

# Safety Instructions

## **Memosens COS81E**

Supplement to BA02066C

Safety instructions for electrical apparatus in explosion-hazardous areas



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

**Endress+Hauser**   
 People for Process Automation



**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 COS81E- BG/B4\*\*\*\*\***

**Regulations** den folgenden Europäischen Richtlinien entspricht:  
 conforms to following European Directives:  
 est conforme aux prescriptions 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)	EN 60079-28	(2014)

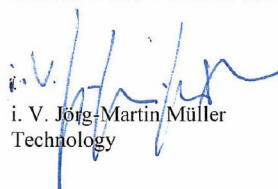
**Certification** EU-Baumusterprüfbescheinigung Nr. IBExU 20 ATEX 1093 X  
 EU-Type Examination Certificate No.  
 Numéro de l'attestation d'examen UE de type


Ausgestellt von/issued by/délivré par

IBExU Institut für  
 Sicherheitstechnik GmbH  
 DEKRA EXAM GmbH (0158)

Qualitätssicherung/Quality assurance/Système d'assurance  
 qualité

Gerlingen, 06.10.2020  
 Endress+Hauser Conducta GmbH+Co. KG

  
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 Technology



  
 i. V. Marco Rottmann  
 Technology Certifications and Approvals

# Memosens COS81E

Supplement to BA02066C

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<b>Associated documentation</b>	This document is an integral part of Operating Instructions BA02066C.
<b>Supplementary documentation</b>	 Competence Brochure CP00021Z <ul style="list-style-type: none"> <li>■ Explosion Protection: Guidelines and General Principles</li> <li>■ <a href="http://www.endress.com">www.endress.com</a></li> </ul>
<b>Manufacturer's certificate</b>	<p><b>EU declaration of conformity</b></p> <p><i>CE mark</i></p> <p>The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EU directives. The manufacturer confirms successful testing of the product by affixing to it the <b>CE</b> mark.</p>
<b>Identification</b>	<p>The nameplate provides you with the following information on your device:</p> <ul style="list-style-type: none"> <li>■ Manufacturer identification</li> <li>■ Order code</li> <li>■ Extended order code</li> <li>■ Serial number</li> <li>■ Safety information and warnings</li> <li>■ Ex marking on hazardous area versions</li> </ul> <p>► Compare the information on the nameplate with the order.</p> <p><b>Declaration of conformity</b></p> <p>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.</p> <p><b>Ex-approvals</b></p> <p><i>ATEX</i></p> <p>  II 1G Ex ia op is IIC T6... T3 Ga  II 1D Ex ia op is IIIC T90°C... T200°C Da </p> <p><i>IECEx</i></p> <p> Ex ia op is IIC T6... T3 Ga  Ex ia op is IIIC T90°C... T200°C Da </p> <p>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: <a href="http://www.iecex.com">www.iecex.com</a>.</p> <p><b>Notified body</b></p> <p>IBExU Institut für Sicherheitstechnik GmbH</p>
<b>Safety instructions</b>	<p>The Memosens COS81E oxygen sensor is suitable for use in hazardous areas in accordance with:</p> <ul style="list-style-type: none"> <li>■ IECEx certificate <b>IECEx IBE 20.0011X</b> including amendments</li> <li>■ EU type-examination certificate <b>IBExU 20 ATEX 1093 X</b></li> </ul> <p>The corresponding EU declaration of conformity is an integral part of this document.</p>


- 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).
- 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.
- This device has been developed and manufactured in accordance with Directive 2014/34/EU of 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 + Cor.:2012 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
  - EN 60079-28:2015/ IEC 60079-28:2015 Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation
- Sensors containing parts made of titanium or other light metals must be protected against impact.

### Type code

Memosens	COS81E-aabbccdde+g	
	aa	Approval (no ex-relevance) <b>BG:</b> II 1G Ex ia op is IIC T6 ... T3 Ga <b>B4:</b> ■ II 1G Ex ia op is IIC T6 ... T3 Ga ■ II 1D Ex ia op is IIIC T90°C... T200°C Da <b>IF:</b> Ex ia op is IIC T6 ... T3 Ga <b>I5:</b> ■ Ex ia op is IIC T6 ... T3 Ga ■ Ex ia op is IIIC T90°C... T200°C Da
	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	$-15 \leq T_p \leq 130 \text{ °C}$ (T3 rep. T200 °C) $-15 \leq T_p \leq 120 \text{ °C}$ (T4 rep. T135 °C) $-15 \leq T_p \leq 70 \text{ °C}$ (T6 rep. T90°C)	$-25 \leq T_a \leq 70 \text{ °C}$ (T3 rep. T200 °C) $-25 \leq T_a \leq 90 \text{ °C}$ (T4 rep. T135 °C) $-25 \leq T_a \leq 70 \text{ °C}$ (T6 rep. T90°C)

The above temperature table 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 Memosens COS81E oxygen sensor is approved in accordance with the EU type-examination certificate IBExU 20 ATEX 1093 X and suitable for use in hazardous environments. The corresponding EU declaration of conformity is an integral part of this document.
- The approved Memosens COS81E digital oxygen sensor has an intrinsically safe input with the following parameter set:

Parameter	Value
$P_i$	180 mW

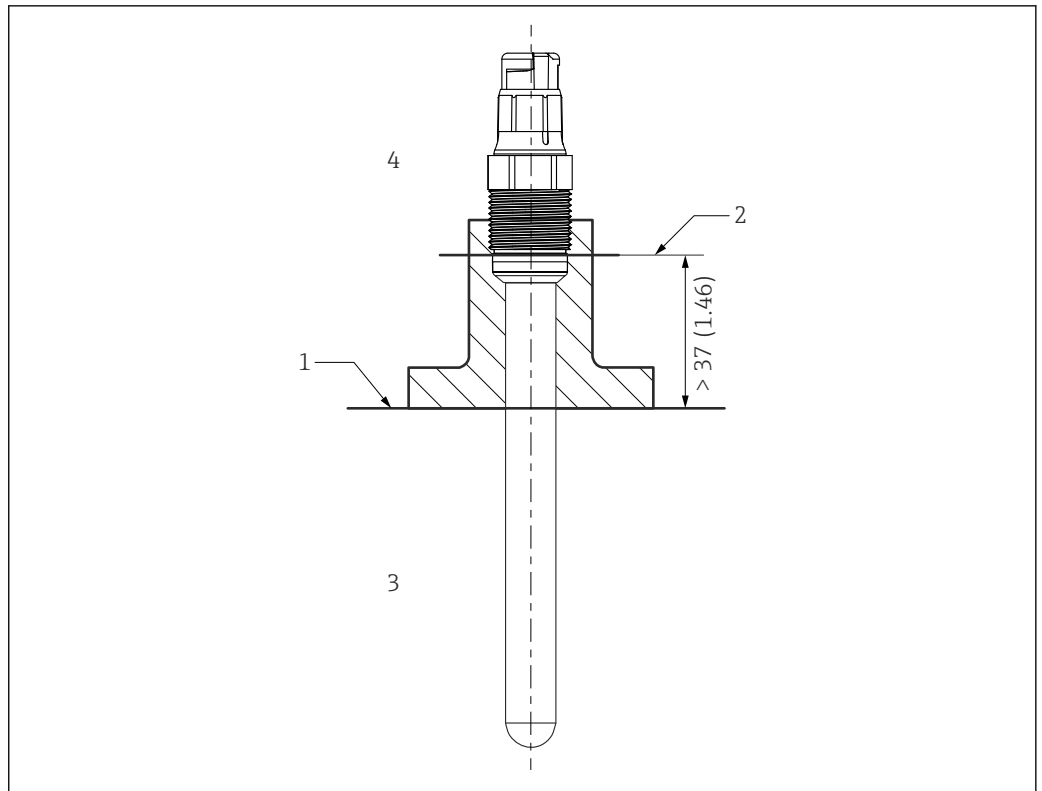
The approved Memosens COS81E digital oxygen sensor uses inherently safe optical radiation:

Parameter	Value
$P_{opt}$ (sensor signal)	$\leq 15$ 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



A0041281

## 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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