

# Safety Instructions

## Memosens pH/ORP sensors

pH and ORP measurement

Supplement to: BA01572C, BA01109C

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



# Memosens pH/ORP sensors

pH and ORP measurement

## Table of contents

Associated documentation .....	3
Supplementary documentation .....	3
Certificates .....	3
Identification .....	3
Safety instructions .....	4
Temperature tables .....	5
Connection values .....	5
Connection diagram .....	6

**Associated documentation** This document is an integral part of Operating Instructions BA01572C and BA01109C.

**Supplementary documentation**  Competence Brochure CP0002 1Z  
 ■ 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)

**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
CPS11D-7***K	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X; 0Ex ia IIC T3 Ga X
CPS12D-7***K	
CPS16D-7***K	
CPS71D-7***K	
CPS72D-7***K	
CPS76D-7***K	
CPS41D-7****K	
CPS42D-7****K	
CPS441D-7***K	
CPS471D-7**K	
CPS91D-7***K	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X
CPS92D-7***K	
CPS96D-7***K	
CPS491D-7**K	

**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
CPS11D-7***K	EAЭC 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
CPS12D-7***K		
CPS16D-7***K		
CPS71D-7***K		
CPS72D-7***K		
CPS76D-7***K		
CPS41D-7****K		
CPS42D-7****K		
CPS441D-7****K		
CPS471D-7**K		
CPS91D-7***K	EAЭC RU C- DE.AA87.B.00833/21	0Ex ia IIC T6 Ga X; 0Ex ia IIC T4 Ga X
CPS92D-7***K		
CPS491D-7**K		
CPS96D-7***K	EAЭC RU C- DE.AA87.B.00833/21	

#### Certification Body

**ООО "НАИНО ЦСБЭ"**

Russian Federation

#### Safety instructions

- The specified sensors, in conjunction with a CYK10-E/G/I\*\*1/2+\* or CYK20-BA/IA\*\*C1/C2+\* measuring cable or a Memosens measuring cable, which is structurally identical and equivalent in terms of hardware and function, may be connected to the certified intrinsically safe sensor inputs of the Liquiline M CM42-M/NK\*\*\*\*\*+\* measuring device.
- Alternatively all of the listed sensors can be connected with a measuring cable to a certified, intrinsically safe output circuit with the maximum values specified below. In particular, the maximum inner inductance and the capacitance of the intrinsically safe output circuit may not exceed the maximum values indicated, see the "Connection values" table → 5.
- The CPSxxD 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 CPSxxD sensors must be made according to the wiring diagram (→ 1, 6).
- 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 CPSxxD 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
CPS11D-7***K	-15 °C (5 °F) ≤ $T_a$ ≤ 135 °C (275 °F)	-15 °C (5 °F) ≤ $T_a$ ≤ 120 °C (248 °F)	-15 °C (5 °F) ≤ $T_a$ ≤ 70 °C (158 °F)
CPS12D-7***K			
CPS16D-7***K			
CPS41D-7****K			
CPS42D-7****K			
CPS72D-7***K			
CPS441D-7***K			
CPS471D-7**K			
CPS71D-7***K CPS76D-7***K	0 °C (32 °F) ≤ $T_a$ ≤ 135 °C (275 °F)	0 °C (32 °F) ≤ $T_a$ ≤ 120 °C (248 °F)	0 °C (32 °F) ≤ $T_a$ ≤ 70 °C (158 °F)
CPS91D-7***K CPS92D-7***K CPS96D-7***K	n.a.	0 °C (32 °F) ≤ $T_a$ ≤ 110 °C (230 °F)	0 °C (32 °F) ≤ $T_a$ ≤ 70 °C (158 °F)
CPS491D-7**K	n.a.	-15 °C (5 °F) ≤ $T_a$ ≤ 110 °C (230 °F)	-15 °C (5 °F) ≤ $T_a$ ≤ 70 °C (158 °F)

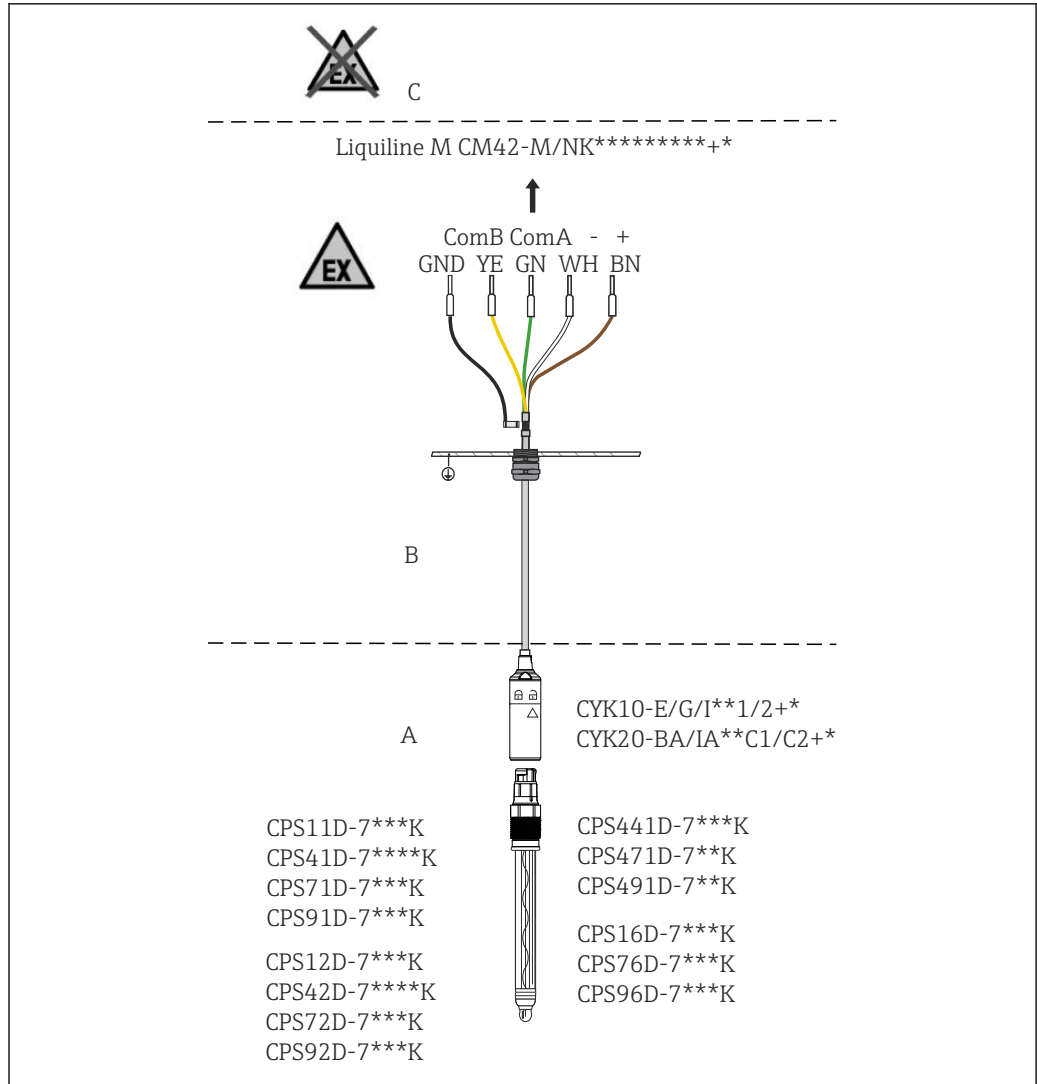
If the specified process temperatures are complied with, temperatures that are not permitted for the respective temperature class will not occur on the equipment.

Connection values

*EAC-certified, intrinsically safe output circuits*

	Parameter set 1	Parameter set 2
Maximum output voltage $U_o$	5.1 V	5.04 V
Maximum output current $I_o$	130 mA	80 mA
Maximum output power $P_o$	166 mW (linear characteristic)	112 mW (trapezoidal characteristic)
Maximum internal conductivity $C_i$	15 μF	14.1 μF
Maximum internal inductance $L_i$	95 μH	237.2 μH

Connection diagram



A0045141

1 Electrical connection

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

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