



UK Type Examination Certificate CML 21UKEX2588X Issue 0

United Kingdom Conformity Assessment

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) Schedule 3A, Part 1
- 2 Equipment Memosens Type xOS81E, xOS22E and xOS51E
- 3 Manufacturer Endress+Hauser Conducta GmbH+Co. KG
- 4 Address Dieselstraße 24 70839 Gerlingen Germany
- 5 The equipment is specified in the description of this certificate and the documents to which it refers.
- 6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-28:2015

10 The equipment shall be marked with the following:

 $\langle \epsilon_x \rangle_{\rm D}$

Refer to attached certificate IBExU20ATEX1093X, Issue 1 for specific marking of explosion protection symbols.

Refer to attached certificate IBExU20ATEX1093X, Issue 1 for marked code and ambient temperature range.

R C Marshall Operations Manager





11 Description

For product description refer to attached certificate IBExU20ATEX1093X, Issue 1.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	28 Sep 2021	R14200A/00	Issue of the prime certificate. IBExU20ATEX1093X, Issue 1 is attached and shall be referred to in conjunction with this certificate.

Note: Drawings that describe the equipment are listed or referred to in the Annex.

13 Conditions of Manufacture

For conditions of manufacture, refer to attached certificate IBExU20ATEX1093X, Issue 1.

Any routine tests/verifications required by the ATEX certification shall be conducted.

14 Specific Conditions of Use

For specific conditions of use, refer to attached certificate IBExU20ATEX1093X, Issue 1.

Certificate Annex

Certificate Number	CML 21UKEX2588X
Equipment	Memosens Type xOS81E, xOS22E and xOS51E
Manufacturer	Endress+Hauser Conducta GmbH+Co. KG



The following documents describe the equipment defined in this certificate:

Issue 0

For drawings describing the equipment, refer to attached certificate IBExU20ATEX1093X. In addition to the drawings listed on IBExU20ATEX1093X, the following drawings include the additional marking required for this UK Type Examination certification:

Drawing No	Sheets	Rev	Approved date	Title
202072	1 to 3	А	28 Sep 2021	Nameplate (O)COSxx(E) Dm 12
202128	1 to 3	В	28 Sep 2021	Nameplate (O)COSxxE Dm 40 POM

[1] EU-TYPE EXAMINATION CERTIFICATE - Translation

[2] Equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU



- [3] EU-type examination certificate number IBExU20ATEX1093 X | Issue 1
- [4] Product: Memosens Type xOS81E, xOS22E and xOS51E
- [5] Manufacturer: Endress+Hauser Conducta GmbH+Co. KG
- [6] Address: Dieselstraße 24 70839 Gerlingen GERMANY
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-20-3-0193.

- [9] Compliance with the essential health and safety requirements has been assured by compliance with: EN IEC 60079-0:2018, EN 60079-11:2012, EN 60079-28:2015 except in respect of those requirements listed at item [18] of the schedule.
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.
- [11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

xOS81E:

· ເ II 1G Ex ia op is IIC T6…T3 Ga · ເ II 1D Ex ia op is IIIC T90 °C… T200 °C Da

xOS22E:

🖾 II 1G Ex ia IIC T6...T4 Ga

<u>xOS51E:</u>

II 1G Ex ia IIC T6 Ga

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By order

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Certificates without signature and seal are not valid. Certificates may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Freiberg, 2021-03-30

[13]

Schedule

[14]

Certificate number IBExU20ATEX1093 X | Issue 1

[15] Description of product

Type xOS81E:

The sensor type xOS81E is designed for continuous measurement of dissolved oxygen in water and aqueous solutions, and also for continuous measurement of oxygen in gases. The sensor type can be used in Zone 0 (EPL Ga) and Zone 20 (EPL Da).

Types xOS22E and xOS51E:

The sensor types xOS22E and xOS51E are designed for continuous measurement of dissolved oxygen in water and aqueous solutions.

This sensor types can be used in Zone 0 (Categorie 1G; EPL Ga).

All types:

The sensors and measuring cables electronic circuits are completely encapsulated. All sensors are connected galvanically isolated via a completely insulated connection system (inductive coupling, MEMOSENS compatible supply with $P_0 \le 180$ mW).

Type Code:

Type xOS81E:

Memosens	xOS81E-aabbccddefff+g				
19.	×	Manufacturer C, O or OC \rightarrow no Ex relevance			
	aa	Order option ex certification (no ex-relevance)			
	bb	Measuring range (no ex-relevance)			
	cc	Cap characteristics AC = Stainless steel C-shape AU = Stainless steel U-shape BC = Titan C-shape BU = Titan U-shape CC = Alloy C22 C-shape CU = Alloy C22 U-shape YY = Special version			
	dd	Sensor length (no ex-relevance) max 600 mm			
	е	O-ring material (in the cap) (no ex-relevance)			
	fff	Optional (no ex-relevance)			
	g	Optional = one or more characters determining optional features (no ex-relevance) e.g. test or other certificates/ declarations			

Type xOS22E:

Memosens	xOS22E-aabbccddefff+g			
	x	Manufacturer C, O or OC \rightarrow no Ex relevance		
	aa	Order option ex certification (no ex-relevance)		
	bb	Measuring range (no ex-relevance)		
	cc	Cap characteristics AA = Stainless steel BA = Titan CA = Alloy C22 YY = Special version		
	dd	Sensor length (no ex-relevance) max 600 mm		
	e	O-ring material (in the cap) (no ex-relevance)		
	fff	Optional (no ex-relevance)		
	g	Optional = one or more characters determining optional features (no ex-relevance) e.g. test or other certificates/ declarations		

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Type xOS511					
Memosens	xOS51E-aabbccfff+g				
	x	Manufacturer C, O or OC → no Ex relevance			
	aa	Order option ex certification (no ex-relevance)			
	bb	Measuring range (no ex-relevance)			
	cc	Cap characteristics (no ex-relevance) TF = Response time T90, 0.5 minutes steel TN = Response time T90, 3 minutes YY = Special version			
	fff	Optional (no ex-relevance)			
	g	Optional = one or more characters determining optional features (no ex-relevance) e.g. test or other certificates/ declarations			

Technical Data

Sensor	Ambient temperature	Process temperature
xOS81E	-25 °C ≤ T _a ≤ 70 °C (T3 resp. T200 °C) -25 °C ≤ T _a ≤ 90 °C (T4 resp. T135 °C)	-15 °C ≤ T _p ≤ 130 °C (T3 resp. T200 °C) -15 °C ≤ T _p ≤ 120 °C (T4 resp. T135 °C)
xOS22E	-25 °C ≤ T _a ≤ 70 °C (T6 resp. T90 °C) -25 °C ≤ T _a ≤ 70 °C (T6)	-15 °C ≤ T_p ≤ 70 °C (T6 resp. T90 °C) -5 °C ≤ T_p ≤ 70 °C (T6)
xOS51E	$-25 ^{\circ}\text{C} \le T_a \le 70 ^{\circ}\text{C} (T4)$	$-5 \text{ °C} \le T_p \le 100 \text{ °C} (T4)$

Electrical Data

Supply and signal circuit in type of protection Intrinsic Safety Ex ia IIC

Inductive coupling (at all types)		Pi	180 mW	
Optical radiation (sensor signal, only for type x	OS81E)	Popt	≤15 mW	

Variations compared to EU-Type examination certificate issue 0:

Variation 1

New sensor types xOS22E and xOS51E have been added.

Variation 2

The type can also be manufactured according to the modified manufacturing documents.

[16] Test report

The test results are recorded in the confidential test report IB-20-3-0193 of 2021-03-29. The test documents are part of the test report and they are listed there.

Summary of the test results

The xOS81E sensor meets the requirements of the ignition protection type intrinsic safety "ia" and optical radiation "op is" for explosion-proof equipment for group II, category 1G, explosion group IIC and temperature class T6...T3, as well as category 1D with the maximum surface temperature T90 °C ...T200 °C.

The sensors xOS22E and xOS51E meet the requirements of the ignition protection type intrinsic safety "ia" for explosion-proof equipment for group II, category 1G, explosion group IIC and temperature class T6...T4.

[17] Specific conditions of use

For all types:

- The maximum ambient and process temperatures for the temperature classes T3, T4 or T6 are limited according to the table (see also in manual).
- The plastic housing may only be cleaned with a damp cloth.
- The sensor may not be operated in electrostatically critical processing conditions, in which an electrostatic loading of the sensor and the connecting system is to be counted. Significant steam and dust clouds acting directly on the Memosens sensor head must be strictly avoided.

For types xOS22E and xOS81E:

- Metallic process connection parts have to be mounted electrostatically conductive at the mounting location (< 1 MΩ).
- If sensor parts are consisting of light metal e.g. Titan, then these parts have to protected against hits.

For type xOS51E:

Operation in product application intended fluid media providing conductivity of at least 10 nS/cm can be assumed as electrostatic uncritical.

[18] Essential health and safety requirements

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

None

[19] Drawings and Documents

The documents are listed in the test report.

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By order

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Freiberg, 2021-03-30