



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 04ATEX1055X** Issue: **12**

4 Equipment: **Gas Chromatograph Analyzer Model 700**

5 Applicant: **Rosemount Analytical Inc.**

6 Address: **Emerson Process Management
10241 W Little York Road
Houston
Texas 77040
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 60079-0:2006 EN 60079-1:2007
IEC 60079-0:2007 (Used for guidance in respect of marking)

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 2 G
Ex d IIC T4 Gb
Tamb = +60°C

Project Number 32490

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The Analyzer Model 700 is a gas chromatograph (GC) type analyser that comprises of the following main parts, an Analyser Assembly, a Controller Assembly and an Enclosure Connection.

Analyser Assembly

The Analyser Assembly (upper enclosure) consists of a GUB 5 flameproof enclosure with a domed cover, manufactured by EGS-Curlee of Houston Texas. This enclosure contains the columns, detectors, pre-amplifier, pneumatically operated stream switching valves and solenoids that make up the analyser assembly.

Process pipes enter the analyser assembly through a purpose designed tube entry that is screwed into an M32 x 1.5 ISO threaded entry tapped in the enclosure wall. This device incorporated a tapered, cylindrical flamepath. The interface between the process pipes and the tube entries form a cylindrical flamepath.

Controller Assembly

The controller assembly (lower enclosure) consists of a GUB 5 flameproof enclosure manufactured by EGS-Curlee, modified to give additional depth. This enclosure contains electronics and ports for signal processing, data storage, personal computer (PC) interface and telecommunications. This allows the user to control the GC functions via a PC and appropriate software. Cable entry to the lower enclosure is via two M32 x 1.5 tapped entries machined into the bottom side of the enclosure.

Enclosure Connection

The upper and lower enclosures are physically connected by a purpose machined aluminium conduit fitting, the conduit fitting consists of two parts, a straight conduit pipe with an M32 x 1.5 male thread machined at each end and a connector nut with a M40 x 1.5 male thread and a through tapped M32 x 1.5 female thread. To connect the enclosures, the straight conduit is screwed into an M32 x1.5 entry machined into the upper wall of the lower enclosure. The upper enclosure has an M40 x 1.5 entry machined into the base, this entry is placed over the upper thread of the straight conduit and the connector nut is simultaneously screwed into the upper enclosure base and onto the straight conduit upper thread. Flamepaths are formed by the machined threads. The cables connecting the upper and lower chambers pass through the conduit and are sealed by epoxy putty tightly packed through the entire length of the conduit. The putty is keyed to a ¾" - 14 NPS female thread machined in the conduit.

General

The Analyser Model 700 comprises all of the above equipment, electrically connected and mounted on a metal framework along with non-electrical components. The analyser can be protected from the weather by an optional purpose built shade.



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Variation 1 (dated 3 December 2004) - This variation introduced the following change:

- i. The introduction of an alternative enclosure lid for the Controller Assembly (lower enclosure), which incorporates a glass window.

Variation 1 (dated 22 December 2006) - This variation introduced the following change:

- i. An optional Flame Ionisation Detector (FID), Methanator and Liquid Sample Injection Valve (LSIV) was allowed to be fitted in the Analyser Assembly enclosure.

Variation 1 (dated 17 August 2007) - This variation introduced the following change:

- i. The introduction of a Local Operator Interface to the Controller Assembly.

Variation 2 (dated 22 April 2008) - This variation introduced the following change:

- i. The introduction of an alternative bulkhead plug that has 13 tubing entries.

Variation 3 (dated 6 January 2009) - 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 were replaced by those currently listed, the markings in section 12 were updated accordingly and the special condition for safe use was amended to recognise the new standard.
- ii. The of the Applicant's name and address was changed from Daniel Measurement & Control Inc., 11100 Brittmoor Park Drive, Houston, Texas T1041, USA.
- iii. The material grade of certain component parts was changed

Variation 4 - This variation introduced the following changes:

- i. To allow the use of external sample valves within a GUB 5 Enclosure.

Variation 5 - This variation introduced the following changes:

- i. The applicant's name was changed from Rosemount Analytical Gas Chromatograph Division to that currently shown.

Variation 6 - This variation introduced the following changes:

- i. It was recognised that the JCE Component certified enclosure used in the construction of these products, previously covered by certificate number ISSeP03ATEX004U, are now certified under TRAC 12ATEX0008U and IECEx TRC 12.0002U; the design of the enclosure is unchanged. As a result of this drawing number DE-21836 was updated to reflect this change. The enclosure construction is unchanged. A special condition regarding static hazards was introduced based on the Schedule of Limitations from the TRAC certificates.
- ii. The Applicant's address was updated from Rosemount Analytical Inc., 5650 Brittmoores Road, Houston, Texas 77041, USA to Rosemount Analytical Inc., Emerson Process Management, 10241 W Little York Road, Houston, Texas 77040, USA.

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.

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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	1 September 2004	R53A11014A	The release of the prime certificate.
1	3 December 2004	R51A12385A	The introduction of Variation 1.
2	9 June 2006	R51A14235A	The certificate dated 1 September 2004 was re-issued to recognise the changes described in report number R51A14235A, it also incorporated Variation 1 dated 3 December 2004.
3	22 December 2006	R51A13175A	The introduction of Variation 1.
4	27 March 2007	R51A16289A	The certificate dated 9 June 2006 was re-issued to recognise the changes described in report number R51A16289A, it also incorporated Variation 1 dated 22 December 2006.
5	17 August 2007	R51A16289B	The introduction of Variation 1, this Variation was issued against a report dated August 2008 originally identified as R51A16289A, because this number already existed, the report was re-issued in July 2008 as R51A16289B.
6	22 April 2008	R51A18044A	The introduction of Variation 2.
7	6 January 2008	R51A19283A	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 7, Issues 0 to 6 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.The introduction of Variation 3.
8	6 January 2009	N/A	Re-issued to correct the issue date.
9	25 May 2010	R22385A/00	The introduction of Variation 4.
10	11 April 2011	R24696A/00	The introduction of Variation 5.
11	29 November 2012	R27814B/00	The introduction of Variation 6.
12	12 February 2014	R32490A/00	The introduction of Variation 7.

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

- 15.1 The maximum constructional gap (i_c) is less than that required by Table 2 of EN 60079-1:2007; therefore, as a result of any maintenance and/or repair, the following gaps shall be maintained:

Flamepath	Maximum Gap (mm)	Comment
Fitting tube adaptor/fitting tube taper	0.000	Taper fit
Fitting tube taper/tubes	0.132	Parallel fit
Pin/Exhaust Assembly	0.07	Cylindrical

- 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.

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Sira Certification Service

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- 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 Where right angle bend cable adaptors are used they shall be appropriately certified and shall interface with enclosures via appropriate certified barrier glands.

Certificate Annexe



Certificate Number: Sira 04ATEX1055X
 Equipment: Gas Chromatograph Analyzer Model 700
 Applicant: Rosemount Analytical Inc.

Issue 0

Number	Sheet	Rev.	Date	Description
DUK 7204/002/1	1 of 1	A	21 Jul 04	Outline & Dimensional Pole, Wall & Floor Mounting Units Model 700 GC
7204/003/1	1 of 1	A	15 Jul 04	Enclosure Entry Details Model 700GC
DUK 7204/004/1	1 of 2	A	21 Jul 04	Enclosure Lower Drilling Detail Model 700 GC
DUK 7204/004/1	2 of 2	A	21 Jul 04	SW-11119A Cover Glass Window 6-1/2" Viewing Details
DUK 7204/005/1	1 of 2	A	21 Jul 04	Drilling Details Upper Enclosure Model 700GC
DUK 7204/005/1	2 of 2	A	19 Jul 04	Dome Cover Model 700GC
DUK 7204/006/1	1 of 1	A	21 Jul 04	Connecting Conduit Enclosures Model 700 GC
DUK 7204/006/1	2 of 2	A	21 Jul 04	Coupling Adapter Enclosure Model 700 GC
DUK 7204/007/1	1 of 2	A	21 Jul 04	Fitting Tube Adapter Enclosures Model 700 GC
DUK 7204/007/1	2 of 2	A	21 Jul 04	Fitting Tube Taper Enclosures Model 700 GC
DUK 7204/009/1	1 of 1	A	21 Jul 04	Unit Assembly Bottom Enclosure Model 700 GC
DUK 7204/010/1	1 of 1	A	21 Jul 04	Assembly Upper Box Model 700 GC
DUK 7204/011/1	1 of 2	A	21 Jul 04	Vent Tube Assembly Construction Details, 2 Carrier Model 700 GC
DUK 7204/011/1	2 of 2	A	21 Jul 04	Vent Tube Assembly Construction Details, 2 Carrier Model 700 GC
DUK7204/012/1	1 of 1	A	28 Jul 04	Connecting Conduit Enclosure Model 700 GC

Issue 1

Number	Sheet	Rev.	Date	Description
DUK 7204/004/1	1 of 3	0	-	Enclosure Lower Drilling Detail Model 700 GC
DUK 7204/004/1	2 of 3	0	20 Oct 04	Lower Enclosure Cover Model 700 GC
DUK 7204/004/1	3 of 3	0	20 Oct 04	SW-11119A Cover Glass Window 6-1/2" Viewing Details

Issue 2 (Note: these drawings replaced those previously shown in Issue 0 and Issue 1)

Number	Sheet	Rev.	Date (Sira stamp)	Description
DE-20874	1 of 1	E	07 May 06	Dome Cover Model 700 GC
DE-20875	1 of 1	H	07 May 06	Drilling Detail Upper Enclosure Model 700 GC
BE-20876	1 of 1	B	07 May 06	Coupling Adapter Enclosures Model 700 GC
BE-20878	1 of 1	E	07 May 06	Fitting Tube Taper Enclosures Model 700 GC
BE-20879	1 of 1	B	07 May 06	Tube Fitting Nut Enclosures Model 700 GC
DE-20884	1 of 1	K	07 May 06	Enclosure Lower Drilling Detail Model 700 GC
BE-20885-A	1 of 1	B	07 May 06	Connecting Conduit Enclosures Model 700 GC
BE-20908	1 of 1	B	07 May 06	Fitting Tube Adapter Enclosures Model 700 GC
DE-20990	1 of 5	G	07 May 06	Unit Assembly Model 700 GC
DE-20990	2 of 5	G	07 May 06	Unit Assembly Bottom Enclosure Model 700 GC
DE-20990	3 of 4	E	07 May 06	Assembly Upper Enclosure Model 700 GC
CE-21147	1 of 2	G	07 May 06	Vent Tube Assembly Construction Detail 2 Carrier Model 700 GC
CE-21147	2 of 2	G	07 May 06	Vent Tube Assembly Tube Details 2 Carrier Model 700 GC
DE-21231	1 of 1	D	07 May 06	Glass Cover Flocking Device Detail Model 700 GC
BE-21254	1 of 1	B	07 May 06	Model 700 Nameplate Atex Certification
DE-21475	1 of 1	A	07 May 06	Enclosure Entry Details Model 700 GC
DE-21514	1 of 1	A	07 May 06	Glass Cover Frame Machining Model 700 G.C.

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Certificate Annexe

Certificate Number: Sira 04ATEX1055X
 Equipment: Gas Chromatograph Analyzer Model 700
 Applicant: Rosemount Analytical Inc.



Issue 3

Number	Sheet	Rev.	Date (Sira stamp)	Description
DE-20874-A	1 of 1	F	15 Dec 06	Dome Cover Model 700 GC
DE-20990	3 of 5	F	15 Dec 06	Assembly Upper Enclosure Model 700 GC
DE-20990	5 of 5	F	15 Dec 06	Unit Assembly FID, Methanator & LSIV Options Model 700 GC
CE-21276	1 of 1	D	15 Dec 06	Assembly Micro FID Model 700 GC
BE-21335	1 of 1	B	15 Dec 06	Exhaust Fitting Micro FID Model 700 GC
CE-21345	1 of 1	A	15 Dec 06	Assembly Methanator Model 700 GC
DE-21353	1 of 1	C	15 Dec 06	Drilling Modification M75 Hole Upper Enclosure Model 700 GC
BE-21383	1 of 1	C	15 Dec 06	Retaining Collar LSIV Model 700 GC
DE-21385	1 of 1	D	15 Dec 06	LSIV Modification & Specification
BE-21418	1 of 1	B	15 Dec 06	Flame Gap Pin Micro-FID Model 700 GC
BE-21432	1 of 1	B	15 Dec 06	Mounting Ring LSIV Model 700 GC
BE-21450	1 of 1	A	15 Dec 06	Insulator LSIV Model 700 GC

Issue 4

Number	Sheet	Rev.	Date (Sira stamp)	Description
BE-20876	1 of 1	B	07 May 06	Coupling Adapter Enclosures Model 700 GC
BE-20878	1 of 1	E	07 May 06	Fitting Tube Taper Enclosures Model 700 GC
BE-20879	1 of 1	B	07 May 06	Tube Fitting Nut Enclosures Model 700 GC
BE-20885-A	1 of 1	B	07 May 06	Connecting Conduit Enclosures Model 700 GC
BE-20908	1 of 1	B	07 May 06	Fitting Tube Adapter Enclosures Model 700 GC
BE-21254	1 of 1	C	19 Feb 07	Model 700 Nameplate ATEX Certification
BE-21335	1 of 1	B	15 Dec 06	Exhaust Fitting Micro FID Model 700 GC
BE-21383	1 of 1	C	15 Dec 06	Retaining Collar LSIV Model 700 GC
BE-21418	1 of 1	B	15 Dec 06	Flame Gap Pin Micro-FID Model 700 GC
BE-21432	1 of 1	B	15 Dec 06	Mounting Ring LSIV Model 700 GC
BE-21450	1 of 1	A	15 Dec 06	Insulator LSIV Model 700 GC
CE-21147	1 of 2	G	07 May 06	Vent Tube Assembly Construction Detail 2 Carrier Model 700 GC
CE-21147	2 of 2	G	07 May 06	Vent Tube Assembly Tube Details 2 Carrier Model 700 GC
CE-21276	1 of 1	D	15 Dec 06	Assembly Micro FID Model 700 GC
CE-21345	1 of 1	A	15 Dec 06	Assembly Methanator Model 700 GC
DE-20874	1 of 1	E	07 May 06	Dome Cover Model 700 GC
DE-20874-A	1 of 1	F	15 Dec 06	Dome Cover Model 700 GC
DE-20875	1 of 1	H	07 May 06	Drilling Detail Upper Enclosure Model 700 GC
DE-20884	1 of 1	K	07 May 06	Enclosure Lower Drilling Detail Model 700 GC
DE-20990	1 of 5	G	07 May 06	Unit Assembly Model 700 GC
DE-20990	2 of 5	G	07 May 06	Unit Assembly Bottom Enclosure Model 700 GC
DE-20990	3 of 5	G	07 May 06	Assembly Upper Enclosure Model 700 GC
DE-20990	4 of 5	G	27 Mar 07	Assemblies Control Card Front Panel W/Solenoid Switching Field Termination PCB MODEL 700 GC
DE-20990	5 of 5	G	27 Mar 07	Unit Assembly FID, Methanator & LSIV Options Model 700 GC
DE-21231	1 of 1	D	07 May 06	Glass Cover Flocking Device Detail Model 700 GC
DE-21353	1 of 1	C	15 Dec 06	Drilling Modification M75 Hole Upper Enclosure Model 700 GC
DE-21385	1 of 1	D	15 Dec 06	LSIV Modification & Specification
DE-21475	1 of 1	A	07 May 06	Enclosure Entry Details Model 700 GC
DE-21514	1 of 1	A	07 May 06	Glass Cover Frame Machining Model 700 GC

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Certificate Annexe

Certificate Number: Sira 04ATEX1055X
Equipment: Gas Chromatograph Analyzer Model 700
Applicant: Rosemount Analytical Inc.



Issue 5

Number	Sheet	Rev.	Date (Sira stamp)	Description
DE-21554	1 of 2	P3	02 Aug 07	Assembly LOI Model 700XP

Issue 6

Number	Sheet	Rev.	Date (Sira stamp)	Description
BE-20878	1 of 1	F	15 Apr 08	Fitting Tube Taper Enclosures Model 700 GC
CE-21147	1 of 2	J	15 Apr 08	Vent Tube Assy Constructional Detail 2 Carrier Model 700 GC
CE-21147	2 of 2	J	15 Apr 08	Vent Tube Assy Tube Details 2 Carrier Model 700 GC

Issue 7

Number	Sheet	Rev.	Date (Sira stamp)	Description
BE-20876	1 of 1	C	08 Dec 08	Coupling Adapter Enclosures Model 700 GC
BE-20878	1 of 1	G	08 Dec 08	Fitting Tube Taper Enclosures Model 700 GC
BE-20879	1 of 1	C	08 Dec 08	Tube Fitting Nut Enclosures Model 700 GC
BE-20885-A	1 of 1	C	08 Dec 08	Connecting Conduit Enclosures Model 700 GC
BE-20908	1 of 1	C	08 Dec 08	Fitting Tube Adapter Enclosures Model 700 GC
BE-21254	1 of 1	E	08 Dec 08	Model 700 Nameplate ATEX Certification

Issue 8 No new drawings were introduced.

Issue 9

Number	Sheets	Rev.	Date (Sira Stamp)	Description
DE-21836	1 of 2	A	20 May 10	Model 700 G.C. Layout Detail External Sample Valve Option
DE-21836	2 of 2	A	20 May 10	Model 700 G.C. General Arrangement External Sample Valve Option

Issue 10

Drawing	Sheets	Rev.	Date (Sira stamp)	Description
BE-21254	1 of 1	F	11 Apr 11	Model 700 Nameplate ATEX Certification

Issue 11

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
DE-21836	1 of 2	B	1 Oct 12	Model 700 G.C. External sample valve option

Issue 12 No new drawings were introduced.

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