



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **Sira 17ATEX1094X** Issue: **5**

4 Equipment: **CT5800 Continuous Gas Analyzer**

5 Applicant: **Emerson Process Management Limited**

6 Address: **2 Hunt Hill
Cumbernauld
Glasgow, G68 9LF**

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2 G
Ex db IIB+H₂ T4 Gb
Ta = -20°C to +55°C

Signed: Michelle Halliwell

Title: Director of Operations



Project Number 80122743

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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The CT5800 Continuous Gas Analyzer is an infra-red laser based spectrometer used for the analysis and measurement of gases. The measurement results are displayed on the equipment or they can be communicated to external equipment. A containment system in the form of a gas cell is provided inside the enclosure for the measurement of the gas mixture. The gas cell has an inlet and an outlet through which the process gas flows.

Maximum operating pressure of process gas: 1 barg
Temperature of process gas: +4 °C to +60 °C
Supply Voltage: 220 V to 240 V, 50 Hz
or
110 V to 120 V, 60 Hz

The enclosure is cast aluminium with an opening cover for access. The cover is fastened with 20 off M16 fasteners which are held captive in the cover when opened. A glass display window and keypad is provided in the cover.

Internal heaters are provided and limited to the following maximum temperatures.

Enclosure +5 °C
Gas Cell +50 °C

The bottom of the enclosure is provided with 4 off M20 x 1.5 and 8 off M18 x 1.5 entries. The process gas inlet and outlet utilises two of the M18 entries and are each fitted with a flame arrester. Breathing devices are fitted as required into the M18 or M20 entries.

The remainder of the entries are fitted with a suitably certified cable entry or a blanking plug.

The CT5800 Continuous Gas Analyzer provides a degree of ingress protection IP66.

Variation 1 - This variation introduced the following changes:

- i. To introduce changes to the permissible laser path lengths.
- ii. To introduce an improved gas fitting for the PT100 temperature sensor component.
- iii. To introduce alternative detector models PDA10D2 and PDA8A2.
- iv. To introduce an additional 3 tapped holes on the bottom housing of the enclosure.
- v. To introduce an alternative input module in the flameproof enclosure.
- vi. The recognition of minor modifications to scheduled drawings. These amendments are administrative or involve changes to the design that do not affect the aspects of the product that are relevant to explosion safety.

Variation 2 - This variation introduced the following change:

- i. To permit the replacement of the cement material options to secure the window of the Ex d enclosure.



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Variation 3 - This variation introduced the following change:

- i. The certificate holder and manufacturer's name and address were changed:

From:	To:
Cascade Technologies Ltd	Emerson Process Management Limited
Glendevon House	2 Hunt Hill
Castle Business Park	Cumbernauld
Stirling Scotland, FK9 4TZ	Glasgow, G68 9LF

Variation 4 - This variation introduced the following changes:

- i. Following appropriate assessment to demonstrate compliance with the requirements of the latest standards, EN 60079-0:2012/A11:2013 is replaced with EN IEC 60079-0:2018.
- ii. Introduction of pressure sensor type TE MTE8000 manufactured by First Sensor AG and type Titan TPTa manufactured by Stork Solutions Ltd as alternatives of currently approved pressure sensor type CTE8002AY7V manufactured by First Sensor AG (drawing W-1050-0002 item 7) mounted on the containment system

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	22 March 2017	R70082684A	The release of the prime certificate.
1	26 March 2019	R70207919a	The introduction of Variation 1
2	15 October 2019	0979	Transfer of certificate Sira 17ATEX1094X from Sira Certification Service to CSA Group Netherlands B.V.
3	02 February 2021	R80058259A	The introduction of Variation 2
4	01 April 2022	R80107020A	The introduction of Variation 3.
5	28 June 2022	R80122742A	The introduction of Variation 4.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 This equipment has flamepaths which differ from those in EN 60079-1. The manufacturer shall be contacted for guidance when maintaining the flamepaths.
- 15.2 The fasteners which secure the cover are non-standard and shall therefore only be replaced by fasteners supplied by the manufacturer for this purpose. The fasteners must always be fitted with the washer supplied by the manufacturer.
- 15.3 The equipment has non-conductive surfaces which are a potential electrostatic charging hazard – see the instructions for guidance.
- 15.4 The user shall ensure that the flow of process gas is limited to a maximum flow rate of 6 litres per minute.
- 15.5 The equipment shall only be used with process gases which are classified for equipment group IIB + H₂ and must not contain oxygen or any other oxidizer in concentrations greater than that found in normal air.

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16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 Each enclosure shall be subjected to a routine pressure test as required by clause 16.1 of EN 60079-1:2014. A minimum pressure of 10.71 bar shall be applied and held for at least 10 seconds. The test is considered satisfactory if the following conditions are met,
- the enclosure has suffered no permanent deformation or damage invalidating the type of protection.
 - the joints in no place have been permanently enlarged.
 - there is no leakage through the walls of the enclosure or the cemented window joint.
- 17.4 Each gas cell and pipework between the cell and the flame arrestors at the inlet and outlet shall be subjected to a routine pressure test as required by annex G.4.1 of EN 60079-1:2014. A pressure of 1.5 bar shall be applied and held for at least 120 seconds. The increase of the test pressure should achieve the maximum pressure within 5 seconds. The test is considered satisfactory if no permanent deformation occurs and compliance with the leakage test for a containment system with a limited release as required by annex G.4.3 of EN 60079-1:2014 is verified.

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Certificate Annexe



Certificate Number: Sira 17ATEX1094X

Equipment: CT5800 Continuous Gas Analyzer

Applicant: Emerson Process Management Limited

Issue 0

Drawing	Sheets	Rev.	Date (Stamp)	Title
A-1050-0001	1 of 1	B	09 Mar 17	Front Cover, Window Assembly
A-1050-0002	1 to 3	B	09 Mar 17	Enclosure Details
A-1050-0003	1 to 3	B	09 Mar 17	Enclosure Details
A-1050-0004	1 to 12	B	09 Mar 17	General Arrangement
A-1050-0006	1 to 3	B	09 Mar 17	Gas Cell Seals
M-1050-0001	1 to 2	B	09 Mar 17	Bottom Housing
M-1050-0002	1 of 1	B	09 Mar 17	Top Housing
M-1000-3053	1 of 1	D	09 Mar 17	Nameplate
W-1050-0002	1 of 2	B	09 Mar 17	Internal Components

Issue 1

Drawing	Sheets	Rev.	Date (Stamp)	Title
A-1050-0002	1 to 3	C	14 Feb 19	Enclosure Details
A-1050-0003	1 to 3	C	14 Feb 19	Enclosure Details
A-1050-0004	1 to 12	C	14 Feb 19	General Arrangement
M-1050-0001	1 to 2	C	14 Feb 19	Bottom Housing
W-1050-002	1 of 2	C	14 Feb 19	Internal Components

Issue 2. No new drawings were introduced.

Issue 3

Drawing	Sheets	Rev.	Date (Stamp)	Title
A-1050-0001	1 to 2	C	25 Jan 21	Front Cover, Window Assembly

Issue 4

Drawing	Sheets	Rev.	Date (Stamp)	Title
M-1050-0003	1 to 2	C	09 Mar 22	CT5800 Rating Plate, ATEX IECEx

Note: M-1050-0003 replaces M1000-3053.

Issue 5

Drawing	Sheets	Rev.	Date (Stamp)	Title
A-1050-0004	1 to 14	D	09 Jun 22	CT5800 Top Level Cert Drawing, ATEX/IECEx/UKEx
M-1050-0003	1 to 2	D	09 Jun 22	CT5800 Side Plaque ATEX/IECEx
W-1050-0002	1 to 3	D	09 Jun 22	CT5800 Certification Component Index Drg.

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