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Safety Instructions
Memosens COS81E

Supplement to BA02066C

Safety instructions for electrical apparatus in explosion-hazardous areas

Endress+Hauser
People for Process Automation

Memosens COS81E

Supplement to BA02066C

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Associated documentation

This document is an integral part of Operating Instructions BA02066C.

Supplementary documentation

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

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-approvals

NEPSI

Ex ia op is IIC T6... T3 Ga
Ex iaD op is 20 T90/T135/T200

Safety instructions

The Memosens COS81E oxygen sensor is suitable for use in hazardous areas in accordance with:
NEPSI certificate **GYJ20.1074X** including amendments

- 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 sensors must not be operated under electrostatically critical process conditions. Avoid strong steam or dust currents that act directly on the connection system.
- The plastic housing may only be cleaned with a damp cloth.
- Ex versions of digital sensors with Memosens technology are identified 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).
- The end user must adhere to the Operating Instructions and the following standards for the installation, operation and maintenance of the product:
  - GB 50257-2014 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering"
  - GB 3836.13-2013 "Explosive atmospheres - Part 13: Equipment repair, overhaul and reclamation"
  - GB/T 3836.15-2017 "Explosive atmospheres - Part 15: Electrical installations design, selection and erection"
  - GB/T 3836.16-2017 "Explosive atmospheres - Part 16: Electrical installations inspection and maintenance"
  - GB/T 3836.18-2017 "Explosive atmospheres - Part 18: Intrinsically safe electrical systems"

- 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 3836.1-2010 Explosive atmospheres-Part 1: Equipment-General requirements
  - GB 3836.4-2010 Explosive atmospheres-Part 4: Equipment protection by intrinsic safety“i”
  - GB 3836.20-2010 Explosive atmospheres-Part 20: Equipment with equipment protection level (EPL) Ga
  - GB/T 3836.22-2017 Explosive atmospheres-Part 22: Protection of equipment and transmission system using optical radiation
  - GB 12476.1-2013 Electrical apparatus for use in the presence of combustible dust- Part 1: General requirements
  - GB 12476.4-2010 Electrical apparatus for use in the presence of combustible dust- Part 4: Protection by intrinsic safety ”iD”
- Sensors containing parts made of titanium or other light metals must be protected against impact.
- In order to maintain and guarantee the explosion protection of the device, the user may not modify the configuration in any way. Every change can compromise the safety of the device.

Type code

Memosens	COS81E-aabbccdde+g	
	aa	Approval (no ex-relevance) **NG:** Ex ia op is IIC T6/T4/T3 Ga **N5:** ▪ Ex ia op is IIC T6/T4/T3 Ga ▪ Ex iaD op is 20 T90/T135/T200
	bb	Measuring range (no ex-relevance)
	cc	Cap characteristics AC = Stainless steel C-shape AU = Stainless steel U-shape BC = Titanium C-shape BU = Titanium U-shape CC = Alloy C22 C-shape CU = Alloy C22 U-shape YY = Special version
	dd	Sensor length (no ex-relevance) max. 600 mm
	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

Temperature table

Sensor	Process temperature T_p	Ambient temperature T_a
COS81E	-15 ≤ T_p ≤ 130 °C (T3 rep. T200 °C) -15 ≤ T_p ≤ 120 °C (T4 rep. T135 °C) -15 ≤ T_p ≤ 70 °C (T6 rep. T90°C)	-25 ≤ T_a ≤ 70 °C (T3 rep. T200 °C) -25 ≤ T_a ≤ 90 °C (T4 rep. T135 °C) -25 ≤ T_a ≤ 70 °C (T6 rep. T90°C)

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 Memosens COS81E oxygen sensor is approved in accordance with the NEPSI certificate GYJ21.1074X and suitable for use in hazardous environments.
- The approved Memosens COS81E digital oxygen sensor has an intrinsically safe input with the following parameter set:

Parameter	Value
P_i	180 mW

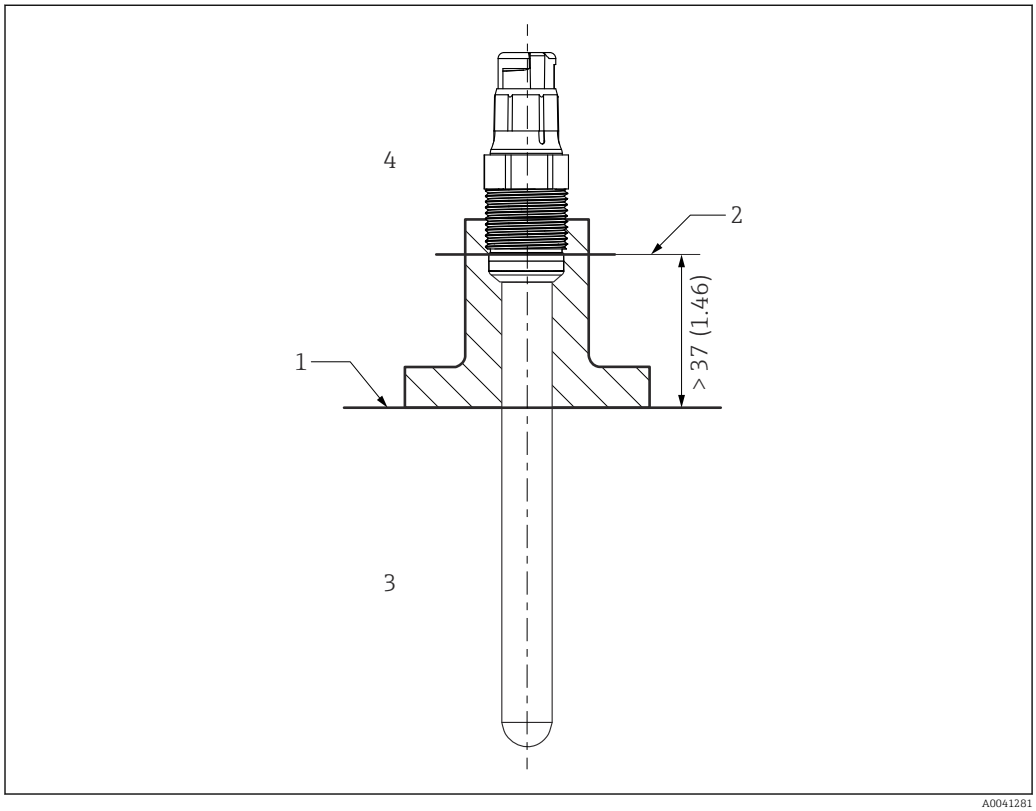
The approved Memosens COS81E digital oxygen sensor uses inherently safe optical radiation:

Parameter	Value
P_{opt} (sensor signal)	≤15 mW

The approved Memosens COS81E digital oxygen sensor 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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