

# Safety Instructions

## **Memosens ISFET pH sensors**

Supplement to BA01916C

Safety instructions for electrical apparatus in  
explosion-hazardous areas



**EU-Konformitätserklärung**  
**EU-Declaration of Conformity**  
**Déclaration UE de Conformité**



**Company** Endress+Hauser Conducta GmbH+Co. KG  
 Dieselstraße 24, 70839 Gerlingen, Germany  
 erklärt als Hersteller in alleiniger Verantwortung, dass das Produkt declares as manufacturer under sole responsibility, that the product déclare sous sa seule responsabilité en qualité de fabricant que le produit

**Product** Memosens ISFET Sensoren / ISFET sensors / capteurs ISFET  
 CPSxxD-BA-\*\*\*\*\*+\* xx=47, 77, 97  
 CPSxxD-8E-\*\*\*\*\*+\*

**Regulations** den folgenden Europäischen Richtlinien entspricht:  
 conforms to following European Directives:  
 est conforme aux prescription des Directives Européennes suivantes :

EMC	2014/30/EU (L96/79)
ATEX	2014/34/EU (L96/309)
RoHS	2011/65/EU (L174/88)

**Standards** angewandte harmonisierte Normen oder normative Dokumente:  
 applied harmonized standards or normative documents:  
 normes harmonisées ou documents normatifs appliqués :

EN 61326-1	(2013)	EN IEC 60079-0	(2018)
EN 61326-2-3	(2013)	EN 60079-11	(2012)
EN 50581	(2012)		

**Certification** EG-Baumusterprüfbescheinigung Nr. BVS 19 ATEX E 062 X  
 EC-Type Examination Certificate No.  
 Numéro de l'attestation d'examen CE de type  
 Ausgestellt von/issued by/délivré par DEKRA EXAM GmbH (0158)  
 Qualitätssicherung/Quality assurance/Système d'assurance DEKRA EXAM GmbH (0158)  
 qualité  
 Gerlingen, 27.10.2020  
 Endress+Hauser Conducta GmbH+Co. KG

i.v. i.v.   
 i. V. Jörg-Martin Müller Technology i. V. Mohamed Algafy Technology Certifications and Approvals

# Memosens ISFET pH sensors

Supplement to BA01916C

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**Associated documentation**

This document is an integral part of Operating Instructions BA01988C.

**Supplementary documentation**



- Competence Brochure CP00021Z
  - Explosion Protection: Guidelines and General Principles
  - [www.endress.com](http://www.endress.com)

**Manufacturer's certificate**

**EU Declaration of Conformity**

**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**

*ATEX*

Type	Version					
xPS47D xPS77D	BA	*	*	**	*	+*
x = C, O, OC No Ex relevance	II 1G Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

Type	Version					
xPS97D	BA	*	*	**	*	+*
x = C, O, OC No Ex relevance	II 1G Ex ia IIC T4/T6 Ga	No Ex relevance				

*IECEX*

Type	Version					
xPS47D xPS77D	IA	*	*	**	*	+
x = C, O, OC No Ex relevance	Ex ia IIC T3/T4/T6 Ga	No Ex relevance				

Type	Version					
xPS97D	IA	*	*	**	*	+
x = C, O, OC No Ex relevance	Ex ia IIC T4/T6 Ga	No Ex relevance				

**Certificates and approvals**

*Declaration of Conformity*

With this declaration of conformity, the manufacturer guarantees that the product conforms to the regulations of European EMC Directive 2014/30/EU and ATEX Directive 2014/34/EU. Compliance is verified by adherence to the standards listed in the Declaration of Conformity.

*Hazardous area approvals*

**CPS47D / CPS77D:**

⊕ II 1G Ex ia IIC T3/T4/T6 Ga

**CPS97D:**

⊕ II 1G Ex ia IIC T4/T6 Ga

The product meets the requirements of the "IEC Certification Scheme for Explosive Atmospheres". This is verified by compliance with the standards listed in the IECEx Certificate. The IECEx certificate can be viewed on the following website: [www.iecex.com](http://www.iecex.com).

**CPS47D / CPS77D:**

Ex ia IIC T3/T4/T6 Ga

**CPS97D:**

Ex ia IIC T4/T6 Ga

*Notified Body*

**DEKRA EXAM GmbH**

## Safety instructions

The inductive Memosens ISFET pH sensors CPS47D, CPS77D, CPS97D are suitable for use in explosion-hazardous areas in accordance with:


- IECEx certificate IECEx BVS 19.0056X including amendments
- EC type-examination certificate BVS 19 ATEX E 062 X

The corresponding EC Declaration of Conformity is part of this document.

- 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 regulations for electrical systems in explosion-hazardous areas (EN/IEC 60079-14).
- The procedures for electrical connection described in the Operating Instructions must be followed.
- This device was developed and manufactured in accordance with Directive 2014/34/EU dated February 26, 2014 and also complies with the following standards:
  - EN IEC 60079-0:2018 / IEC 60079-0:2017  
Explosive atmospheres  
Part 0: Equipment - General requirements
  - EN 60079-11:2012 / IEC 60079-11:2011 + Corrigendum:2012  
Electrical apparatus for explosive atmospheres  
Part 11: Intrinsic safety "i"

## Temperature tables

Sensor	Temperature class	Process temperature $T_p$		Ambient temperature $T_a$	
		Minimum	Maximum	Minimum	Maximum
CPS47D CPS77D	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)	
CPS97D	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

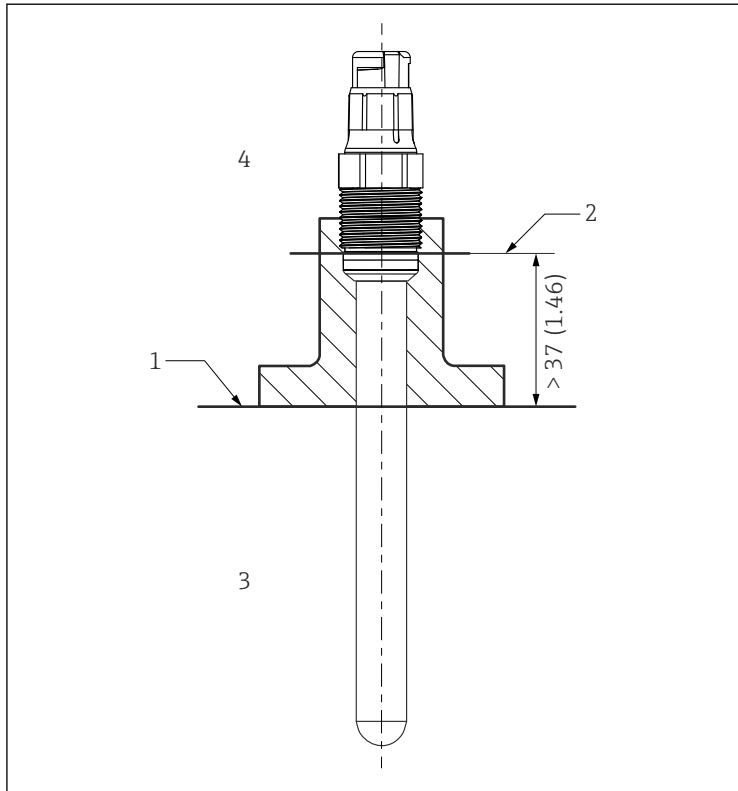
- The CPSx7D-type ISFET pH sensors are approved according to EU type-examination certificate BVS 19 ATEX E 062 X and are suitable for use in explosion-hazardous environments. The corresponding EC Declaration of Conformity is part of this document.
- The approved digital ISFET pH sensors have an intrinsically safe input with the following parameter set:

Parameter	Value
$P_1$	180 mW

The approved CPSx7D-type digital ISFET pH sensors must be connected to a Memosens measuring cable with an intrinsically safe output with the following parameter:

Parameter	Value
$P_0$	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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[www.addresses.endress.com](http://www.addresses.endress.com)

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