

# Safety Instructions

## Analog pH/ORP sensors

## Temperature probe CTS1

pH/ORP measurement

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



**UK  
CA**





# Analog pH/ORP sensors

## Temperature probe CTS1

pH/ORP measurement

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**Associated documentation**

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

**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**

UK\_00442

**EU type examination certificate**

CML 21UKEX21249

**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
- Certificate information

- ▶ 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)

xPS##abbcddd+e	
c	Shaft lenght (not Ex-relevant)
ddd	Head: UAE = plug-in head version TOP68, 4-pin; with and without temperature sensor
e	Optional = one or more characters that determine optional features (not Ex-relevant), e.g. tests or other certificates/declarations

### *Temperature probe*

xTS1-abccc+d	
x	C, O (not Ex-relevant)
a	Version: A = single Pt100
b	Shaft lenght (not Ex-relevant)
ccc	Head: UAE = 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 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.

### *Approved Body*

Eurofins E&E CML Limited (UK)

**Safety Instructions**

- The CPSxx sensor types and temperature probe CTS1 have been approved according to UK type examination certificate CML 21UKEX21249 and are suitable for use in explosion-hazardous environments.
- 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 / 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 <sub>p</sub>		
							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)	-

A	B	C	D	E	F	G	H		
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)
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)	-
xTS1	1	-	A		b	ccc	≤ 75 °C (167 °F)	≤ 130 °C (266 °F)	≤ 135 °C (275 °F)

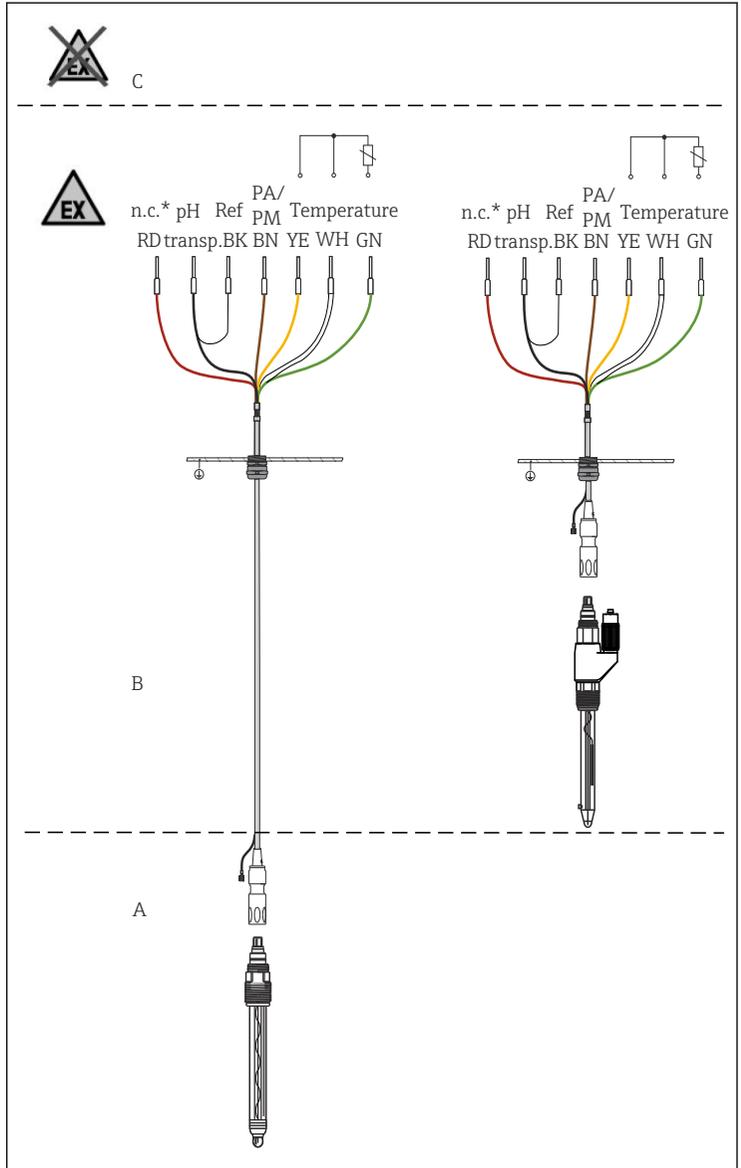
The temperature table above applies only under the following installation conditions, which are described in the graphic below  
 →  9.

**Connection****Ex specification**

The CPSxx sensors and temperature probe CTS1 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:

Parameters	Value
Input power $P_i$	$\leq 200 \text{ mW}$
Input voltage $U_i$	$\leq 17 \text{ V}$
Input current $I_i$	$\leq 130 \text{ mA}$
Inner capacitance $C_i$	$\leq 1 \text{ nF/m - cable}$
Inner inductance $L_i$	$\leq 6 \text{ } \mu\text{H/m - cable}$

**Installation conditions**



A0046767

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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