ≤ T_p ≤ 110 °C (230 °F)	0 °C (32 °F) ≤ T_a ≤ 80 °C (176 °F)
		0 °C (32 °F) ≤ T_p ≤ 100 °C (212 °F)	0 °C (32 °F) ≤ T_a ≤ 85 °C (185 °F)
		0 °C (32 °F) ≤ T_p ≤ 90 °C (194 °F)	0 °C (32 °F) ≤ T_a ≤ 90 °C (194 °F)
	T6	0 °C (32 °F) ≤ T_p ≤ 70 °C (158 °F)	0 °C (32 °F) ≤ T_a ≤ 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_p must not exceed the maximum ambient temperature T_a.

Connection

Ex specification

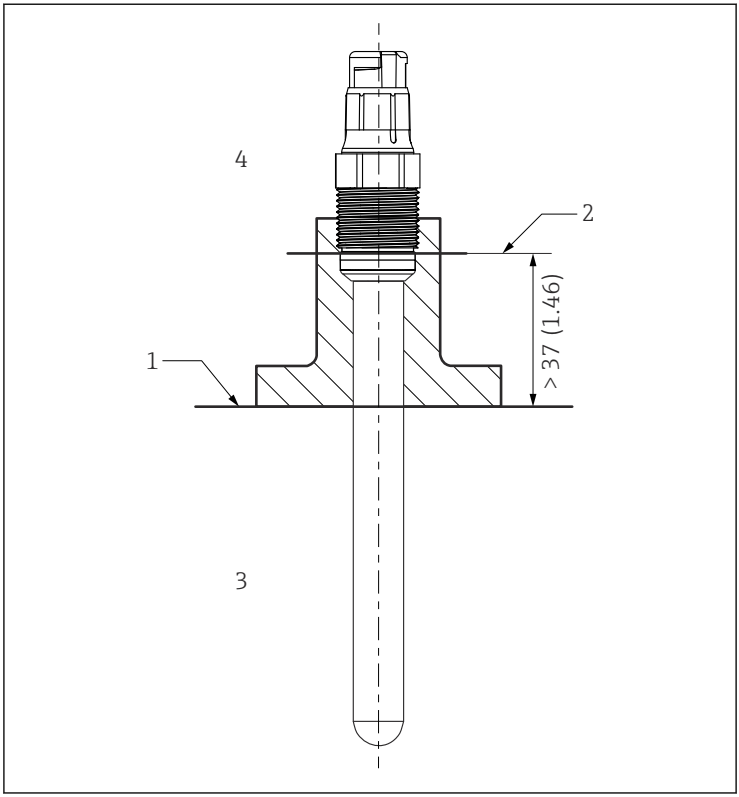
The approved digital pH/ORP sensors of the model series xPSxxE feature an intrinsically safe input with the following parameter set:

Parameters	Value
P_i	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_o	Maximum 180 mW

Installation conditions



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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