

Safety Instructions

Memosens ISFET pH sensors

pH measurement

Supplement to BA02154C
Safety instructions for electrical apparatus for
explosion-hazardous areas
ATEX II 1G Ex ia IIC T3/T4/T6 Ga
ATEX II 1G Ex ia IIC T4/T6 Ga
IECEX Ex ia IIC T3/T4/T6 Ga
IECEX Ex ia IIC T4/T6 Ga



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Table of contents

Related documentation	4
Supplementary documentation	4
Certificates	4
Identification	4
Safety instructions	6
Temperature tables	7
Connection	7
Installation conditions	8

Related documentation

This document is an integral part of Operating Instructions BA02154C.

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

EU Declaration of Conformity

EU_00949

EU-type examination certificate

BVS 19 ATEX E 062 X

IECEx certificate

IECEx BVS 19.0056X

Identification

The following information on the device can be found on the nameplate:

- Manufacturer identification
- Order code
- Extended order code
- Serial number
- Safety information and warnings
- Ex markings
- Certificate number

► Compare the information on the nameplate with the order.

Type code

ATEX

Type	Version	*	*	**	*	+
xPS47E xPS77E	BA					
x = C, OC No Ex relevance	II 1G Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

Type	Version					
xPS97E	BA	*	*	**	*	+*
x = C, OC No Ex relevance	II 1G Ex ia IIC T4/T6 Ga	No Ex relevance				

IECEX

Type	Version					
xPS47E xPS77E	IA	*	*	**	*	+*
x = C, OC No Ex relevance	Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

Type	Version					
xPS97E	IA	*	*	**	*	+*
x = C, OC No Ex relevance	Ex ia IIC T4/T6 Ga	No Ex relevance				


Certificates and approvals

Ex approvals

CPS47E / CPS77E:

 II 1G Ex ia IIC T3/T4/T6 Ga

CPS97E:

 II 1G Ex ia IIC T4/T6 Ga

CPS47E / CPS77E:

Ex ia IIC T3/T4/T6 Ga

CPS97E:

Ex ia IIC T4/T6 Ga

Notified body

DEKRA Testing and Certification GmbH


Bochum

**Safety
instructions**

- 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. Operation in liquid media that are intended for the product application and have a minimum conductivity of 10 nS/ cm can be assumed as electrostatic uncritical.
- 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 regulations for electrical systems in hazardous areas (EN/IEC 60079-14).
- The procedures for electrical connection described in the Operating Instructions must be followed.

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)
			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	-15 °C (5 °F)	110 °C (230 °F)	-15 °C (5 °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 above temperature table applies only under the following installation conditions, which are described in the following graphic →  8. 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

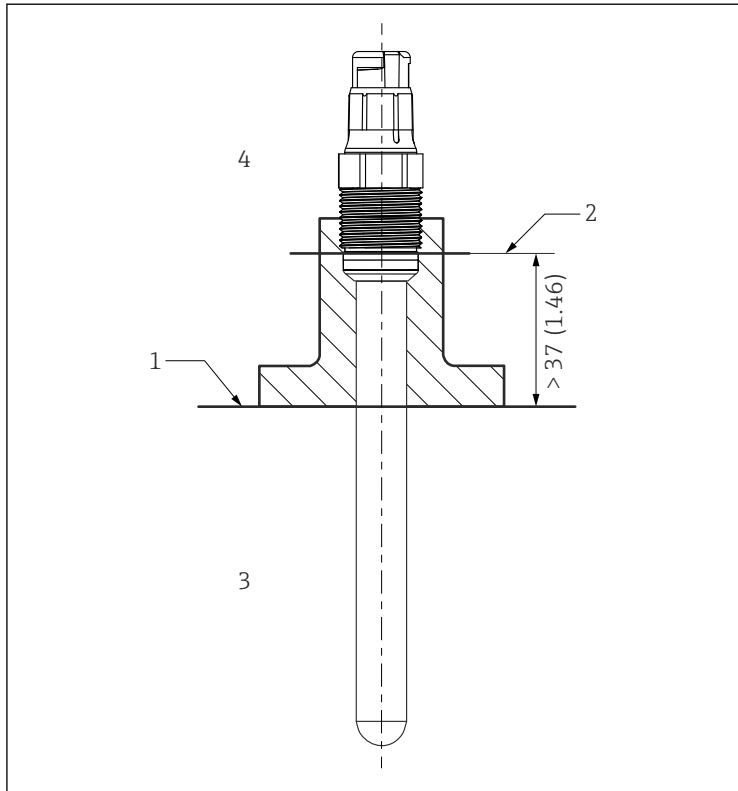
- The ISFET pH sensors of the CPSx7E series are suitable for use in hazardous environments.
- The approved digital ISFET pH sensors have an intrinsically safe input with the following parameter set:

Parameter	Value
P_1	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:

Parameter	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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