

1 EC-TYPE EXAMINATION CERTIFICATE



2 **Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC**

3 **EC-Type Examination Certificate No:** FM07ATEX0005X

4 **Equipment or protective system:** Logix 3400IQ/MD Series Digital Valve Positioner
(Type Reference and Name)

5 **Name of Applicant:** Flowserve US Inc.

6 **Address of Applicant:** 1350 North Mountain Springs Parkway
Springville, UT 84663
USA

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

8 FM Approvals Ltd, notified body number 1725 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 confidential report number:

3028916 dated 8th August 2007

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN 60079-0:2012, EN 60079-1:2007, EN 60079-31:2009 and EN60529:1991 + A1:2000

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, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:



II 2 G Ex d IIB+H₂ T4 Ta = -52°C to +80°C T6 Ta = -52°C to +60°C Gb IP65

II 2 D Ex tb IIIC T95° Ta = -52°C to +55°C Db IP65



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Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 20th May 2014

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

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SCHEDULE



Member of the FM Global Group

to EC-Type Examination Certificate No. FM07ATEX0005

13 Description of Equipment or Protective System:

The Logix 3400IQ/MD Digital Positioner is an electro-pneumatic positioner and is designed to control a variety of pneumatic actuators. Positioning is based on a balance of two signals; one proportional to the command input signal and the other proportional to the valve stem position. The Logix 3400IQ/MD is available in either painted cast aluminum or stainless steel. The enclosure does not contain more than 6% magnesium by weight and does not rely on any plastic parts for strength or flameproof integrity. The enclosure has two access openings to the terminal facility which accommodate suitably certified cable entry devices. The entries can be either two M20-1.5 or two ½ - 14 NPT entries. In addition to the cable entries the enclosure incorporates four threaded joints for the Main Housing Cover (6.00-16UN), Field Termination Cover (2.625-16UN), Spool Valve Cover (2.375-16UN), and Manifold Driver Module (2.032-20UN). Nine non-threaded joints are provided; six between the sintered elements and their associated holes, between the display window and the main housing cover, between the bearing and shaft arrangement, and between the bearing and the main housing arrangement. The main housing and field covers are retained by locking screws. The spool valve cover is recessed and can only be removed by the use of a special tool (Allen Key). The manifold driver module is situated within the enclosure so it cannot be removed without removing the spool valve cover. The Logix 3400IQ operates from a two wire 4-20 mA, 9.0 to 32.0 VDC source.

34abCC-07-c-d-e-f-40-f-g-h. Logix Digital Fieldbus Positioner FM07ATEX0005X

II 2 G Ex d IIB+ H2 T4 Ta= -52°C to +80°C, T6 Ta=-52°C to +60°C IP65

II 2 D Ex tb IIIC T95°C Ta=-52°C to +55°C IP65

a = Diagnostics 0 or 1.

b = Material 0, 1, 2, 3, 4 or 5.

*CC = IQ or MD

d = Shaft D6, N6.

e = Conduit Connections E or M.

f = Action 04, 03, 4V, 3V.

g = Gauges 0G, 0S, KG, KS or 0U.

h = Special Options 00, RM or SF.

* The IQ/MD is not required to be part of the model number string, but must be identified on the assembled unit. In certain cases both the IQ and MD may be visible on the unit

14 Special Conditions for Safe Use:

1. Consult the manufacturer for dimensional information on the flameproof joints.

15 Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 Test and Assessment Procedure and Conditions:

This EC-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

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This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

17 Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18 Certificate History

Details of the supplements to this certificate are described below:

Date	Description
8 th August 2007	Original Issue.
1 st August 2008	<u>Supplement 1:</u> Report Reference: – 3028916EC Supplement 1 dated 1 st August 2008 Description of the Change: redesigned Fieldbus Board
10 th November 2009	<u>Supplement 2:</u> Report Reference: – 3028916EC Supplement 2 dated 10 th November 2009 Description of the Change: Changed product type to Logix 3400IQ and Logix 3400MD Series, increased ambient temperature range up to 80°C with corresponding change in equipment marking.
15 th December 2009	<u>Supplement 3:</u> Report Reference: – 3028916EC Supplement 3 dated 15 th December 2009 Description of the Change: revised model code, removed option “c”.
24 th September 2010	<u>Supplement 4:</u> Report Reference: – 3028961rev100325 dated 24 th September 2010 Description of the Change: reduction in ambient temperature to -55°C.
10 th November 2011	<u>Supplement 5:</u> Report Reference: – 3028916rev111006 dated 27 th October 2011 Description of the Change: minor changes to documentation in respect to electrical construction.
16 th February 2012	<u>Supplement 6:</u> Report Reference: – 3028916rev111206 dated 27 th January 2012 Description of the Change: minor drawing changes, flamepath control drawing added, addition of construction drawing.
6 th March 2012	<u>Supplement 7:</u> Report Reference: – 3028916rev120222 dated 29 th February 2012 Description of the Change: minor circuitry and drawing changes
29 th May 2012	<u>Supplement 8:</u> Report Reference: – 3028916rev111214 dated 20 th March 2012 Description of the Change: increased lower ambient temperature range to -52°C, with corresponding change in equipment marking, include new diagnostic code “2”, added alternate mylar nameplate, minor documentation updates.
20 th May 2014	<u>Supplement 9:</u> Report Reference: – 3050582 dated 9 th May 2014 Description of the Change: added Foundation Fieldbus circuitry, revised temperature code ratings. Revised from Ex tD to Ex tb rating. Updated standards.

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Blueprint Report

Flowserve US Inc (100002350)

Class No 3618

Original Project I.D. 3028916

Certificate I.D. FM07ATEX0005

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
126165	6	Flamepaths of the Logix 1000 & 3000 Digital Positioner	12-6-11	Yes (pdf)
126171	8	Casting, Main Housing	FM07ATEX0005 Supp 2	Yes (pdf)
126173	1	Casting, Main Cover	FM07ATEX0005 Supp 2	Yes (pdf)
126174	2	Cover, Main	12-6-11	Yes (pdf)
130821	3	Flame Arrester	FM07ATEX0005	Yes (pdf)
130822	3	Flame Arrester	FM07ATEX0005	Yes (pdf)
130911	0	Washer, Seal Ring	FM07ATEX0005	Yes (pdf)
130912	1	Retaining Ring	FM07ATEX0005	Yes (pdf)
130913	2	Window	FM07ATEX0005 Supp 2	Yes (pdf)
130914	3	Shaft Bearing	FM07ATEX0005	Yes (pdf)
137745	0	Cover, Spool Valve	FM07ATEX0005	Yes (pdf)
137748	0	Cover, customer Interface	FM07ATEX0005	Yes (pdf)
139765	1	Stainless Steel, User Interface	FM07ATEX0005 Supp 8	Yes (pdf)
141390	3	Cover, Driver Module	FM07ATEX0005 Supp 2	Yes (pdf)
171209	2	Stainless Steel, Main Cover	FM07ATEX0005 Supp 6	Yes (pdf)
185155	1	Feedback Shaft DD	FM07ATEX0005	Yes (pdf)
191647	0	Logix 3200IQ Pressure Sensor Bd Schematic	FM07ATEX0005	Yes (pdf)
192035	1	Stainless Steel, Modulator Cover	FM07ATEX0005 Supp 8	Yes (pdf)
192865	0	Logix 1200IQ Hall Sensor "T" Board	FM07ATEX0005	Yes (pdf)
198769	7	Stainless Steel NPT Housing	FM07ATEX0005 Supp 8	Yes (pdf)
198770	7	Stainless Steel M-20 Housing	FM07ATEX0005 Supp 8	Yes (pdf)
198775	6	Main Housing	FM07ATEX0005 Supp 2	Yes (pdf)
198776	5	Stainless Steel, Main Housing M-20	FM07ATEX0005 Supp 2	Yes (pdf)
215803	0	Feedback Shaft Namur	FM07ATEX0005	Yes (pdf)
221868	0	Logix 3200IQ Piezo Board	FM07ATEX0005	Yes (pdf)
221962	2	Logix 3400IQ Schematic User Intfc Bd	2/22/12	Yes (pdf)
234076 SH1	2	Logix 3400IQ Main Board	FM07ATEX0005	Yes (pdf)
234076	3	Logix 3400IQ Main Board	FM07ATEX0005 Supp 4	Yes (pdf)
234217	6	Nameplate Logix 3400IQ	FM07ATEX0005 Supp 8	Yes (pdf)
234377	5	Schematic Field Bus Board	11/6/12	Yes (pdf)
264361	6	NAMEPLATE, LOGIX 3400MD, EX d IIB + H2 T5 CENELEC, EXPLOSION PROOF	3050582	Yes (pdf)
291519	0	Nameplate Mylar, Logix 3400	FM07ATEX0005, Supp 8	Yes (pdf)
307281-0	0	SCHEMATIC, MESCO, LOGIX 3400 FIELDBUS BOARD	3050582	Yes (pdf)
307282.000.000	0	BILL OF MATERIAL, PCBA, FIELDBUS BOARD, MESCO DESIGN	3050582	Yes (pdf)
314611-0	0	SCHEMATIC, MESCO, LOGIX 3400 UI BOARD	3050582	Yes (pdf)
314613-0	0	PCBA, MESCO, LOGIX 3400 UI BOARD	3050582	Yes (pdf)
314613.000.000	0	BILL OF MATERIAL, PCBA, UI BOARD, LOGIX 3400, MESCO	3050582	Yes (pdf)
314777-0	0	SCHEMATIC, MESCO, LOGIX 3400 MAIN BOARD	3050582	Yes (pdf)
314778.000.000	0	BILL OF MATERIAL, PCBA, MAIN CONTROL BOARD, LOGIX 3400, MESCO	3050582	Yes (pdf)
FCD LGENIM3400-01	10/09	3400IQ User Instructions	FM07ATEX0005 Supp 2	Yes (pdf)
LGENIM3404	11/13	User Instructions	3050582	Yes (pdf)