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Safety Instructions
Memosens oxygen sensors

NEPSI Ex ia IIC T6/ T4 Ga

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

Memosens oxygen sensors

NEPSI Ex ia IIC T6/ T4 Ga

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Associated documentation

This document is an integral part of the Memosens COS22E Operating Instructions BA02145C.

This document is an integral part of the Memosens COS51E Operating Instructions BA02146C.

Supplementary documentation

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

Certificates

The NEPSI certificates and other certificates/declarations of conformity are available in the Downloads area of the Endress+Hauser website:

www.endress.com/download

The number of the NEPSI certificate that applies to the product can be found on the nameplate.

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.

Ex-approval

NEPSI

xOS22E Ex ia IIC T6/T4 Ga

xOS51E Ex ia IIC T6 Ga

Safety instructions

The Memosens COS22E and Memosens COS51E digital oxygen sensors are suitable for use in hazardous areas.

- A maximum ambient temperature of 90 °C (194 °F) must not be exceeded at the sensor head.
- Oxygen sensors for use in hazardous areas have a special conductive O-ring. The electrical connection of the metallic sensor shaft to the conductive mounting location (such as a metallic assembly) is via the O-ring.
- Appropriate measures must be taken to connect the assembly or the mounting location to ground in accordance with the Ex guidelines.
- The plastic housing may only be cleaned with a damp cloth.
- Hazardous area versions of digital sensors with Memosens technology are marked by an orange/red ring on the plug-in head.
- The maximum permitted cable length between the sensor and transmitter is 100 m (330 ft).
- 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.
- The end user must adhere to the Operating Instructions and the following standards for the installation, operation and maintenance of the product:
  - GB 50257 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
  - GB 3836.13 "Explosive atmospheres - Part 13: Equipment repair, overhaul and reclamation"
  - GB/T 3836.15 "Explosive atmospheres - Part 15: Electrical installations design, selection and erection"
  - GB/T 3836.16 "Explosive atmospheres - Part 16: Electrical installations inspection and maintenance"
  - GB/T 3836.18 "Explosive atmospheres - Part 18: Intrinsically safe electrical systems"
  - GB 15577 “Safety regulations for dust explosion prevention and protection”.
  - To ensure that the explosion protection of the device is maintained, the operator must not change the configuration. Any modification may affect safety.

- This device has been certified by the National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI) and also complies with the following standards:
- GB 3836.1 Explosive atmospheres-Part 1: Equipment-General requirements
- GB 3836.4 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety“i”

Please find the current versions of standards on the certificate.

Only Memosens COS22E:
- Oxygen sensors for use in hazardous areas have a special conductive O-ring. The electrical connection of the metallic sensor shaft to the conductive mounting location (such as a metallic assembly) is via the O-ring.
- Sensors containing parts made of titanium or other light metals must be protected against impact.
- The sensors must not be operated under electrostatically critical process conditions. Avoid strong steam or dust currents that act directly on the connection system.

Only Memosens COS51E:
- The sensors may not be operated under electrostatically critical process conditions in which electrostatic charging of the sensor and the connection system is likely to occur.
- Use of the sensor for its intended purpose in liquids with a conductivity of at least 10 nS/cm can be classified as electrostatically safe.

Type code

Memosens	COS22E-aabbccdde+g	
	aa	Approval **NA:** Ex ia IIC T6/T4 Ga
	bb	Measuring range (no ex-relevance)
	cc	Cap characteristics AA = Stainless steel BA = Titanium CA = Alloy C22 YY = Special version
	dd	Sensor length (no ex-relevance) max. 600 mm (23,6 in)
	e	Material of O-ring (in the cap) (no ex-relevance)
	g	Optional = one or more characters determining optional features (no ex-relevance), e.g. test or other certificates/declarations

Memosens	COS51E-aabbcc+g	
	aa	Approval **NA:** Ex ia IIC T6 Ga
	bb	Measuring range (no ex-relevance)
	cc	Cap characteristics TF = Response time T90, 0.5 minutes TN = Response time T90, 3 minutes YY = Special version
	g	Optional = one or more characters determining optional features (no ex-relevance), e.g. test or other certificates/declarations

Temperature tables

Sensor	Process temperature T_p	Ambient temperature T_a
COS22E	-5 °C (23 °F) ≤ T_p ≤ 70 °C (158 °F)(T6) -5 °C (23 °F) ≤ T_p ≤ 100 °C (212 °F)(T4)	-25 °C (-13 °F) ≤ T_a ≤ 70 °C (158 °F)(T6) -25 °C (-13 °F) ≤ T_a ≤ 70 °C (158 °F)(T4)
COS51E	-5 °C (23 °F) ≤ T_p ≤ 60 °C (140 °F)(T6)	-5 °C (23 °F) ≤ T_a ≤ 60 °C (140 °F)(T6)

The above temperature table applies only under the following installation conditions, which are described in the following graphic → 🖹 6. 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

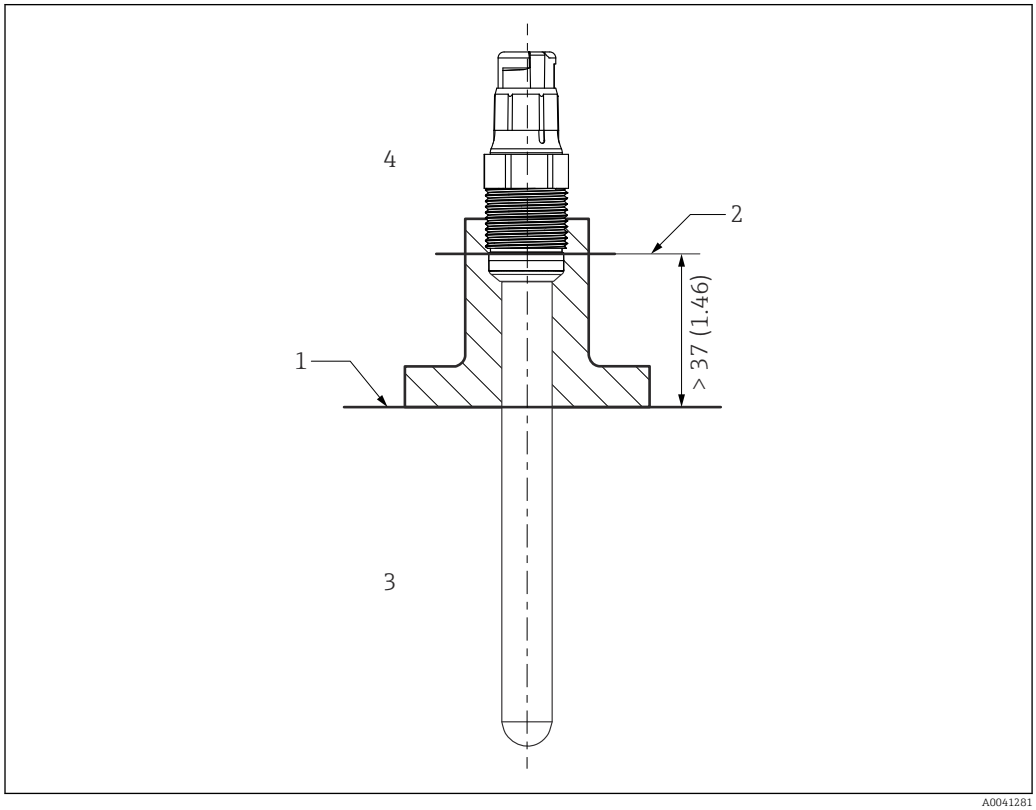
- The conductivity sensors are approved and are suitable for use in explosion-hazardous environments.
- The approved Memosens COS22E and Memosens COS51E digital oxygen sensors have an intrinsically safe input with the following parameter set:

Parameter	Value
P_i	180 mW

The approved Memosens COS22E and Memosens COS51E digital oxygen sensors must be connected to a Memosens cable or cable transmitter with intrinsically safe output with the following parameter:

Parameter	Value
P_o	max. 180 mW

Installation conditions



1 *Installation conditions*

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

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