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**
Model Logix 3800e Series Digital Positioner

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

6 **Address of Applicant:** **1350 North Mountain Springs Parkway**
Springville, UT 84663
United States of America

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 Europe 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 27th 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:

EN IEC 60079-0:2018, EN IEC 60079-7:2015 +A1:2018, EN 60079-11:2012,
EN 60079-15:2010, EN 60529:1991+A1:2000+A2:2013

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;
II 3 G Ex ec IIC T6…T4 Gc;

Model Logix 3800 Series Digital Positioners
T4 Ta = -55°C to +80°C; T5 Ta = -55°C to +55°C; T6 Ta = -55°C to +45°C

Model Logix 3800e Series Digital Positioners
T4 Ta = -40°C to +85°C; T5 Ta = -40°C to +55°C; T6 Ta = -40°C to +45°C

Digitally signed by Richard Zammitt
Foxit PhantomPDF Version: 10.1.5

Richard Zammitt
Certification Manager, FM Approvals Europe Ltd.

Issue date: 23rd November 2021

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SCHEDULE

to Type Examination Certificate No. FM16ATEX0098X

13 **Description of Equipment or Protective System:**

Functionality
The Logix 3800 and Logix 3800e 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 Logix 3800 Series Digital Positioner, with the Jetflow option, operates from a two-wire nominal supply of 10V max, 4-20mA source. There are also options for two discrete digital outputs, one analog input, one analog output 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.

The Logix 3800e Series Digital Positioner operates from a two-wire nominal supply of 10V max, 4-20mA source and has an option for one analog output. The analog output circuit is isolated from the main circuitry.

The Logix 3800 and 3800e Digital positioners both have an option for an LCD display.

Logix 3800 Series Digital Positioner
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	≤ 30 V	≤ 380 mA	≤ 5.32 W	0	0
1 & 2	DO1 Input	≤ 30 V	≤ 500 mA	≤ 2.5 W	10.34 nF	0
6 & 7	DI IN 1	≤ 30 V	≤ 380 mA	≤ 5.32 W	0	0
10 & 11	AO IN 1	≤ 30 V	≤ 250 mA	≤ 2 W	0	0
12 & 13	AI IN	≤ 30 V	≤ 250 mA	≤ 3.8 W	0	0
14 & 15	DO2 IN	≤ 30 V	≤ 500 mA	≤ 2.5 W	10.34 nF	0

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

Analog

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

Fieldbus

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

SCHEDULE

to Type Examination Certificate No. FM16ATEX0098X

DO2 IN	14 & 15	6 – 40 V	500 mA

Logix 3800e Series Digital Positioner
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":

Energy Limitation Parameters:		
Field Connections	4-20mA Terminals 8&9	AO Terminals 10 & 11
Ui (Vmax) =	30Vdc	30Vdc
Ii (Imax) =	380mA	250mA
Pi (Pmax) =	5.32W	2W
Ci =	0	0
Li =	0	0

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

Analog Communication: Logix 3800e Series Digital Positioner

Label	Terminals	Vdc	Idc
Main Input	8 & 9	10V	4-20mA
AO IN 1	10 & 11	10-40V	4-20mA

Mechanical
The The Logix 3800 and Logix 3800e electronics are housed in a painted aluminium 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.

The Model Logix 3800 Positioner, with the JetFlow option, is identical in construction to the Model Logix 3800/3800e housing expect that is has a pneumatic valve assembly bolted on the outside of the enclosure.

The Logix 3800e also has the option for a polymeric cover. The cover is approximately 4.9" wide and tappers down to 4.3". It is approximately 6.1" in length and 0.719" thick. The center of the polymeric cover contains a clear Lexan window approximately 2.2" by 1.4".

Environmental Ratings
The equipment enclosures have an ingress protection rating of IP66, except for the Logix 3800e Positioner with the polymeric cover (Housing Option = 3e), which has a rating of IP20.

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.

The ambient operating temperature ranges of the Model Logix 3800e Series Digital Positioner vary between -40°C to +85°C depending on the type of protection. Refer to the label marking, certificates and manual for the allowed ambient temperature ranges.

SCHEDULE

to Type Examination Certificate No. FM16ATEX0098X

Model Codes

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.

38ab-cde-fghi-jklm. Series Digital Positioner.
a = Communication: 2.
b = Housing: 1
c = Certifications: 43
d = Threaded Connections: E, M or G.
e = Actuation Medium: A
f = Relay Type: J
g = Action: 4
h = Pressure Gauges: 0, 1, 2, 3, 4, A or B.
i = Gauge Orientation: R
j = Diagnostics: 1
k = Display: 1.
l = Feedback Shaft: 7
m = Mounting: R

38ab-cde-fghi-jklm. Series Digital Positioner.
a = Communication: 1 or 2.
b = Housing: 0e or 1e.
c = Certifications: 28 or 37.
d = Threaded Connections: E, M or G.
e = Actuation Medium: A or G.
f = Relay Type: D, L or S.
g = Action: 3 or 4.
h = Pressure Gauges: 0, 1, 2, 3, 4, A or B.
i = Gauge Orientation: R or L.
j = Diagnostics: 0.
k = Display: 0 or 1.
l = Feedback Shaft: 0, 1, 2, 3, 4 or 5.
m = Mounting: 0, D, or V.

38a3e-cde-fghi-jklm. Series Digital Positioner.
a = Communication: 1 or 2.
b = Housing: 3e
c = Certifications: 48
d = Threaded Connections: E, M or G.
e = Actuation Medium: A or G.

f = Relay Type: D, L or S.
g = Action: 3 or 4.
h = Pressure Gauges: 0, 1, 2, 3, 4, A or B.
i = Gauge Orientation: R or L.
j = Diagnostics: 0.
k = Display: 0 or 1.
l = Feedback Shaft: 0, 1, 2, 3, 4 or 5.
m = Mounting: 0, D, or V.

14 **Specific Conditions of Use:**

1. Potential electrostatic charging hazard. Clean only with a damp cloth.
2. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.

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 Europe 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 Europe 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 Europe Ltd.

18 **Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
03rd May 2017	Original Issue.
12th December 2017	Supplement 01: Report Reference: – 3062606 dated 04th December 2017. Examination of new electronics & clerical changes to the drawings.
14th February 2018	Supplement 02:

SCHEDULE

to Type Examination Certificate No. FM16ATEX0098X

	Report Reference: – RR212588 dated 07th February 2018. Minor drawing revisions not affecting safety.
14th March 2018	Supplement 03: Report Reference: – RR213080 dated 09th March 2018. Description of the Change: Minor changes to schematics and PCB layouts.
16th August 2018	Supplement 04: Report Reference: – RR214711 dated 07th August 2018. Description of the Change: Minor drawing revisions and minor update to Specific Conditions of Use not affecting safety.
26th March 2019	Supplement 05: Description of the Change: Certificate transferred from FM Approvals Ltd., notified body no. 1725, to FM Approvals Europe Ltd., notified body no. 2809.
09th May 2019	Supplement 06: Report Reference: – RR218407 dated 07th May 2019. Description of the Change: Label and manual changes due to Supplement 05.
06th February 2020	Supplement 07: Report Reference: – PR455147 dated 05th February 2020. Description of the Change: Updated to EN IEC 60079-0:2018 Ed. 7 edition.
03rd November 2020	Supplement 08: Report Reference: – PR455643 dated 02nd November 2020. Description of the Change: Addition of the Model Logix 3800e Series Digital Positioner. Add 'ec' markings for the Logix 3800 and Logix 3800e Series Digital Positioners
23rd November 2021	Supplement 09: Report Reference: – PR459439 dated 23rd November 2021. Description of the Change: Addition of Jetflow Option to Model Logix 3800 Series Digital Positioners. Addition of the polymeric cover to Model Logix 3800e Series Digital Positioner.

Blueprint Report

Flowserve US Inc, Springville Operations (1000002350)

Class No 3615

Certificate I.D. *FM16ATEX0098X*

Drawing No.	Revision Level	Drawing Title	Last Report
08945	1	O-RING DASH NO 11-011	3059398
325274	4	3800 Schedule	PR455643
338504	2	3800 UI W LCD Schematic	RR213080
338505	5	3800 UI PCB	RR214711
338506	2	3800 UI BOM	RR213080
338829	2	3800 MAIN FF & HART Schematic	RR213080
338830	3	3800 MAIN PCB	RR213080
338831	2	3800 MAIN BOM	RR213080
338833	1	3800 UI W/O LCD	RR213080
338834	1	3800 UI W/O LCD BOM	RR213080
346229	3	GLASS WINDOW MAIN COVER LOGIX 3800	RR212588
346336	2	CAPTIVE SCREW LID M8x1_25MMx28MM STAINLESS STEEL LOGIX 3800	RR212588
349030	2	HOUSING BASE CASTING LOGIX 3800	RR212588
349031	0	HOUSING LID CASTING LOGIX 3800	RR212588
349032	5	HOUSING MASE MACHINING AND PAINTING LOGIX 3800	RR214711
349033	3	HOUSING LID MACHINING AND PAINTING LOGIX 3800	RR212588
349035	2	GASKET MAIN HOUSING TO COVER LOGIX 3800	RR212588
349036	1	GASKET SEAL GLASS COVER MAIN EXP PROOF 6 BOLT LOGIX 3800	RR212588
349041	0	FLAME ARRESTOR	3059398
349042	5	HOUSING EXP PROOF MACHINED PAINTED 6 BOLT M20 LOGIX 3800	RR214711
349317	2	FLAME PATH LOGIX 3800 POSITIONER	RR212588
349456	1	COVER PCB ELECTRONICS HART LOGIX	RR212588
355010	2	M4x10 SCREW LOW PROFILE WINDOW BRACKET SNEAKER	RR212588
355047	4	COVER MACHINING STAINLESS STEEL LOGIX 3800	RR214711
355049	3	HOUSING STAINLESS STEEL, 1/2" NPT, LOGIX 3800	RR214711
355050	3	INTERIM MACHINING HOUSING ALUMINUM LOGIX 3800 6-BOLT	RR212588
355312	0	CONTROL DRAWING LOGIX 3800 DIGITAL POSITIONER	3059398
355359	3	Sticker, 382X-28, ATEX / IECEx Certification Label, Blank, Zebra Printed	PR455643
357906	5	HOUSING BASE IS 1-2 NPT MACHINING AND PAINTING LOGIX 3800	RR214711
357908	0	COVER HOUSING MACHINING PAINTING IS LOGIX 3800	RR212588
359520	00	BOM Master Electronics Assembly Report	3062606
359674	1	3800 UI W/ LCD RMO	RR213080
359675	1	3800 UI RMO BOM	RR213080
359695	3	PCBA UI BOARD LOGIX 3800	RR214711
359696	1	PCBA MAIN BOARD LOGIX 3800	3062606
359699	4	ASSEMBLY POTTING MAIN BOARD AND UI BOARD	RR213080
359949	3	Sticker, 384X-28, ATEX /IEC, Certification Label, Blank, Zebra Printed	PR455643
361753	1	COVER REGULATOR MACHINING LOGIX 3800 POSITIONER	RR212588
367520	03	STICKER MODEL CODE LOGIX 3800	3062606
367893	3	Sticker, 3820-37, US, Canada ATEX, IECEx, Certification Label, IS Housing	PR455643
367894	3	Sticker, 384X-37, ATEX / IECEx, Certification Label, Blank, Zebra Printed	PR455643
367895	2	Sticker, Logix 382X-43, FM/CSA ATEX, IECEX Explosion Proof Label Blank, Printed	PR459439
369270	2	HOUSING STAINLESS STEEL INTERMEDIATE MACHINING LOGIX 3800	RR212588
369271	1	HOUSING STAINLESS STEEL, M20, LOGIX 3800	RR212588
386891	1	Window, Main Cover, Logix 3800E	PR459439
386892	2	Cover, Housing, with window, Logix 3800E, Plastic	PR459439
391122	0	3800e UI W/ LCD Schematic	PR455643
391123	0	3800e UI W/O LCD Schematic	PR455643
391124.000.000	0	3800 UI BOM 3800e UI W/ LCD	PR455643
391125.000.000	0	3800 UI BOM 3800e UI W/O LCD	PR455643
391316	1	3800e UI W/ LCD-Logix 3800 Main Schematic	PR455643
391317.000.000	1	3800 Main BOM, HART 3800e	PR455643
603690	0	Control Drawing-Logix 3800E Digital Positioner	PR455643
611955	0	Sticker, Certification label, 3820e -37 US, Canada, ATEX, IECEx IS Housing	PR455643

611956	0	Sticker, Certification label, 3820e -28 ATEX/ IECEx	PR455643
621163	1	Sticker, Certification Label, 3820E-48 US Canada ATEX IECEX IS Housing	PR459439
629596	0	Sticker, Model Code, JetFlow	PR459439
629597	0	Sticker, 382XJF-43, Certification Label Blank, Zebra	PR459439
64023	0	O-RING DASH NO 006	3059398
AIIOM000001	9/21	Logix 3800e Digital Positioner User Instructions	PR459439
AIIOM000287	9/21	JetFlow Relay with Logix 3800JF User Instructions	PR459439
LGENIM0112	07	Logix 3800 Digital Positioner User Instructions	PR455643