

# 1 EU-TYPE EXAMINATION CERTIFICATE



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

3 **EU-Type Examination Certificate No:** FM15ATEX0029X

4 **Equipment or protective system:** 240i and 241i Inline and Insertion Mass Vortex Flowmeters  
(Type Reference and Name)

5 **Name of Applicant:** Sierra Instruments Inc.

6 **Address of Applicant:** 5 Harris Court, Building L  
Monterey, CA 93940  
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, notified body number 2809 in accordance with Article 17 of Directive 2014/34/EU of the 26<sup>th</sup> February 2014, 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:

3054986 dated 09<sup>th</sup> September 2015

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 60079-1:2014, EN 60079-31:2014 and  
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 EU-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 2 G Ex db IIC T3 Gb Ta = -20°C to +60°C

II 2 D Ex tb IIIC T200°C Db Ta = -20°C to +60°C

**Martin Crowe**  
Certification Manager, FM Approvals Europe Ltd.

Issue date: 03<sup>rd</sup> August 2021

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## 13 Description of Equipment or Protective System:

The 240i and 241i Inline and Insertion Mass Vortex Flowmeters are used for gas, liquid or steam flow measurement applications. The flowmeters are available with the probe mounted to the electronics housing or with the probe mounted to a remotely located housing. When remotely-mounted, the electronics housing can be mounted up to 50 feet away from the remote probe housing. The remote housing is identical to the main electronics housing except that the remote housing uses low blind covers (versus tall blind covers on the main housing). All variables can be monitored on an optional, viewable display (the main housing is provided with a window cover in this configuration). The flowmeters can also provide 4-20 mA flow and temperature output, alarm output and an optional pressure output. The 240i can go inline in 1-inch to 8-inch flow bodies while the 241i is suitable for insertion into pipes or ducts from two inches up to 72 inches. For probes longer than 13 inches, a seal is required within 13 inches of the probe and housing.

The 240i and 241i Inline and Insertion Mass Vortex Flowmeters operate on 24 Vdc or 100-240 Vac. The flowmeters are intended for use in an ambient temperature of -20°C to +60°C and with process temperatures of -40°C to +200°C at a pressure of 1500 psi. The equipment has an ingress protection rating of IP66.

### **240i-a-3-b-c-d-e-f-ST-g h-i. Inline Mass Vortex Flowmeter.**

a = Multivariable V, VT or VTP.

b = Flow body F4, F5, F6, F7, F8, F9, F10, G4, G5, G6, G7, G8, G9, G10, H4, H5, H6, H7, H8, H9, H10, FD4, FD5, FD6, FD7, FD8, FD9, FD10, GD4, GD5, GD6, GD7, GD8, GD9, GD10, HD4, HD5, HD6, HD7, HD8, HD9 or HD10.

c = Enclosure E2 or E4(\*). \*Specify cable length (50 feet maximum).

d = Display DD or NR.

e = Power P2 or PS.

f = Output V6, V6H, V6M, V6DP2 or V6FF.

g = Process pressure MP0†, MP1\*, MP2\*, MP3\* or MP4\*. †V or VT only. \*VTP only.

h = Certificates BLANK or MC, PT, CC or NC.

i = Oxygen cleaning BLANK or O2C.

### **241i-a-3-b-c-d-e-f-ST-g-h i-j-k. Insertion Mass Vortex Flowmeter.**

a = Multivariable V, VT or VTP.

b = Probe length LS or LC.

c = Enclosure E2 or E4(\*). \*Specify cable length (50 feet maximum).

d = Display DD or NR.

e = Power P2 or PS.

f = Output V6, V6H, V6M, V6DP2 or V6FF.

g = Process pressure MP0†, MP1\*, MP2\*, MP3\* or MP4\*. †V or VT only. \*VTP only.

h = Process connection CO, CM, CF, CG, CH, PM, PF, PG, PH, CFD, CGD, CHD, PFD, PGD or PHD.

i = Certificates BLANK or MC, PT, CC or NC.

j = Oxygen cleaning BLANK or O2C.

k = Retractor BLANK or 241-Retractor.

## 14 Specific Conditions of Use:

1. The flameproof joints of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flameproof joints is necessary.
2. For probes longer than 13 inches, a suitably certified conduit sealing device is required to be installed between the main enclosure and the probe body. The seal shall be located within 13 inches of the main enclosure.

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**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 EU-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 the Notified Body.

**18 Certificate History**

Details of the supplements to this certificate are described below:

<b>Date</b>	<b>Description</b>
14 <sup>th</sup> September 2015	Original Issue.
10 <sup>th</sup> May 2017	<u>Supplement 1:</u> Report Reference: – RR208843 dated 05 <sup>th</sup> May 2017. Description of the Change: Update to documentation, update to standards used for certification and updated certificate to EU format.
19 <sup>th</sup> March 2019	<u>Supplement 2:</u> Description of the Change: Certificate transferred from FM Approvals Ltd., notified body no. 1725, to FM Approvals Europe Ltd., notified body no. 2809.
24 <sup>th</sup> April 2019	<u>Supplement 3:</u> Report Reference: – RR218327 dated 09 <sup>th</sup> April 2019. Description of the Change: Updates to labels and manuals to include new the notified body no. 2809.
03 <sup>rd</sup> October 2019	<u>Supplement 4:</u> Report Reference: – RR219612 dated 30 <sup>th</sup> August 2019. Description of the Change: Minor non-safety related documentation update. Reviewed and updated EN60529 to include A2: 2013.
04 <sup>th</sup> November 2019	<u>Supplement 5:</u> Report Reference: – RR220610 dated 01 <sup>st</sup> November 2019. Description of the Change: Minor changes on three drawings not affecting ingress or safety.

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03 <sup>rd</sup> August 2021	<b>Supplement 6:</b> Report Reference: – RR228552 dated 2 <sup>nd</sup> August 2021. Description of the Change: Minor drawing and manual changes. Revisions are non-safety related and all testing remains applicable. Conducted GAP analysis, updated certificate to include EN/ IEC 60079-0:2018.
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# Blueprint Report

Sierra Instruments Inc (1000002381)

Class No 3615

Original Project I.D. 3054986

Certificate I.D. FM15ATEX0029X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
22-0576	A	CONN, RING TERMINAL, #10, 16-14 AWG	3054986
24i-IM	I	InnovaMass 240i/241i Volumetric & Multivariable Mass Vortex Flow Meter Instruction Manual	RR228552
36-0015	A	ADHESIVE, SEALANT, RTV SILICONE	3054986
39-1565	A	PCA, PROFIBUS DP	3054986
39-1659	A	PCA, MODBUS TO FF BUS CONVERT	3054986
39-1720	A	MODBUS TO HART, OEM	3054986
41-1441-X	E	HOUSING, VELOCITY SENSOR	3054986
41-2205	B	FITTING, PRESSURE SENSOR, 640i/780i	RR220610
41-4458	A	RETAINING RING, FLAME ARRESTOR, 640i/780i	3054986
41-4463-X	C	ENCLOSURE, 640i	RR228552
41-4487	B	DISK, FLAME ARRESTOR, 640i	3054986
41-4530	4	ADAPTER, BUSHING, 640i/780i REMOTE	3054986
41-4827-X	5	HOUSING, TEMPERATURE SENSOR	3054986
41-4828-X-X	4	SENSOR ASSEMBLY HOUSING, 240i	3054986
41-4829-X	3	PRESSURE SENSOR TUBE	3054986
41-4831-X-X	5	SENSOR ASSEMBLY, 240i INLINE	3054986
41-5062-X-XX-X-X	A	FLOW BODY ASSEMBLY, 240i INLINE	RR208843
41-5063-X-XX-X-X	B	240i INLINE PROBE ASSEMBLY, SCH80	RR228552
41-5065-X-XX-X-X	A	240i FLOW BODY, PIPE, SCH80	RR208843
41-5067-X-XX	A	BLUFF BODY, SCH 80	RR208843
41-5069-X-XX	2	PIN, SCH80	3054986
41-5083-X	A	PRESSURE TUBE, 241i	RR208843
41-5084-X-X	A	PROBE SHAFT, 241i	RR208843
41-5085-X-X	B	SENSOR HOUSING WELDMNT, 241i	RR219612
41-5086-X-X	2	FLOW TUBE WELDMNT, 241i	3054986
41-5103-X	A	240i INLINE NECK, MAIN BODY	RR208843
41-5104-X	A	240i INLINE NECK, THREADED END	RR208843
41-5105-X	A	240i INLINE NECK ASSEMBLY	RR208843
41-5149-X-XX	B	240i INLINE NECK SUPPORT	RR208843
43-0268	A	ASSEMBLY, FLAME ARRESTOR, 640i/780i	3054986
43-0307-X-X	B	SENSOR ASSEMBLY, INSERTION METERS	RR220610
43-0308-X-X	A	PROBE WELDMNT, INSERTION METERS	RR208843
47-0529	C	LABEL, AGENCY APPROVAL, ATEX/IECEX, 240i/241i	RR218327
52-0198	A	640I Terminal PCA	3054986
52-0199	A	640I Power PCA	3054986
52-0201	A	640I Display RS232 PCA	3054986
52-0219	A	PCA, TERM, PROFIBUS DP, 640S	3054986
52-0222	1	PCA, BORAX, MAIN	3054986
52-0223	1	PCA, BORAX, FLOW SENSOR	3054986
52-0224	1	Borax Remote E4 VTP PCA	3054986
52-0227	B	Borax Mobi PCA	3054986
99-1876	4	241i/240i APPROVAL AGENCY OVER-VIEW	RR220610
IM-240i-241i-ATEX and IECEx D		InnovaMass 240i and 241i Mass Flow Meters Certified ATEX and IECEx	RR218327