

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:** FM15ATEX0029X

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

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

6 **Address of Applicant:** 5 Harris Court, Building L
Monterey, CA 93940
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:

3054986 dated 9th 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 60079-0:2012, EN 60079-1:2014, EN 60079-31:2014, EN 60529:1991 + A1:2000

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 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 db IIC T3 Gb Ta = -20°C to +60°C, IP66

II 2 D Ex tb IIIC T200°C Db Ta = -20°C to +60°C, IP66

Mick Gower
Certification Manager, FM Approvals Ltd.

Issue date: 14th September 2015

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. FM15ATEX0029X

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.

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.

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.

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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.

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
14 th September 2015	Original Issue.

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Blueprint Report

Sierra Instruments Inc (100002381)

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>	<u>Electronic Drawing</u>
22-0576	A	CONN, RING TERMINAL, #10, 16-14 AWG	3054986	Yes (pdf)
24i-IM	A	InnovaMass 240i/241i Volumetric & Multivariable Mass Vortex Flow Meter Instruction Manual	3054986	Yes (pdf)
36-0015	A	ADHESIVE, SEALANT, RTV SILICONE	3054986	Yes (pdf)
39-1565	A	PCA, PROFIBUS DP	3054986	Yes (pdf)
39-1659	A	PCA, MODBUS TO FF BUS CONVERT	3054986	Yes (pdf)
39-1720	A	MODBUS TO HART, OEM	3054986	Yes (pdf)
41-1441-X	E	HOUSING, VELOCITY SENSOR	3054986	Yes (pdf)
41-2205	A	FITTING, PRESSURE SENSOR, 640i/780i	3054986	Yes (pdf)
41-4458	A	RETAINING RING, FLAME ARRESTOR, 640i/780i	3054986	Yes (pdf)
41-4463-X	A	ENCLOSURE, 640i	3054986	Yes (pdf)
41-4487	B	DISK, FLAME ARRESTOR, 640i	3054986	Yes (pdf)
41-4530	4	ADAPTER, BUSHING, 640i/780i REMOTE	3054986	Yes (pdf)
41-4827-X	5	HOUSING, TEMPERATURE SENSOR	3054986	Yes (pdf)
41-4828-X-X	4	SENSOR ASSEMBLY HOUSING, 240i	3054986	Yes (pdf)
41-4829-X	3	PRESSURE SENSOR TUBE	3054986	Yes (pdf)
41-4831-X-X	5	SENSOR ASSEMBLY, 240i INLINE	3054986	Yes (pdf)
41-5062-X-XX-X-X	3	FLOW BODY ASSEMBLY, 240i INLINE	3054986	Yes (pdf)
41-5063-X-XX-X-X	5	240i INLINE PROBE ASSEMBLY, SCH80	3054986	Yes (pdf)
41-5065-X-XX-X	5	240i FLOW BODY, PIPE, SCH80	3054986	Yes (pdf)
41-5067-X-XX	2	BLUFF BODY, SCH 80	3054986	Yes (pdf)
41-5069-X-XX	2	PIN, SCH80	3054986	Yes (pdf)
41-5083-X-X	3	PRESSURE TUBE, 241i	3054986	Yes (pdf)
41-5084-X-X	2	PROBE SHAFT, 241i	3054986	Yes (pdf)
41-5085-X-X	4	SENSOR HOUSING WELDMENT, 241i	3054986	Yes (pdf)
41-5086-X-X	2	FLOW TUBE WELDMENT, 241i	3054986	Yes (pdf)
41-5103-X	2	240i INLINE NECK, MAIN BODY	3054986	Yes (pdf)
41-5104-X	2	240i INLINE NECK, THREADED END	3054986	Yes (pdf)
41-5105-X	2	240i INLINE NECK ASSEMBLY	3054986	Yes (pdf)
41-5149-X	1	240i INLINE NECK SUPPORT	3054986	Yes (pdf)
43-0268	A	ASSEMBLY, FLAME ARRESTOR, 640i/780i	3054986	Yes (pdf)
43-0307-X-X	2	SENSOR ASSEMBLY, INSERTION METERS	3054986	Yes (pdf)
43-0308-X-X	4	PROBE WELDMENT, INSERTION METERS	3054986	Yes (pdf)
47-0529	A	LABEL, AGENCY APPROVAL, ATEX/IECEX, 240i/241i	3054986	Yes (pdf)
52-0198	A	640i Terminal PCA	3054986	Yes (pdf)
52-0199	A	640i Power PCA	3054986	Yes (pdf)
52-0201	A	640i Display RS232 PCA	3054986	Yes (pdf)
52-0219	A	PCA, TERM, PROFIBUS DP, 640S	3054986	Yes (pdf)
52-0222	1	PCA, BORAX, MAIN	3054986	Yes (pdf)
52-0223	1	PCA, BORAX, FLOW SENSOR	3054986	Yes (pdf)
52-0224	1	Borax Remote E4 VTP PCA	3054986	Yes (pdf)
52-0227	B	Borax Mobi PCA	3054986	Yes (pdf)
99-1876	3	241i/240i APPROVAL AGENCY OVER-VIEW	3054986	Yes (pdf)
IM-240i-241i-ATEX and IECEx	B	InnovaMass 240i and 241i Mass Flow Meters Certified ATEX and IECEx	3054986	Yes (pdf)