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:** **FM13ATEX0082X**

4. **Equipment or protective system: (Type Reference and Name)** **640i and 780i Insertion and In-line Thermal Mass Flowmeters**

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

6. **Address of Applicant** **20 Ryan Ranch Road, Ste 109, Monterey, California 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 26 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:

   3048285 dated 25th April 2014

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, 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

Certificate issued by:

R Klop

5 January 2026

Certification Manager, FM Approvals Europe Ltd. Date

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

The 640i and 780i Insertion and In-line Thermal Mass Flowmeters are used for gas flow measurement applications. The flowmeters integrate configuration, validation and diagnostics in a probe-mounted or remotely-mounted housing. When remotely-mounted, the electronics enclosure can be mounted up to 200 feet away from the remote probe enclosure. All variables can be monitored on a viewable display. The flowmeters can also provide 4-20 mA flow and temperature output, alarm output and an optional pressure output. The 640i is suitable for insertion into pipes or ducts from three inches up to 72 inches while the 780i can go in-line to 8-inch flow bodies. For probes longer than 13 inches, a seal is required within 13 inches of the probe and enclosure.

The 640i and 780i Insertion and In-line Thermal Mass 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 300 psi (in-line) or 500 psi (insertion).

The equipment has an ingress protection rating of IP66.

Refer to the Annex for model codes.

14. **Specific Conditions of Use:**

1. The flameproof joints are not intended to be repaired. Consult the manufacturer for additional information.

2. A suitably certified conduit sealing device is required within 13 inches of the enclosure for probes longer than 13 inches.

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:

SCHEDULE

EU-Type Examination Certificate No. FM13ATEX0082X

Date	Description
1 May 2014	Original Issue.
20 August 2014 to 9 April 2025	Supplement 1 to 10: See certificate dated 9 April 2025.
5 January 2026	Supplement 11: Report Reference: RR249007 dated 3 January 2026. Description of the Change(s): Model code reformatting/restructuring. No new features added that would affect the equipment safety.

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ANNEX

640i Insertion Thermal Mass Flowmeter

Description of Equipment:

640i-a-b-c-d-DD-e-EX-00-f-f-f-g-h-i-j-k. Insertion Thermal Mass Flowmeter.
a = Multivariable: VT or VTP.
b = Probe: L06, L09, L13, L18, L24, L36, L48, L* or L*M5. *Specify probe length (max 48 inches).
c = Enclosure: E2 or E4.
d = Power: P2 or P3.
e = Digital communication: MB, BH or XX*. *None.
f = Gas: 00A*, 01*, 01A*, 02*, 02A*, 03*, 04*, 04A*, 06*, 06A*, 07*, 07A*, 08*, 08A*, 10*, 10A*, 11*, 12*, 12A*, 14*, 99*, 99A* or BLANK. *Add LF suffix to each gas code that has an ultra low flow calibration range.
g = Non-resettable totalizer option: NRT or BLANK.
h = qMix software license option: qMix or BLANK.
i = Remote cable option: CXXX*-VT, CXXX*-VTP or BLANK†. *Specify cable length in XXX feet. †E2 only.
j = Pressure MP1*, MP2*, MP3*, MP4* or BLANK†. *VTP only. †VT only.
k = Oxygen cleaning option: O2C or BLANK.

780i In-line Thermal Mass Flowmeter

Description of Equipment:

780i-a-b-c-d-DD-e-EX-00-f-f-f-g-h-i-j-k. In-line Thermal Mass Flowmeter.
a = Multivariable: VT or VTP.
b = Flow body: N050, N075, N100, N150, N200, N300, N400, N600, N800, F050, F075, F100, F150, F200, F300, F400, F600, F800, FD200, FD300, FD400, FD600, FD800, GD100, GD150, GD200 or GD300.
c = Enclosure: E2 or E4.
d = Power: P2 or P3.
e = Digital communication: MB, BH or XX*. *None.
f = Gas: 00A*, 01*, 01A*, 02*, 02A*, 03*, 04*, 04A*, 06*, 06A*, 07*, 07A*, 08*, 08A*, 10*, 10A*, 11*, 12*, 12A*, 14*, 99*, 99A* or BLANK. *Add LF suffix to each gas code that has an ultra low flow calibration range.
g = Non-resettable totalizer option: NRT or BLANK.
h = qMix software license option: qMix or BLANK.
i = Remote cable option: CXXX*-VT, CXXX*-VTP or BLANK†. *Specify cable length in XXX feet. †E2 only.
j = Pressure MP1*, MP2*, MP3*, MP4* or BLANK†. *VTP only. †VT only.
k = Oxygen cleaning option: O2C or BLANK.

Blueprint Report

Sierra Instruments Inc 1000002381

Class No. 3615

Original Project I.D. 3048285

Certificate I.D. FM13ATEX0082X

Drawing No.	Revision Level	Drawing Title	Last Report
22-0576	A	CONN, RING TERMINAL, #10, 16-14 AWG	3048285
36-0015	A	ADHESIVE, SEALANT, RTV SILICONE	3048285
39-1720	A	MODBUS TO HART, OEM	7/23/14
39-1857	1	MODBUS TO HART, OEM	RR245487
41-2205	C	PRESSURE SENSOR FITTING	RR239863
41-4458	A	RETAINING RING, FLAME ARRESTOR	3052971
41-4463-X	C	ENCLOSURE, 640i	PR449880
41-4487	B	DISK, FLAME ARRESTOR, 640i	3052971
41-4530	4	ADAPTER, BUSHING, 640I/780I REMOTE	3048285
41-4575-X	C	SENSOR HOUSING, .75 OD , 640i	3053711
41-4638-X	A	ENCLOSURE, REMOTE, 640i	3048285
41-5037	B	PIN, SENSOR HOUSING, 640i	PR449880
41-5042-X-X	2	WELDMENT, 780i, 1/2 INCH	3053711
41-5043-X-X	2	WELDMENT, 780i, 3/4 INCH	3053711
41-5044-X-X	2	WELDMENT, 780i, 1 INCH	3053711
41-5059-X-X	2	WELDMENT, 780i, 1.5 INCH	3053711
41-5179-XXX	A	SHAFT, INS MTR, 640i	PR449880
41-5258-XXX	A	WLDMNT, PROBE SHAFT, 640i	RR215729
43-0247-XX-XX-XXX	F	WELDMENT, PROBE ASSY, .75 O.D. INSERTION METERS, 640i	RR228554
43-0268	A	ASSEMBLY, FLAME ARRESTOR, 640i	3052971
43-0274-XX	E	SENSOR ASSEMBLY, 640i FR	PR449880
43-0296-XX-XX-XXX	A	PROBE WELDMENT & ASSY. .75 OD, W/FLANGE INSERTION METERS, 640i	RR245487
43-0304-XX	B	WELDMENT, PROBE ASSY, IN LINE METERS, 780i, .5", .75", 1"	3053711
47-0501	E	LABEL, AGENCY APPROVAL, ATEX, ENCL BACK, 640i/780i	RR249007
47-0502	D	LABEL, RMT ENCL, ATEX, 640i/780i	RR245487
52-0195	3.2	Mobi	7/23/14
52-0198	A	640I Terminal PCA	3048285
52-0199	A	640I Power PCA	3048285
52-0201	A	640I Display RS232 PCA	3048285
52-0202	A	640 I Main PCA	3048285
52-0209	A	640I Remote J-Box PCA	3048285
52-0222	1	PCA, BORAX, MAIN	RR245487
52-0227	B	BoraxMobi PCA	RR245487
52-0235	1	PCA, 640i, VT SENSOR	RR245487
52-0236	A	640i 240i V2 Display 420mA In PCA	RR245487
52-0237	A	640i 240i V2 Terminal PCA	RR245487
54-0372-XX	B	WIRING, SENSOR HOUSING, 640I/780I	RR228554
99-1636	3	640i/780i ENCLOSURE USAGE	PR449880
99-1685	E	640i/780i APPROVAL AGENCY OVER-VIEW	RR245487
IM-640i/780i	V2.B	QuadraTherm 640i/780i Series Insertion and In-Line Mass Flow Meters Instruction Manual	RR249007
IM-QuadraTherm-ATEX and IECEx	H	Appendix for ATEX and IECEx Certified EX Units Instruction Manual	RR249007