

Safety Instructions

Memosens ISFET pH sensors

pH measurement

Supplement to BA02154C
Safety instructions for electrical apparatus in
explosion-hazardous areas
JPN Ex ia IIC T3/T4/T6 Ga
JPN Ex ia IIC T4/T6 Ga



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Associated documentation

This document is an integral part of Operating Instructions BA02154C.

Additional documentation

Competence Brochure CP00021Z

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

Certificates

JPN type-examination certificate, certificate number: CML 19JPN2485X

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

► Compare the information on the nameplate with the order.

Type code

Item type	Version					
xPS47E xPS77E	JA	*	*	**	*	+*
x = C, OC No Ex relevance	JPN Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

Item type	Version					
xPS97E	JA	*	*	**	*	+*
x = C, OC No Ex relevance	JPN Ex ia IIC T4/T6 Ga	No Ex relevance				

Certificates and approvals

Ex approvals

The product meets the requirements of the Regulation on the Testing of Machinery and other Instruments set down by the Ministry of Health, Labor and Welfare in Japan.

CPS47E / CPS77E:

Ex ia IIC T3/T4/T6 Ga

CPS97E:

Ex ia IIC T4/T6 Ga

Safety Instructions


The inductive Memosens ISFET pH sensors CPS47E, CPS77E, CPS97E are suitable for use in hazardous areas in accordance with: JPN type-examination certificate CML 19JPN2485X including appendices

- It is not permitted to operate the sensor under electrostatically critical process conditions. Significant vapor and dust clouds, which have a direct impact on the Memosens sensor head, must be avoided.
- The sensors must not be operated under process conditions where the sensor and the connection system can become electrostatically charged. Sensor operation in liquid media that are in contact with the process and have a minimum conductivity of 10 nS/cm is not considered problematic with regard to electrostatic charge.
- Ex-protected digital sensors with Memosens technology are identified by an orange-red ring on the terminal head.
- When using devices and sensors, observe the guidelines for interconnecting intrinsically safe circuits (e.g. JNIO SH-TR-NO.44).
- The procedures for electrical connection described in the Operating Instructions must be followed.
- The user must attach the yellow/black label (contained in the product packaging) beside the installed sensor (e.g. on the installed cable).
- This device was developed, manufactured and assessed in accordance with the following standards:
 - JNIO SH-TR-46-1:2015 "Equipment – General requirements"
 - JNIO SH-TR-46-6:2015 "Equipment protection by intrinsic safety "i"

Temperature tables

Sensor	Temperature class	Process temperature T _p		Ambient temperature T _a	
		minimum	maximum	minimum	maximum
CPS47E CPS77E	T3	-15 °C (5 °F)	135 °C (275 °F)	-15 °C (5 °F)	70 °C (158 °F)
	T4	-15 °C (5 °F)	115 °C (239 °F)	-15 °C (5 °F)	75 °C (167 °F)

Sensor	Temperature class	Process temperature T_p		Ambient temperature T_a	
		minimum	maximum	minimum	maximum
			110 °C (230 °F)		80 °C (176 °F)
			100 °C (212 °F)		85 °C (185 °F)
			90 °C (194 °F)		90 °C (194 °F)
	T6	-15 °C (5 °F)	65 °C (149 °F)	-15 °C (5 °F)	65 °C (149 °F)
CPS97E	T4		110 °C (230 °F)		80 °C (176 °F)
			100 °C (212 °F)		85 °C (185 °F)
			90 °C (194 °F)		90 °C (194 °F)
	T6	-15 °C (5 °F)	65 °C (149 °F)	-15 °C (5 °F)	65 °C (149 °F)

The temperature table above applies only under the following installation conditions, which are described in the following graphic →  7. If the installation conditions cannot be met, the maximum process temperature T_p must not exceed the maximum ambient temperature T_a .

Connection

Ex specification

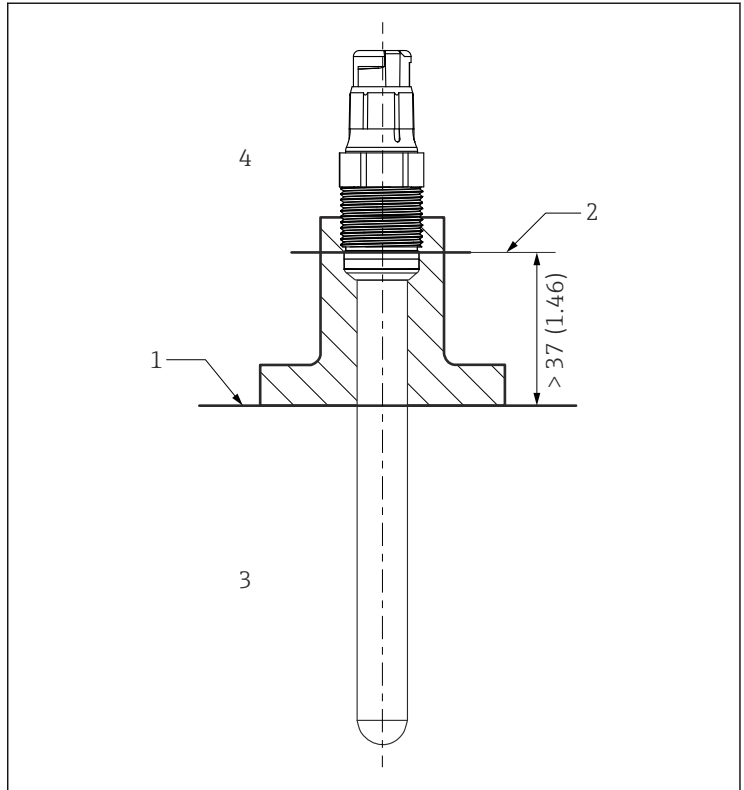
- The CPSx7E-type ISFET pH sensors are approved in accordance with JPN type-examination certificate CML 19JPN2485X and are suitable for use in hazardous environments.
- The approved digital ISFET pH sensors feature an intrinsically safe input with the following parameter set:

Parameters	Value
P_i	180 mW

The approved CPSx7E-type digital ISFET pH sensors must be connected to a Memosens measuring cable with an intrinsically safe output with the following parameter:

Parameters	Value
P_o	Maximum 180 mW

Installation conditions



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1 Installation conditions

- 1 Limit
- 2 Distance between plug-in head (lower edge) and process medium, without ring and thrust collar
- 3 Process temperature T_p
- 4 Ambient temperature T_a



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