

# 1 TYPE EXAMINATION CERTIFICATE



2 Equipment or Protective systems intended for use in Potentially  
Explosive Atmospheres - Directive 2014/34/EU

3 Type Examination Certificate No: FM16ATEX0098X

4 Equipment or protective system:  
(Type Reference and Name) Model Logix 3800 Series Digital Positioner

5 Name of Applicant: Flowserve US Incorporated

6 Address of Applicant: 1350 Mountain Springs Pkwy,  
Springville Operations  
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. 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:

3059398 dated 27<sup>th</sup> April 2017

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:

EN60079-0:2012 +A11:2013, EN 60079-11:2012, EN60079-15:2010

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

11 This Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. 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 3 G Ex ic IIC T6...T4 Gc;  
II 3 G Ex nA IIC T6...T4 Gc;

T4 Ta = -55° to +85°C;

T5 Ta = -55° to +55°C;

T6 Ta = -55° to +45°C

IP66



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**Mick Gower**  
Certification Manager, FM Approvals Ltd.

Issue date: 14<sup>th</sup> February 2018

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

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## 13 Description of Equipment or Protective System:

### Functionality

The Logix 3800 Series Digital Positioner is an electro-pneumatic positioner 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.

### Electrical

The Logix 3800 Positioner operates from a two wire 10V max, 4-20mA source or 9-30V, 18mA foundation fieldbus on terminals 8 and 9. There are also options for two discrete digital outputs, one analog input, and one digital input. These circuits are all isolated from one another and from the main circuitry. The circuitry is contained on two printed circuit boards which are completely encapsulated except for the LCD display side of the user interface board.

### Mechanical

The Logix 3800 electronics are housed in a painted Aluminum enclosure assembly consisting of the main enclosure containing all electronics, attached to a manifold enclosure containing the process connections. The main enclosure has three access openings to the terminal facility which accommodate suitably certified cable entry devices. The entries can be either M20-1.5 or ½ - 14 NPT entries. In addition to the wiring entries, the enclosure incorporates two flanged joints that are secured by fasteners: one between the enclosure cover and base and one between the enclosure cover and viewing window. The bottom of the main enclosure has means to secure itself to a valve stem and inductively measure its position.

### Operation Temperature Ranges

The ambient operating temperature ranges of the Model Logix 3800 Series Digital Positioner vary between -55°C to +85°C depending on the type of protection. Refer to the label marking, certificates and manual for the allowed ambient temperature ranges.

### Electrical data

In type of protection intrinsic safety, connections can only be made to a certified intrinsically safe associated apparatus. The connection parameters to the main terminals are shown below.

Energy Limitation Parameters for type of protection "ic":

Terminals	Label	Ui (Vmax)	Ii (Imax)	Pi (Pmax)	Ci	Li
8 & 9	Main Input	≤30V	≤380mA	≤5.32W	0	0
1 & 2	DO1 Input	≤30V	≤500mA	≤2.5W	10.34nF	0
6 & 7	DI IN 1	≤30V	≤380mA	≤5.32W	0	0
10 & 11	AO IN 1	≤30V	≤250mA	≤2W	0	0
12 & 13	AI IN	≤30V	≤250mA	≤3.8W	0	0
14 & 15	DO2 IN	≤30V	≤500mA	≤2.5W	10.34nF	0

All other protection techniques, the electronic connection has the following nominal values:

### Analog

Label	Terminals	Vdc	Idc
Main Input	8 & 9	10V	4-20mA
DO1 Input	1 & 2	6-40V	500mA
DI IN 1	6 & 7	2.5V-8V	10mA
AO IN 1	10 & 11	10-40V	4-20mA
AI IN	12 & 13	10V	4-20mA
DO2 IN	14 & 15	6-40V	500mA

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## Fieldbus

Label	Terminals	Vdc	Idc
Main Input	8 & 9	9-30 Vdc	18mA
DO1 Input	1 & 2	6-40V	500mA
DI IN 1	6 & 7	2.5V-8V	10mA
AO IN 1	10 & 11	10-40V	4-20mA
AI IN	12 & 13	10V	4-20mA
DO2 IN	14 & 15	6-40V	500mA

## **38ab-cde-fghi-jklm. Series Digital Positioner.**

- a = Communication: 2 or 4
- b = Housing: 0, 1, 2.
- c = Certifications: 28, 37 or 43.
- d = Threaded Connections: E, M or G.
- e = Actuation Medium: A or G.
- f = Relay Type: D or L.
- g = Action: 3 or 4.
- h = Pressure Gauges: 0, 1, 2, 3, 4, A or B.
- i = Gauge Orientation: O, R or L.
- j = Diagnostics: 0 or 1.
- k = Display: 0 or 1.
- l = Feedback Shaft: 0, 1, 2, 3 or 4.
- m = Mounting: 0, D, V or R.

### 14 **Specific Conditions of Use:**

1. Potential electrostatic charging hazard. Clean only with a damp cloth.

### 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 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.

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 FM Approvals Ltd.

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## 18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
03 <sup>rd</sup> May 2017	Original Issue.
12 <sup>th</sup> December 2017	<u>Supplement 01:</u> Report Reference: – 3062606 dated 4 <sup>th</sup> December 2017 Examination of new electronics & clerical changes to the drawings.
14 <sup>th</sup> February 2018	<u>Supplement 02:</u> Report Reference: – RR212588 dated 7 <sup>th</sup> February 2018 Minor drawing revisions not affecting safety.

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# Blueprint Report

FlowsERVE US Inc, Springville Operations (1000002350)

Class No 3615

Original Project I.D. 3059398

Certificate I.D. FM16ATEX0098X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
08945	1	O-RING DASH NO 11-011	3059398	Yes (pdf)
325274	2	3800 Schedule	3062606	Yes (pdf)
338504	1	3800 UI W LCD Schematic	3062606	Yes (pdf)
338505	2	3800 UI PCB	3062606	Yes (pdf)
338506	1	3800 UI BOM	3062606	Yes (excel)
338829	1	3800 MAIN FF & HART Schematic	3062606	Yes (pdf)
338830	2	3800 MAIN PCB	3062606	Yes (pdf)
338831	1	3800 MAIN BOM	3062606	Yes (excel)
338833	0	3800 UI W/O LCD	3062606	Yes (pdf)
338834	0	3800 UI W/O LCD BOM	3062606	Yes (pdf)
346229	3	GLASS WINDOW MAIN COVER LOGIX 3800	RR212588	Yes (pdf)
346336	2	CAPTIVE SCREW LID M8x1_25MMx28MM STAINLESS STEEL LOGIX 3800	RR212588	Yes (pdf)
349030	2	HOUSING BASE CASTING LOGIX 3800	RR212588	Yes (pdf)
349031	0	HOUSING LID CASTING LOGIX 3800	RR212588	Yes (pdf)
349032	4	HOUSING MASE MACHINING AND PAINTING LOGIX 3800	RR212588	Yes (pdf)
349033	3	HOUSING LID MACHINING AND PAINTING LOGIX 3800	RR212588	Yes (pdf)
349035	2	GASKET MAIN HOUSING TO COVER LOGIX 3800	RR212588	Yes (pdf)
349036	1	GASKET SEAL GLASS COVER MAIN EXP PROOF 6 BOLT LOGIX 3800	RR212588	Yes (pdf)
349041	0	FLAME ARRESTOR	3059398	Yes (pdf)
349042	4	HOUSING EXP PROOF MACHINED PAINTED 6 BOLT M20 LOGIX 3800	RR212588	Yes (pdf)
349317	2	FLAME PATH LOGIX 3800 POSITIONER	RR212588	Yes (pdf)
349456	1	COVER PCB ELECTRONICS HART LOGIX	RR212588	Yes (pdf)
355010	2	M4x10 SCREW LOW PROFILE WINDOW BRACKET SNEAKER	RR212588	Yes (pdf)
355047	3	COVER MACHINING STAINLESS STEEL LOGIX 3800	RR212588	Yes (pdf)
355049	2	HOUSING STAINLESS STEEL, 1/2" NPT, LOGIX 3800	RR212588	Yes (pdf)
355050	3	INTERIM MACHINING HOUSING ALUMINUM LOGIX 3800 6-BOLT	RR212588	Yes (pdf)
355312	0	CONTROL DRAWING LOGIX 3800 DIGITAL POSITIONER	3059398	Yes (pdf)
355359	0	Sticket, 382X-28, ATEX / IECEx Certification Label, Blank, Zebra Printed	3062606	Yes (pdf)
357906	4	HOUSING BASE IS 1-2 NPT MACHINING AND PAINTING LOGIX 3800	RR212588	Yes (pdf)
357908	0	COVER HOUSING MACHINING PAINTING IS LOGIX 3800	RR212588	Yes (pdf)
359520	00	BOM Master Electronics Assembly Report	3062606	Yes (pdf)
359674	0	3800 UI W/ LCD RMO	3062606	Yes (pdf)
359675	0	3800 UI RMO BOM	3062606	Yes (pdf)
359695	0	PCBA UI BOARD LOGIX 3800	3062606	Yes (pdf)
359696	1	PCBA MAIN BOARD LOGIX 3800	3062606	Yes (pdf)
359699	1	ASSEMBLY POTTING MAIN BOARD AND UI BOARD	3062606	Yes (pdf)
359949	0	Sticker, 384X-28, ATEX /IEC, Certification Label, Blank, Zebra Printed	3062606	Yes (pdf)
361753	1	COVER REGULATOR MACHINING LOGIX 3800 POSITIONER	RR212588	Yes (pdf)
367520	03	STICKER MODEL CODE LOGIX 3800	3062606	Yes (pdf)
367893	0	Sticker, 3820-37, US, Canada ATEX, IECEx, Certification Label, IS Housing	3062606	Yes (pdf)
367894	0	Sticker, 384X-37, ATEX / IECEx, Certification Label, Blank, Zebra Printed	3062606	Yes (pdf)
367895	1	Sticker Logix 380X-43 FM CSA ATEX IECEx Explosion Proof Label Blank Printed	3062606	Yes (pdf)
369270	2	HOUSING STAINLESS STEEL INTERMEDIATE MACHINING LOGIX 3800	RR212588	Yes (pdf)
369271	1	HOUSING STAINLESS STEEL, M20, LOGIX 3800	RR212588	Yes (pdf)
64023	0	O-RING DASH NO 006	3059398	Yes (pdf)
LGENIM0112	03	Logix 3800 Digital Positioner User Instructions	3062606	Yes (pdf)