



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 03ATEX1424** Issue: **8**

4 Equipment: **Series 2000 Valve Actuators**

5 Applicant: **Emerson Process Management Valve Actuation, LLC**

6 Address: **13840 Pike Road
Missouri City
Texas 77489
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

EN 60079-31:2009

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 GD

Ex d IIB T4 Gb

Ex tb IIIC T135°C Db IP66

Tamb -20°C to +60°C (permissible for actuators with windows and pilot lenses)

Tamb -40°C to +60°C (for actuators fitted with the BARTEC Line Bushing without windows or pilot lenses)

Project Number 29761

C Ellaby
Deputy Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The Series 2000 Valve Actuator comprises up to five enclosures:

- a) An actuator motor comprising a steel housing with aluminium end-caps and containing rotor and stator assemblies. Facings and fixings are provided for attaching the motor to the gear casing to allow mechanical transmission and to the electronics enclosure to allow electrical connections via a potted bushing arrangement.
- b) An electronics enclosure comprising an aluminium housing and a bolt-on cover containing control and monitoring circuitry. The cover incorporates a glass viewing window, indicator lights and control switches. Facings and fixings are provided for attaching the enclosure to the gear casing to allow mechanical transmission and to the motor enclosure to allow electrical connections via a potted bushing arrangement. Cabling to the enclosure is by means of conduit entries with seals.
- c) A gear casing interconnected between the electronics enclosure and the actuating motor. Whilst the casing is itself non-electrical, the facings provided for the fitting of the electronics enclosure and the actuating motor form flamepaths with these assemblies.
- d) Optionally, an additional Control (SCM) enclosure can be fitted to the electronics enclosure. The enclosure is very similar in construction to the electronics enclosure and is mounted and interconnected to the latter by means of a conduit and seal arrangement.
- e) Optionally, a Multi-Port Actuator (MPA) variant incorporates an enclosure mounted on the actuator which contains control and indication equipment. The enclosure is based upon an RDM/LDM enclosure which is used with the type TEC 2000 Valve Actuator by the same manufacturer, certificate (Sira 03ATEX1510). The MPA Enclosure is interconnected with the electronics enclosure by means of conduit. Conduit seals Cooper, Crouse-Hinds Division CEAG type EYS Series to LOM 03ATEX2108, being provided between the MPA enclosure and the electronics enclosure. The conduit seals are fitted with reducers and nipples between the conduit seals and the enclosure. These are not separately certified components and have been tested and certified as part of the apparatus. Flexible conduit with barrier glands may be installed as an alternative.

The individual equipment type designations are determined as follows:

- i) the function/control configuration;
- ii) the motor power;
- iii) the gear ratio;
- iv) valve types;
- v) motor voltage (or pneumatic pressure);
- vi) additional features.

Note: The scope of this certificate covers the electrical equipment associated with the Series 2000 Valve Actuators and does not include any non-electrical equipment located outside the flameproof enclosure.

Variation 1 - This variation introduced the following changes:

- i. To recognise the change of the Applicant's name from EIM Company Inc to Emerson Process Management Valve Actuation, LLC.



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Variation 2 - 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 originally listed in section 9, EN 50014:1997 (amendments 1 and 2), EN 50018:2000 (Amendment A1) and EN 50281-1-1:1998 (Amendment A1), were replaced by those currently listed, the markings in section 12 were updated accordingly and the conditions were modified to recognise the requirements of the latest standards.
- ii. The introduction of an alternative arrangement that includes a Bartec line bushing (PTB 97 ATEX 1047 U coded Ex d IIC) which permits a reduction in minimum ambient to -40°C. This alternative arrangement omits the pilot lens and window options.

Variation 3 - This variation introduced the following changes:

- i. The recognition of minor drawing modifications; these amendments are administrative and do not affect the aspects of the product that are relevant to explosion safety.
- ii. The recognition of the Multi-Port Actuator (MPA) variant, as a result of this the product description was modified and paragraph 'e' added.

Variation 4 - This variation introduced the following change:

- i. The inclusion of two, new label drawings printed in Russian.

Variation 5 - This variation introduced the following change:

- i. The introduction of an electro-pneumatic assembly with a dual output motor shaft.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	29 August 2003	R53F10164A	The release of the prime certificate.
1	20 August 2004	R53F11652A	Re-issued to introduce the changes described in report number R53F11652A
2	9 March 2010	R21958A/00	This Issue covers the following changes: <ul style="list-style-type: none"> • All previously issued certification was rationalised into a single certificate, Issue 2, Issues 0 and 1 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 1.
3	17 November 2010	R22460A/00	The introduction of Variation 2.
4	31 January 2011	R23083A/00	The introduction of Variation 3.
5	24 February 2011	R23083A/01	Report no.R23083A/01 replaced R23083A/00.
6	08 February 2012	R27090A/00	The introduction of Variation 4.
7	01 June 2012	R23083A/02	Report R23083A/02 replaced R23083A/01 MPA variant description clarified.
8	13 March 2013	R29761A/00	The introduction of Variation 5

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Sira Certification Service

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- 15 **SPECIAL CONDITIONS FOR SAFE USE** (denoted by X after the certificate number)
None
- 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 Equipment marked for a minimum ambient of -40°C shall be subjected to a routine overpressure test for at least 10 s as required by EN 600079-1:2007. The pressure to be applied is detailed below; there shall be no permanent deformation or damage to the enclosure or leakage at the welded joint on the motor enclosure:
Terminal enclosure: 11.94 bar
Motor enclosure: 10.97 bar
- 17.4 Equipment marked for a -40°C ambient shall be fitted with a Bartec line bushing to separate the motor and terminal enclosures and shall not employ a window or pilot lenses.
- 17.5 Equipment marked for a -40°C ambient shall employ the motor enclosure design with a steel cylindrical piece and aluminium press-fit end-caps; the end-caps being secured with long steel bolts running along the length of the cylindrical part. The alternative design of screw-on motor enclosure cover is not permitted.

Certificate Annexe

Certificate Number: Sira 03ATEX1424
Equipment: Series 2000 Valve Actuators
Applicant: Emerson Process Management Valve Actuation, LLC



Issue 0

Drawing No.	Sheet	Rev.	Date	Title
83915-CEN	1 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	2 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	3 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	4 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	5 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	6 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	7 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	8 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	9 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	10 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	11 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	12 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	13 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	14 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	15 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	16 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	17 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	18 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	19 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	20 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	21 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	22 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	23 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	24 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	25 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	26 of 27	K	07 Aug 03	CENELEC Documents
83915-CEN	27 of 27	K	07 Aug 03	CENELEC Documents

Issue 1

Drawing No.	Sheet	Rev.	Date	Title
83915-CEN	1 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	2 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	3 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	4 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	5 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	6 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	7 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	8 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	9 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	10 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	11 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	12 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	13 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	14 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	15 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	16 of 27	L	14 Apr 04	CENELEC Documents

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83915-CEN	17 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	18 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	19 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	20 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	21 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	22 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	23 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	24 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	25 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	26 of 27	L	14 Apr 04	CENELEC Documents
83915-CEN	27 of 27	L	14 Apr 04	CENELEC Documents

Issue 2

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
83915-CEN	Page 4	M	08 Mar 10	Critical Documents List

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
83915-CEN	4 of 29	N	17 Nov 10	Critical documents list
SIRA/ATEX	1 of 1	D	10 Nov 10	Bartec Line Bushing

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
83915-CEN	1 of 37	S	31 Jan 11	Critical document list
83915-CEN	2 of 37	P	31 Jan 11	Critical document list
83915-CEN	3 of 37	P	31 Jan 11	Critical document list
83915-CEN	4 of 37	P	31 Jan 11	Critical document list
83915-CEN	5 of 37	P	31 Jan 11	Critical document list
83915-CEN	6 of 37	P	31 Jan 11	Critical document list
83915-CEN	7 of 37	P	31 Jan 11	Critical document list
83915-CEN	8 of 37	P	31 Jan 11	Critical document list
83915-CEN	9 of 37	P	31 Jan 11	Critical document list
83915-CEN	10 of 37	P	31 Jan 11	Critical document list
83915-CEN	11 of 37	P	31 Jan 11	Critical document list
83915-CEN	12 of 37	P	31 Jan 11	Critical document list
83915-CEN	13 of 37	P	31 Jan 11	Critical document list
83915-CEN	14 of 37	P	31 Jan 11	Critical document list
83915-CEN	15 of 37	P	31 Jan 11	Critical document list
83915-CEN	16 of 37	P	31 Jan 11	Critical document list
83915-CEN	17 of 37	P	31 Jan 11	Critical document list
83915-CEN	18 of 37	P	31 Jan 11	Critical document list
83915-CEN	19 of 37	P	31 Jan 11	Critical document list
83915-CEN	20 of 37	P	31 Jan 11	Critical document list
83915-CEN	21 of 37	P	31 Jan 11	Critical document list
83915-CEN	22 of 37	P	31 Jan 11	Critical document list
83915-CEN	23 of 37	P	31 Jan 11	Critical document list
83915-CEN	24 of 37	P	31 Jan 11	Critical document list
83915-CEN	25 of 37	P	31 Jan 11	Critical document list

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83915-CEN	26 of 37	Q	31 Jan 11	Critical document list
83915-CEN	27 of 37	P	31 Jan 11	Critical document list
83915-CEN	28 of 37	P	31 Jan 11	Critical document list
83915-CEN	29 of 37	P	31 Jan 11	Critical document list
83915-CEN	30 of 37	P	31 Jan 11	Critical document list
83915-CEN	31 of 37	P	31 Jan 11	Critical document list
83915-CEN	32 of 37	R	31 Jan 11	Critical document list
83915-CEN	33 of 37	P	31 Jan 11	Critical document list
83915-CEN	34 of 37	S	31 Jan 11	Critical document list
83915-CEN	35 of 37	Q	31 Jan 11	Critical document list
83915-CEN	36 of 37	Q	31 Jan 11	Critical document list
83915-CEN	37 of 37	R	31 Jan 11	Critical document list

Issue 5 (No new drawings were introduced.)

Issue 6

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
38322	1 of 1	A	08 Feb 12	MPA LDM Legend Russian
38330	1 of 1	A	08 Feb 12	ATEX Series 2000 Russian

Note: These drawings were originally drawn in English and have been translated into Russian; Sira Certification Service does not take responsibility for the translation and declares that the English versions will always take precedence.

Issue 7

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
83915-CEN	34 of 38	T	01 Jun 12	Critical document list
83915-CEN	38 of 38	A	01 Jun 12	Critical document list

Issue 8

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
83915-CEN	1 of 40	T	28 Feb 13	Critical Documents List
83915-CEN	39 of 40	A	28 Feb 13	Critical Documents List
83915-CEN	40 of 40	A	28 Feb 13	Critical Documents List

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