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Safety Instructions
ISFET sensors pH

Supplement to:
BA01609C

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

ISFET sensors pH

Supplement to:
BA01609C

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Associated documentation

This document is an integral part of Operating Instructions BA01609C.

Supplementary documentation

Competence Brochure CP00021Z
- Explosion Protection: Guidelines and General Principles
- www.endress.com

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

Sensor	Ex marking
CPS441-*ESK*	1Ex ib IIC T6/T4/T3 Gb X
CPS471-*ESK*	0Ex ia IIC T6/T4/T3 Ga X
CPS491-*ESK*	0Ex ia IIC T6/T4 Ga 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
CPS441-*ESK*	EAЭC RU C-DE.AA87.B.00566/20	1Ex ib IIC T6/T4/T3 Gb X
CPS471-*ESK*		0Ex ia IIC T6/T4/T3 Ga X
CPS491-*ESK*		0Ex ia IIC T6/T4 Ga X

Certification Body

ООО "НАНИО ЦСВЭ"
Russian Federation

Safety instructions

The sensors CPS4xx are suitable for use in hazardous areas in accordance with:
EAC Ex certificate EAЭC RU C-DE. AA87.B.00566/20.

- The sensors CPS4xx have been developed and manufactured in compliance with applicable standards and guidelines and are suitable for use in hazardous areas for the particular device group indicated.
- The electrical connection of sensors CPS4xx must be established 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 sensors CPS4xx 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 hazardous locations (e.g. EN60079-14) 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.
- The minimum conductivity of the medium must be 10 nS/cm in order to avoid electrostatic charge.

Temperature tables

Sensor	Process temperature T_a for temperature class		
	T3	T4	T6
CPS441*ESK*	≤ +135 °C	≤ +110 °C	≤ +65 °C
CPS471*ESK*	≤ +135 °C	≤ +110 °C	≤ +65 °C
CPS491*ESK*	Not approved	≤ +110 °C	≤ +65 °C

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

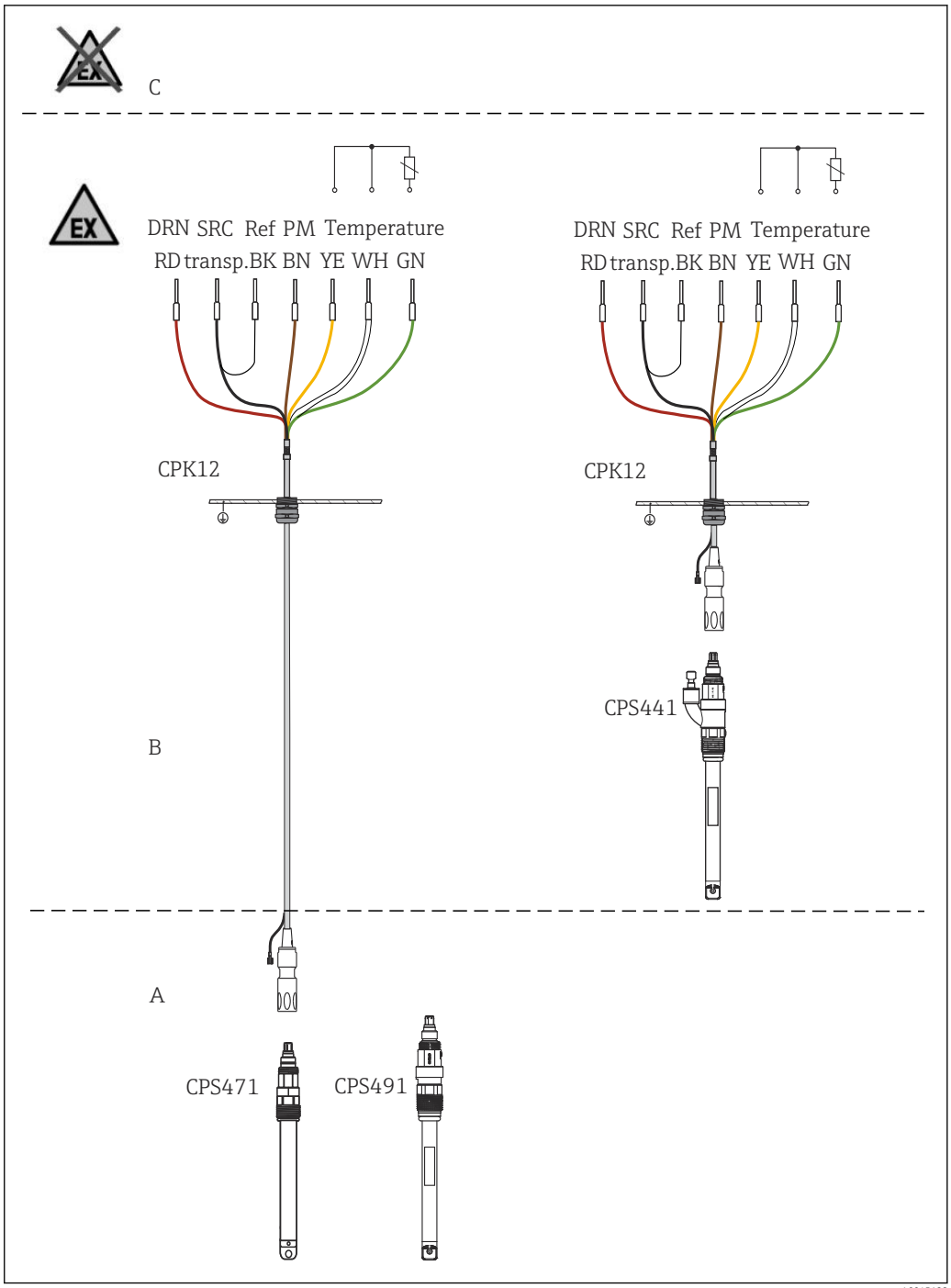
The sensor types CPS441 and 471 can be sterilized and can be operated in the temperature range up to 135 °C (temperature class T3).

Connection data

EAC-certified, intrinsically safe output circuits

Characteristic	Connection data	Circuit
Power supply circuit		ia
Maximum input voltage U_i	12.6 V	
Maximum input current I_i	130 mA	
Maximum input power P_i	190 mW	
Maximum internal capacitance C_i	115 nF + 1 nF/m (CPK 12)	
Maximum internal inductance L_i	6 µH/m (CPK12)	

Connection diagram



1 *Electrical connection*

A *II 1G*
B *II 2G / II 3G*
C *Non-hazardous area*

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