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Safety Instructions
Analog pH/ORP sensors

pH and ORP measurement

Supplement to BA01572C
Safety instructions for electrical equipment in explosion-hazardous areas
EAC Ex 0Ex ia IIC T3/T4/T6 Ga X
EAC Ex 0Ex ia IIC T4/T6 Ga X
EAC Ex 1Ex ib IIC T3/T4/T6 Gb X

Endress+Hauser
People for Process Automation

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Associated documentation

This document is an integral part of Operating Instructions BA01572C.

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

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
- Certificate information

► Compare the information on the nameplate with the order.

Type code

Sensor	Ex marking
CPS11, 12, 71, 72-***ESK	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X; 0Ex ia IIC T3 Ga X
CPS91-***ESK	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X
CPS41, 42-***ESK	1Ex ib IIC T6 Gb X; 1Ex ib IIC T4 Gb X; 1Ex ib IIC T3 Gb X

Certificates and approvals

Ex approval

The product has been certified in accordance with Directive TR CU 012/2011 valid within the Eurasian Economic Area (EAEU). The EAC conformity mark has been affixed to the product.

Sensor	Certificate number	Ex marking
CPS11, 12, 71, 72-***ESK	ЕАЭС RU C-DE.AA87.B.00833/21	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X; 0Ex ia IIC T3 Ga X
CPS41, 42-***ESK		1Ex ib IIC T6 Gb X; 1Ex ib IIC T4 Gb X; 1Ex ib IIC T3 Gb X
CPS91-***ESK	ЕАЭС RU C-DE.AA87.B.00833/21	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X

Certification Body

ООО "НАНИО ЦСВЭ"
Russian Federation

Safety instructions

- The CPSxx sensors have been developed and manufactured in compliance with applicable standards and guidelines and are suitable for use in hazardous areas for the equipment group indicated.
- The electrical connection for the CPSxx sensors must be made according to the wiring diagram (→ 1, 5).
- Compliance with the specified ambient temperature range and with the permitted electrical connection values of the relevant transmitter is a prerequisite for safe use.
- The CPSxx sensors may only be operated on suitable intrinsically safe circuits. Make sure that the maximum permitted inductance and capacitance values are not exceeded in these circuits.
- Full compliance with regulations for electrical systems in explosive atmospheres (e.g. EN/IEC 60079-14) is mandatory when using the devices and sensors.
- Ensure that the device is installed correctly to maintain IP 68 protection. Verify that the O-ring seals are undamaged. Only use a genuine seal when replacing seals.

Temperature tables

Sensor	Process temperature T_a for temperature class		
	T3	T4	T6
CPS11-1/4**ESK	≤ 135 °C (275 °F)	≤ 130 °C (266 °F)	≤ 80 °C (176 °F)
CPS12-***ESK			
CPS41-1/4**ESK			
CPS42-***ESK			
CPS71-1**ESK			
CPS72-***ESK			
CPS41-2/3**ESK			≤ 70 °C (158 °F)
CPS11-2/3**ESK			≤ 50 °C (122 °F)
CPS71-2/3**ESK			
CPS91-1**ESK	Not approved	≤ 110 °C (230 °F)	≤ 80 °C (176 °F)
CPS91-2/3**ESK			≤ 50 °C (122 °F)

If the specified process temperatures are complied with, temperatures that are not permitted for the respective temperature class will not occur on the equipment.

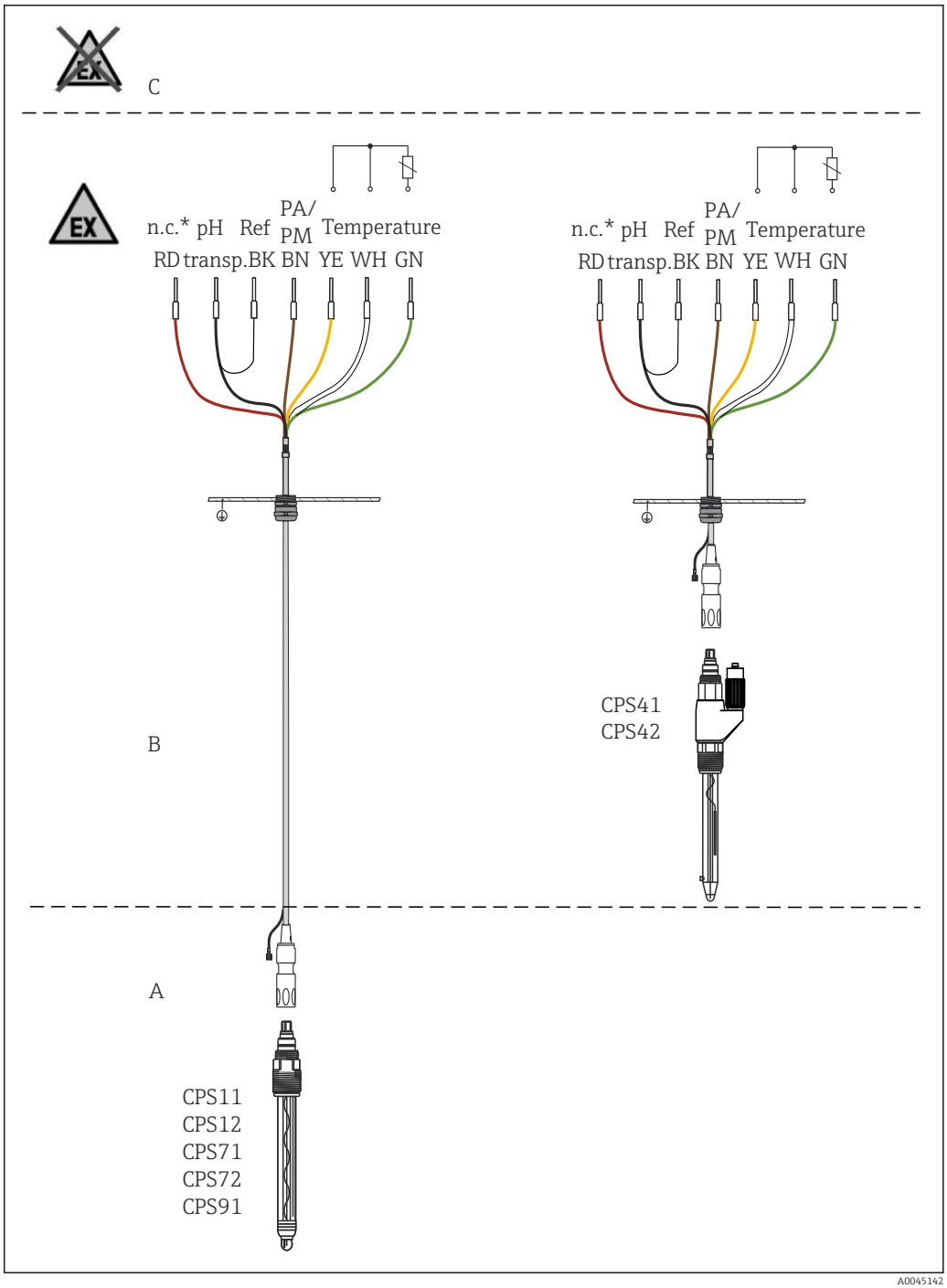
Connection values

EAC-certified, intrinsically safe output circuits

Characteristic	Connection data	Circuit
Power supply circuit		ia
Maximum input voltage U_i	17 V	
Maximum input current I_i	130 mA	
Maximum input power P_i	200 mW	
Maximum internal capacitance C_i	1 nF/m (CPK9, CPK12)	
Maximum internal inductance L_i	6 µH/m (CPK9, CPK12)	

The pH/ORP sensors correspond to connection class 1 according to NAMUR Recommendation NE 116 (SensISCO). The categorization is provided in the "Temperature classes" table.

Connection diagram



1 *Electrical connection*

A Hazardous area Zone 0
B Hazardous area Zone 1
C Non-hazardous area

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