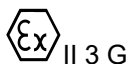


Type Examination Certificate CML 21UKEX41409X Issue 1**United Kingdom Conformity Assessment**

- 1 Product or Protective System Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended)
- 2 Equipment **Optical Oxygen Analyzer, OXY5500**
- 3 Manufacturer **Endress+Hauser Optical Analysis Inc. / SpectraSensors Inc.**
- 4 Address **11027 Arrow Route, Rancho
Cucamonga CA 91730,
United States of America**
- 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, 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 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 IEC 60079-7:2015+A1:2018
- 10 The equipment shall be marked with the following:



Ex ec IIC T3 Gc, IP66

Ta= Up to -20°C to +60°C



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11 Description

The Optical Oxygen Analyzer, OXY5500 is a device which allows the measurement of oxygen in natural gas using a flow through a fiber optic oxygen sensor, which is inserted into the process stream. In addition to the probe, there is a PT-100 4-wire temperature sensor connected to the controller. An optional pressure transducer may be fitted, and the measurement is fed back into the controller for pressure compensation and better accuracy of the oxygen measurement.

The equipment consists of two enclosures which are nested into each other.

The inner enclosure houses the necessary transmitter electronic I/O ports and communication ports. This inner enclosure is mounted via cap rail to the outer enclosure which includes all modules. The outer enclosure is supplied with cable glands and entry accessories.

The analyser can be supplied by:

- AC voltage via an AC/DC power supply SIEMENS, type 6EP3333-6SC00-0AY0 or equivalent (ATEX/UKEX, IIC, T3 Gc or better, Output, 24Vdc, $\geq 1A$, Tamb $-20^{\circ}C$ to $+70^{\circ}C$ minimum)
- DC voltage via a DC/DC power supply XP Power, type DDC15, 24Vdc (Nom.), Output, 24Vdc or equivalent (ATEX/UKEX, IIC, T4/T3 Gc or better, Output, 24Vdc, $\geq 1A$, Tamb $-20^{\circ}C$ to $+50^{\circ}C$ minimum).

The cover of the analyzer has a window for the transmitter screen display and a foil keyboard.

Variation 1

This variation introduced the following changes:

- i. To allow the same gasket material used on the window to alternatively be used on the cover arrangement.
- ii. To allow a replacement power supply to be used.
- iii. To increase the IP rating from IP64 to IP66.
- iv. The Description, Marking and Conditions of Manufacture have been updated in accordance with the above modifications.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	09 Feb 2022	R14877B/00	Issue of Prime Certificate
1	25 Apr 2023	R16329A/00	Introduction of Variation 1

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



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Issue 1

13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.
- ii. According to EN IEC 60079-7, clause 7.1, each apparatus shall be submitted to a dielectric strength test (carried out in accordance with clause 6.1).
- iii. The manufacturer shall mark the ambient temperature based on the PSU fitted, as follows:

PSU	Maximum ambient
6EP3333-6SC00-0AY0	60°C
DDC15	50°C

14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. The electrical installation to which the apparatus is connected must be protected against transients. The protective device has to be set at a level not exceeding 140% of the peak rated voltage values at the power supply terminals (according to clause H.2) of standard EN IEC 60079-7).
- ii. The user shall not open the enclosure/disconnect any sensors when an explosive atmosphere is present, or equipment is energized.
- iii. The non-metallic window in the enclosure has a potential static electrostatic charging hazard, see instructions.
- iv. The current output on the AC power supply shall not be altered from setting provided by the manufacturer.
- v. The equipment shall only be used in a location of not more than pollution degree 2, as defined in EN 60664-1 (Clean and dry).
- vi. The equipment shall be wall mounted only, with the internal power supply connections facing upwards. Additionally, the equipment shall only be located in an area with a low impact risk and installer shall ensure adequate clamping of the supply cables.

Certificate Annex

Certificate Number CML 21UKEX41409X
Equipment Optical Oxygen Analyzer, OXY5500
Manufacturer Endress+Hauser Optical Analysis Inc. /
SpectraSensors Inc.



The following documents describe the equipment defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
8300002033	1 to 2	C	09 Feb 2022	Technical file
4900002242	1 of 1	A	09 Feb 2022	Product description
EX0800000020	1 to 31	A	09 Feb 2022	OXY5500, Transmitter Tech. Doc.
EX2400000035	1 to 12	B	09 Feb 2022	Assy. Keypad, OXY5500
EX3700000001	1 to 6	B	09 Feb 2022	Window, Enclosure
EX1300000020	1 to 8	C	09 Feb 2022	Gasket ECE 7.75" x 9.72"
EX1600000001	1 to 4	C	09 Feb 2022	Window Gasket, Enclosure
EX2400000036	1 to 9	B	09 Feb 2022	Gland, CBL, M12,3 – 6.5MM CAB
EX5500000001	1 to 16	C	09 Feb 2022	XDCR, Press. Z2/D2, PED & NACE
EX2800002111	1 to 2	A	09 Feb 2022	Fitting, 3/8" X 1/2"NPR, 316SS
EX2400000037	1 to 19	D	09 Feb 2022	Adapter, M25 x 3/4"NPT, Exd, Exe
EX2400000016	1 to 19	E	09 Feb 2022	Reducer, M25 x M20, Exd, Exe
EX4000000001	1 to 17	D	09 Feb 2022	Pwr. Supply Module, AC100 – 240Vac to 24Vdc, 1.3Amp
EX4000000003	1 to 12	B	09 Feb 2022	Pwr. Supply DC/DC Converter, 9-36Vdc in 24Vdc out, 15 watt
1700002205	1 of 1	K	09 Feb 2022	Label, Rating OXY5500
EX3100000003	1 to 5	A	09 Feb 2022	PCBA, OSI – V1
EX3100000004	1 to 9	A	09 Feb 2022	PCBA, ASI – V2
EX3100000005	1 to 13	A	09 Feb 2022	PCBA, DSI – V2
EX0800000019	1 to 11	G	09 Feb 2022	Assy. Precision Oxygen Analyzer
1600002063	1 to 4	A	09 Feb 2022	Sylgard® 164 Silicone Elastomer
8700004500	1 of 1	C	09 Feb 2022	RTD Probe, 100Ω 1/8x2.SSArm, Generic
EX1300000012	1 to 39	E	09 Feb 2022	Plug, Dome Head, M20 Exd, Exe, IIC

Certificate Annex

Certificate Number CML 21UKEX41409X
Equipment Optical Oxygen Analyzer, OXY5500
Manufacturer Endress+Hauser Optical Analysis Inc. /
SpectraSensors Inc.



Issue 1

Drawing No.	Sheets	Rev	Approved date	Title
1700002205	1 of 1	L	21 Apr 2023	Label, Rating OXY5500
EX0800000019	1 to 12	J	21 Apr 2023	Assy. Precision Oxygen Analyzer
EX1300000012	1 to 33	E	21 Apr 2023	Plug, Dome Head, M20 Exd, Exe, IIC
EX1300000051	1 of 1	A	21 Apr 2023	Gasket, Silicone, OXY5500 Enclosure
EX1600000010	1 to 19	A	21 Apr 2023	Silicone, medium Cellular
EX2100000046	1 to 25	A	21 Apr 2023	TERM Block, DIN TS 35, Feed-Thur, 2.5mm
EX2100000047	1 to 25	A	21 Apr 2023	TERM Block, DIN TS 35, 300A, 2.5mm, GRN/YEL
EX3700000001	1 to 6	C	21 Apr 2023	Window, Enclosure
EX4000000004	1 to 13	A	21 Apr 2023	Pwr. Supply Module, AC100 – 240Vac to 24Vdc, 1.3Amp
8300002033	1 to 2	D	21 Apr 2023	Technical file

The following drawings have been removed from the design:

Drawing No.	Sheets	Rev	Approved /issued date	Title
EX4000000001	1 to 17	D	09 Feb 2022	Pwr. Supply Module, AC100 – 240Vac to 24Vdc, 1.3Amp
EX1300000020	1 to 8	C	09 Feb 2022	Gasket ECE 7.75" x 9.72"