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71542687
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Safety Instructions
Analog pH/ORP sensors

pH/ORP measurement

Supplement to BA01572C, BA02056C
Safety instructions for electrical apparatus in explosion-hazardous areas
ATEX II 1G Ex ia IIC T3/T4/T6 Ga

Endress+Hauser
People for Process Automation

Analog pH/ORP sensors

pH/ORP measurement

Table of contents

Associated documentation

This document is an integral part of Operating Instructions BA01572C and BA02056C.

Supplementary 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

EU Declaration of Conformity

EC_00624

EU type-examination certificate

TÜV 21 ATEX 8708

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 labeling on hazardous area versions

► Compare the information on the nameplate with the order.

Type code

pH/ORP sensors

xPS##abbcddd+e	
x	C, O (not Ex-relevant)
##	Sensor type 11, 12, 13, 21, 31, 41, 42, 43, 71, 72, 91 or 92
a	Electrode type: 0,1 = without temperature sensor 2 = with Pt100 3 = with Pt1000
bb	Application (not Ex-relevant; 2 or 3 characters)
c	Shaft length (not Ex-relevant)
ddd	Head: ▪ ESA or ESS or LAB = plug-in head version TOP68, 4-pin; with and without temperature sensor ▪ GSA or SSA or LAC = version with plug-in head for coaxial cable, 2-pin; only without temperature sensor
e	Optional = one or more characters that determine optional features (not Ex-relevant), e.g. tests or other certificates/declarations

Temperature sensor

xTS1-abccc+d	
x	C, O (not Ex-relevant)
a	Version: A = single Pt100
b	Shaft length (not Ex-relevant)

xTS1-abccc+d	
ccc	Head: ESA = process Pg13.5; plug-in head version TOP68
d	Optional = one or more characters that determine optional features (not Ex-relevant), e.g. tests or other certificates/declarations

Certificates and approvals

Declaration of Conformity

With this declaration of conformity, the manufacturer guarantees that the product conforms to the regulations of European EMC Directive 2014/30/EU and ATEX Directive 2014/34/EU. Compliance is verified by adherence to the standards listed in the Declaration of Conformity.

Notified Body

TÜV Rheinland Industrie Service GmbH

Safety instructions

- The CPSxx sensor types have been approved according to EU type-examination certificate TÜV 21 ATEX 8708 and are suitable for use in explosion-hazardous environments.
- This device has been developed and manufactured according to Directive 2014/34/EU of 26 February 2014 and additionally complies with the following standards:
  - EN IEC 60079-0:2018 / IEC 60079-0:2017
    Explosive atmospheres - Part 0: General requirements
  - EN 60079-11:2012 / IEC 60079-11:2011 + Corrigendum:2012
    Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
- The procedures for electrical connection described in the Operating Instructions must be followed.
- Full compliance with regulations for electrical systems in explosive atmospheres (e.g. EN/IEC 60079-14) is mandatory when using the devices and sensors.
- The sensors and connection system should not be damaged.
- Ensure that the device is installed correctly to guarantee IP68 protection.
- Check that the seals of the O-rings are free from damage. If you need to replace the seals, use original seals only.

Temperature tables

A	B	C	D	E	F	G	H		
Type							Process temperature T_p		
							T6	T4	T3
xPS	11	-	1	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	11	-	2 or 3	bb	c	ddd	≤ 50 °C (122 °F)	≤ 100 °C (212 °F)	≤ 135 °C (275 °F)
xPS	12	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	13	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	21	-	1	bb	c	ddd	≤ 80 °C (176 °F)	-	-
xPS	21	-	2	bb	c	ddd	≤ 50 °C (122 °F)	≤ 80 °C (176 °F)	-
xPS	31	-	1	bb	c	ddd	≤ 80 °C (176 °F)	-	-
xPS	31	-	2	bb	c	ddd	≤ 50 °C (122 °F)	≤ 80 °C (176 °F)	-
xPS	41	-	1	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	41	-	2 or 3	bb	c	ddd	≤ 50 °C (122 °F)	≤ 100 °C (212 °F)	≤ 135 °C (275 °F)
xPS	42	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	43	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	71	-	1	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	71	-	2 or 3	bb	c	ddd	≤ 50 °C (122 °F)	≤ 100 °C (212 °F)	≤ 135 °C (275 °F)

A	B	C	D	E	F	G	H		
Type							Process temperature T_p		
							T6	T4	T3
xPS	72	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)
xPS	91	-	1	bb	c	ddd	≤ 80 °C (176 °F)	≤ 110 °C (230 °F)	-
xPS	91	-	2 or 3	bb	c	ddd	≤ 50 °C (122 °F)	≤ 100 °C (212 °F)	≤ 110 °C (230 °F)
xPS	92	-	0	bb	c	ddd	≤ 80 °C (176 °F)	≤ 110 °C (230 °F)	-
xTS	1	-	A		b	ccc	≤ 75 °C (167 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)

The temperature table above only applies under the following installation conditions, which are described in the graphic below → 🖼 1, 🖹 7.

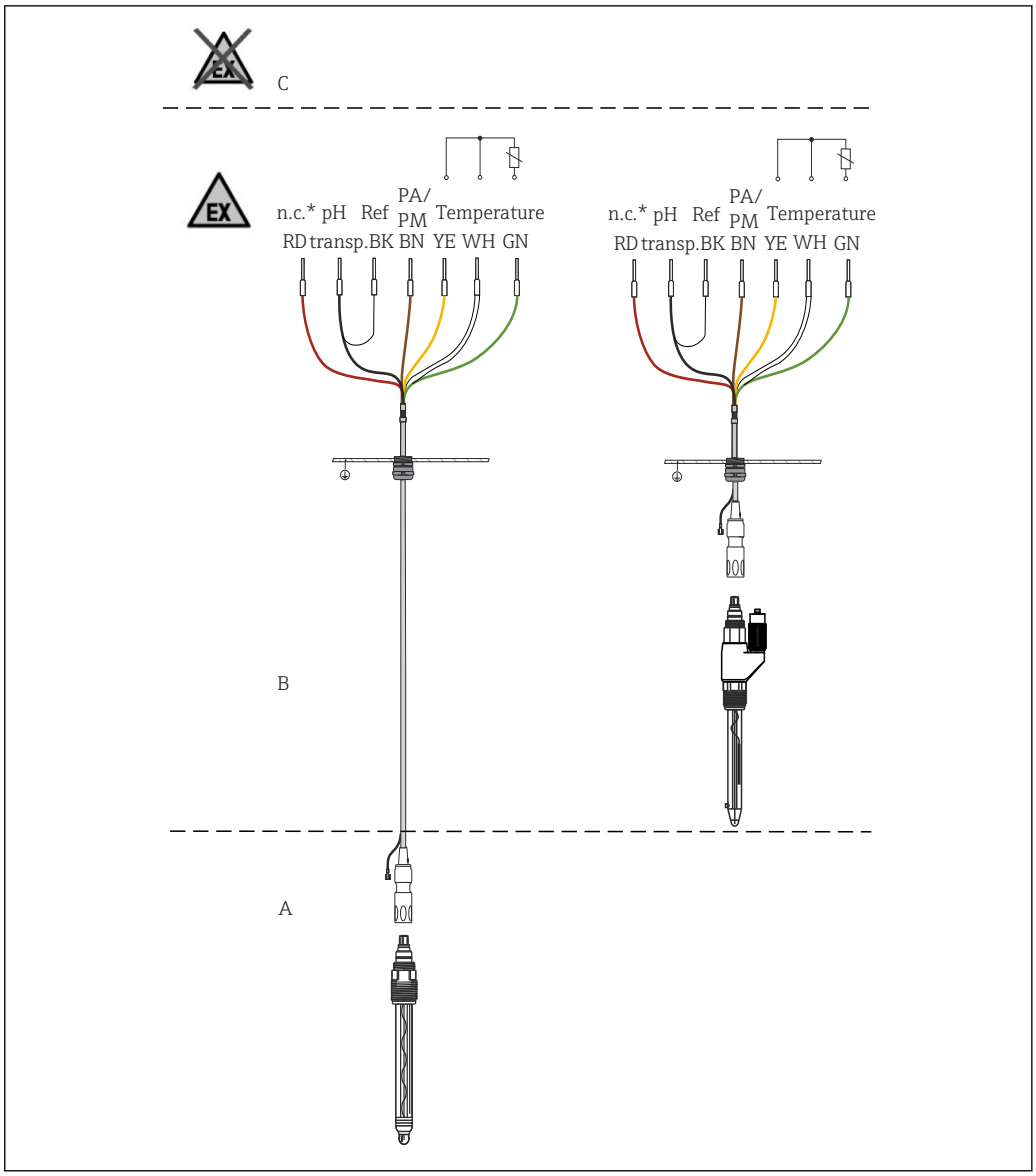
Connection

Ex-specification

The CPSxx sensors should only be operated on suitable intrinsically safe circuits. Make sure that the following maximum permitted inductance and capacitance values are not exceeded in these circuits:

Parameter	Value
Input power P_i	≤ 200 mW
Input voltage U_i	≤ 17 V
Input current I_i	≤ 130 mA
Inner capacitance C_i	≤ 1 nF/ m - cable
Inner inductance L^i	≤ 6 µH/ m - cable

Installation conditions



1 *Electrical connection*

* *Does not apply to CPK9*
A Explosive atmosphere Zone 0
B Explosive atmosphere Zone 1
C Non-explosive atmosphere

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