



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 02ATEX1146X** Issue: **9**

4 Equipment: **Analyser Model 500**

5 Applicant: **Rosemount Analytical Inc.** **Emerson Process Management**

6 Address: **10241 West Little York** **Block 5 Unit 2**
Suite 200 **Dumyat Business Park**
Houston **Tullibody FK10 2PB**
Texas 77040 **Scotland**
USA

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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 60079-0:2009

EN 60079-1:2007

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC 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 2G

Ex d IIC T4 Gb Ta +60°C

Project Number 70049764

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A G Boyes
Certification Support Officer

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13 DESCRIPTION OF EQUIPMENT

Heater Block assembly

The heater block is used to heat the sample gas prior to entry to the detector module. It comprises an aluminium alloy block with drillings for the installation of an heating element. Process pipes pass through the block uninterrupted. The heater block is connected to the Pre-Amp/Temperature Control Interface Module by means of an $\frac{3}{4}$ NPS Union Connector.

Detector Module

The detector module comprises a JCE type GUB 1 Flameproof Enclosure, in compliance with ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing a thermal conductivity detector..

Process pipes enter and exit the enclosure via four inlet/outlet glands. These comprise a 316 stainless steel threaded block, which has an hexagonal section for installation. The block incorporates a central small diameter bore to allow the passage of process pipes. The interface between the process pipe and the block forming a cylindrical flamepath.

The Detector Module connects to the Pre-Amp/Temperature Control Interface Module via a M20 Union Connection.

Pre-Amp/Temperature Control Interface Module

The Pre-amp/Temperature Control Interface Module comprises a JCE type GUB 4 Flameproof Enclosure, ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing temperature control circuitry for the heater and pre-amplifier circuitry for conditioning the signal from the detector.

Valve Drive/Power Supply Interface Module

The Pre-amp/Temperature Control Interface Module comprises a JCE type GUB 4 Flameproof Enclosure, ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing Power supply and drive circuitry for the external solenoid valves.

Transformer Assembly

The Transformer Assembly comprises a JCE type GUB 4 Flameproof Enclosure, ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing a supply transformer.

Solenoid Valves

A maximum of fifteen solenoid valves are used to control the flow of sample gas within the analyser. Two types are employed, either Type 6814L manufactured by ALCON, Sira Certificate Sira03ATEX1319, or Type JV-108-430 manufactured by ASCO, BASEEFA Certificate Ex 821347X, or Type NF-M**** manufactured by ASCO, LCIE Certificate LCIE00ATEX6008X.

Methanator Assembly

The Methanator Assembly comprises a JCE type GUB 2 Flameproof Enclosure, ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing a 24Vdc 35W methanator assembly.

Process pipes enter and exit the enclosure via two inlet/outlet glands as per Detector Module above.



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PID Controller/Power Supply Module

The PID Controller/Power Supply Module comprises a JCE type GUB 5 Flameproof Enclosure, ISSeP Certificate ISSeP03ATEX004U (unlabelled), containing a 230Vac/24Vdc 49.5W power supply and a PID temperature control unit.

Union Connectors

Union connectors are employed to connect the Heater Block Assembly and Detector Module to the Pre-Amp/Temperature Control Interface Module. The Union comprises two sections. The female section comprises a brass body with an external M20 thread, a hexagonal portion then a threaded portion for coupling. A bore is machined into this section to accommodate the male section.

The male section comprises a brass body, cylindrical in section, with a bore through the middle along its length. Located on the outside is a locking ring fitted with an hexagonal portion to allow tightening. The locking ring secures the male section to the female section. The opposite end of the male section has an external M20 or $\frac{3}{4}$ NPS thread. The internal bore is filled with an epoxy putty, which is keyed into the internal bore by means of circlips

General

The analyser Model 500 comprises all of the above equipment, electrically connected and mounted on a metal frame along with non-electrical components. A weatherproof housing, comprising an inner insulated jacket surrounded with a sheet steel housing, is provided to cover the Heater Block Assembly, Detector module, Methanator Module and Pre-amp/Temperature Control Interface Module.

Variation 1 - This variation introduced the following change:

- i. The introduction of an alternative mounting method for the heater block assembly.

Variation 2 - This variation introduced the following change:

- i. Amendments to drawings to update the certification details of component parts were acknowledged.

Variation 3 - This variation introduced the following changes:

- i. The introduction of an alternative solenoid valve was recognised.
- ii. The drawing text was changed thus allowing suitably certified cable entry devices to be fitted rather than explicitly detailing a unique type.

Variation 4 - This variation introduced the following change:

- i. The introduction of an alternative arrangement incorporating a liquid injection valve, a methanator unit, a PID controller/power supply unit, an Ex e power distribution box and, optionally, a Type 2350A Controller.
- ii. The recognition of the change in company name and address, previously Daniel Europe Limited, Logie Court, Stirling University Innovation Park, Stirling FK9 4NF, Scotland.



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Variation 5 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents previously listed in section 9, EN 50014:1997 (amendments A1 to A2), and EN 50018:2000, were replaced by those currently listed. The markings in section 12 were updated accordingly. As a result of the re-assessment, a Special Condition for Safe Use was introduced and therefore an 'X' suffix was added to the certificate number.
- ii. The list of certified drawings was rationalised to show the latest revision of each document.

Variation 6 - This variation introduced the following changes:

- i. It was recognised that the JCE Component certified enclosures used in the construction of these products, previously covered by certificate number ISSeP03ATEX004U, are now certified under TRAC 12ATEX0008U; the design of the enclosure is unchanged. A special condition regarding static hazards was introduced based on the Schedule of Limitations from the TRAC certificate.
- ii. The revision of the drawings to show new certificate numbers for component certified, JCE enclosures.
- iii. The revision of drawings to change references from EN 50014 and EN 50018 to EN 60079-0 and EN 60079-1.
- iv. The revision of drawing templates from Daniel to the Emerson Process Management template.

Variation 7 - This variation introduced the following changes:

- i. The introduction of a new Special Condition For Safe Use and Condition Of Manufacture to give clarification on the use of appropriate certified right angle cable adaptors with the equipment.

Variation 8 - This variation introduced the following change:

- i. The Prime holder of the certificate was transferred to Rosemount Analytical Inc., 10241 West Little York, Suite 200, Houston, Texas 77040, USA, The Site in Tullibody was retained as a subsidiary location.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

| Issue | Date | Report no. | Comment |
|-------|------------------|------------|--|
| 0 | 11 February 2003 | R51A8195A | The release of the prime certificate. |
| 1 | 26 February 2004 | R53V11019A | The introduction of Variation 1. (Subsequently re-issued 2 August 2006, report R51A15457A refers) |
| 2 | 2 August 2006 | R51A15457A | The prime certificate was re-issued at the customer's request, no technical changes were involved |
| 3 | 13 June 2007 | R51V13980A | The introduction of Variation 2. |
| 4 | 10 October 2007 | R51A17341A | The introduction of Variation 3. |
| 5 | 3 April 2008 | R51A17759A | This Issue covers the following changes: <ul style="list-style-type: none">• All previously issued certification was rationalised into a single certificate, Issue 5, Issues 0 to 4 referenced above are only intended to reflect the history of the |

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| Issue | Date | Report no. | Comment |
|-------|------------------|------------|---|
| | | | previous certification and have not been issued as documents in this format. <ul style="list-style-type: none">• The introduction of Variation 4. |
| 6 | 05 April 2011 | R24333A/00 | The introduction of Variation 5 |
| 7 | 29 November 2012 | R27814A/00 | The introduction of Variation 6. |
| 8 | 12 February 2014 | R32490A/00 | The introduction of Variation 7. |
| 9 | 13 October 2015 | R70049764A | The introduction of Variation 8. |

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

- 15.1 Certain flameproof joints are other than the minimum/maximum dimensions given in EN 60079-1 clause 5. Emerson Process Management shall be contacted should information be required on their dimensions.
- 15.2 The enclosure has a non-conducting surface coating and, under certain extreme conditions, may generate an ignition-capable level of electrostatic charges. The user shall ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- 15.3 Where right angle bend cable adaptors are used they shall be appropriately certified and shall interface with enclosures via appropriate certified barrier glands.

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 CERTIFICATION

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.
- 17.3 The Analyser Model 500 covered by this certificate incorporates previously certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform Sira of any modifications of the devices that may impinge upon the explosion safety design of the Analyser Model 500.
- 17.4 Where right angle bend cable adaptors are used they shall be appropriately certified and shall interface with enclosures via appropriate certified barrier glands.

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Certificate Annexe



Certificate Number: Sira 02ATEX1146X
Equipment: Analyser Model 500
Applicant: Rosemount Analytical Inc.

Issues 0 to 5 – (The drawings listed with these Issues were rationalised and have been superseded by those detailed in Issue 6)

Issue 6

| Drawing No. | Sheets | Rev. | Date | Description |
|---------------|--------|------|------------|---|
| DUK3253/007/3 | 1 of 1 | 6 | 29 Jul 05 | M20 Union Connection Gas Chromatograph Model 500 |
| DUK3253/009/3 | 1 of 1 | 6 | 29 Jul 05 | ¾ NPS Union Connection Gas Chromatograph |
| DUK3253/010/1 | 1 of 1 | 15 | 08 Oct 07* | Chromatograph Model 500 110/240 V Assembly |
| DUK3253/015/3 | 1 of 1 | 5 | 08 Jan 03 | Gas Inlet/Outlet Gland 500 Series Gas Chromatograph CENELEC Version |
| DUK3253/020/1 | 1 of 1 | 11 | 29 Jul 05 | Valve Drive/Power Supply/Interface Module (GUB4) Housing |
| DUK3253/021/1 | 1 of 1 | 8 | 29 Jul 05 | Auto/Transformer (GUB4) Housing Assy |
| DUK3253/022/1 | 1 of 1 | 11 | 29 Jul 05 | Pre-Amp/Temp. Control Module (GUB4) Housing Assy |
| DUK3253/023/1 | 1 of 1 | 11 | 29 Jul 05 | Detector Assembly Chromatograph Model 500 |
| DUK3253/030/3 | 1 of 1 | 8 | 06 Nov 03 | Heater Block Assembly Chromatograph Model 500 (CENELEC Version) |
| DUK3253/312/2 | 1 of 1 | 5 | 31 Mar 11* | ATEX Certification Label Model 500 GC |
| DUK3253/457/1 | 1 of 1 | 1 | 29 Jan 08 | General Arrangement - Model 500 with Methanator & Liquid Inject Valve |
| DUK3253/458/ | 1 of 1 | 1 | 03 Mar 08 | General Arrangement - Model 500 with Methanator GUB2 & PID Controller GUB5 Enclosures |

* These two dates are the Sira stamp date.

Issue 7

| Drawing | Sheets | Rev. | Date (Sira stamp) | Title |
|---------------|--------|------|-------------------|---|
| DUK3253/457/3 | 1 of 1 | 2 | 01 Oct 12 | GA Model 500 with Methanator & Liquid Inject Valve |
| DUK3253/458/3 | 1 of 1 | 2 | 01 Oct 12 | GA Model 500 Methanator GUB2 and PID Controller GUB5 |
| DUK3253/023/3 | 1 of 1 | 12 | 01 Oct 12 | Detector Assembly Chromatograph Model 500 |
| DUK3253/020/3 | 1 of 1 | 12 | 01 Oct 12 | Valve Drive/Power Supply/Interface Module (GUB4) housing assembly |
| DUK3253/021/3 | 1 of 1 | 9 | 01 Oct 12 | Auto/Transformer (GUB4) housing assembly |
| DUK3253/022/3 | 1 of 1 | 12 | 01 Oct 12 | Preamp/Temperature control interface module (GUB4) housing assembly |
| DUK3253/010/3 | 1 of 1 | 16 | 01 Oct 12 | Chromatograph Model 500 110V/240V assembly |

Issue 8 No new drawings were introduced.

Issue 9

| Drawing | Sheets | Rev. | Date (Sira stamp) | Description |
|---------------|--------|------|-------------------|---------------------------------------|
| DUK3253/312/3 | 1 of 1 | 6 | 12 Oct 15 | ATEX Certification Label Model 500 GC |

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