



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: FM17ATEX0015X

4. Equipment or protective system:
(Type Reference and Name) Model FT4X Thermal Mass Gas Flow Meter and Temperature Transmitter
MDot Max Series Thermal Mass Gas Flow Meter and Temperature Transmitter

5. Name of Applicant: Fox Thermal Instruments Inc

6. Address of Applicant 399 Reservation Rd, Marina, California 93933,
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:

3061039 dated 31st March 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 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.

Certificate issued by:

FM Approvals

25 July 2025

Certification Manager, FM Approvals Europe Ltd.

Date

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FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin. Ireland. D02 E440
T: +353 (0) 1761 4200 E-mail: atex@fmaprovals.com www.fmaprovals.com

F ATEX 020 (Jul/2024)



Page 1 of 6

SCHEDULE

EU-Type Examination Certificate No. FM17ATEX0015X

12. The marking of the equipment or protective system shall include:



Main Enclosure:

II 2 G Ex db IIB+H₂ T6 or T4 Gb Ta = -20°C to +70°C

II 2 D Ex tb IIIC T85°C or T135°C Db Ta = -20°C to +70°C

Remote Enclosure:

II 2 G Ex db IIB+H₂ T4 Gb Ta = -20°C to +70°C

II 2 D Ex tb IIIC T135°C Db Ta = -20°C to +70°C

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

General - The Model FT4X and MDot Max Series Thermal Mass Gas Flow Meter and Temperature Transmitters are used for measuring the mass flow of gases as well as the process gas temperature all in one package. The flowmeters are available for inline or insertion applications. The product features 4-20mA and/or pulse outputs and is also available with an optional display/configuration panel. Digital communications options include USB, HART and RS485 Modbus.

Construction - The Model FT4X and MDot Max Series Thermal Mass Gas Flow Meter and Temperature Transmitter consists of a dual-compartment electronics housing with thread-on blank or window covers and a probe threaded into the housing base. The remote version of the Model FT4X and MDot Max Series Thermal Mass Gas Flow Meter and Temperature Transmitter consists of the same dual-compartment electronics housing attached to a smaller remote enclosure with probe. The equipment enclosures are separately certified by NB 1026 (see certificates FTZU03ATEX0074U, FTZU04ATEX0332U, FTZU15ATEX0142U and FTZU14ATEX0004U). The enclosures are provided with 3/4 inch NPT openings. Probe mounting can be provided integrally, directly to the electronics housing, or can be remotely mounted, using the remote enclosure, up to 100 feet from the electronics housing.

Ratings - The Model FT4X and MDot Max Series Thermal Mass Gas Flow Meter and Temperature Transmitters operate at 12-28 Vdc (6W) or 100-240 Vac (7W). The transmitters are rated for use in an ambient temperature range of -20°C to +70°C. The transmitter probes are rated for use in a process temperature range of -40°C to +121°C at a maximum pressure of 740 psi.

The enclosures have an ingress protection rating of IP67.

Refer to the Annex for model codes.

14. **Specific Conditions of Use:**

1. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
2. Refer to the manufacturer's instructions to reduce the potential of an electrostatic charging hazard on the equipment enclosure.
3. The equipment temperature code ratings are dependent on the enclosure configuration (local or remote). Refer to the following table for specific temperature code markings.

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SCHEDULE

EU-Type Examination Certificate No. FM17ATEX0015X

Model Code	Temperature Code Marking-Gas		Temperature Code Marking-Dust	
Enclosure (variable "k" on inline; "f" on insertion)	Main Enclosure	Remote Enclosure	Main Enclosure	Remote Enclosure
E1, E2, T1, T2	T4	N/A	T135°C	N/A
E3, E4, T3, T4, Y1, Y2	T6	T4	T85°C	T135°C

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:

Date	Description
7 April 2017	Original Issue.
2 February 2018 to 20 October 2021	<u>Supplement 1 to 10:</u> See certificate dated 20 th October 2021.
24 May 2022	<u>Supplement 11:</u> Report Reference: PR461840 dated 17 th May 2022. Description of the Change: Add 645i, 650i, 745i and 750i Series.
18 October 2022	<u>Supplement 12:</u> Report Reference: PR461958 dated 18 th October 2022. Description of the Change: Add MDot Max Series. Minor text corrections.

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SCHEDULE

EU-Type Examination Certificate No. FM17ATEX0015X

Date	Description
15 November 2022	<u>Supplement 13:</u> Report Reference: RR234631 dated 08 th November 2022. Description of the Change: Minor documentation changes not affecting the equipment safety.
21 September 2023	<u>Supplement 14:</u> Report Reference: PR466793 dated 18 th September 2023. Description of the Change(s): Remove 645i, 650i, 745i and 750i models and associated documentation changes.
1 February 2024	<u>Supplement 15:</u> Report Reference: RR239357 dated 28 th January 2024. Description of the Change(s): Minor documentation changes not affecting the equipment safety.
15 November 2024	<u>Supplement 16:</u> Report Reference: RR243270 dated 14 th November 2024. Description of the Change(s): Added 1/2 inch probes and stainless steel enclosures. Model code reconfigured. Other documentation changes not affecting the equipment safety.
25 July 2025	<u>Supplement 17:</u> Report Reference: RR247020 dated 24 July 2025. Description of the Change(s): Minor electronic changes (LCD display) not affecting the equipment safety.

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FM Approvals Europe Ltd. One Georges Quay Plaza, Dublin. Ireland. D02 E440
T: +353 (0) 1761 4200 E-mail: atex@fmaprovals.com www.fmaprovals.com

ANNEX

Model FT4X Inline

Description of Equipment:

FT4X-abcd-e-fghi-j-k-l-m. Thermal Mass Flow Meter and Temperature Transmitter (Inline).

- a = Flowbody size: 025, 05, 075, 10, 125, 15, 20, 25, 30, 40, 60 or 80.
b = Flowbody type: P, F, G, H, D, E, J or K.
c = Flowbody material: BLANK or C.
d = Flowbody conditioner: BLANK or X.
e = Flowbody pipe schedule: BLANK, S05, S10 or S80.
f = Retractor length: BLANK, 15, 18, 24, 30 or 36.
g = Retractor: BLANK, R or C.
h = Crank retractor diameter: BLANK, 1 or 2.
i = Crank retractor flange: BLANK, A1, A2, A3, N1, N2, J1 or J2.
j = Sensor diameter and material: BLANK, H3, J3, L3, S2, H2, J2 or L2.
k = Enclosure and power: E1, E2, E3, E4, T1, T2, T3, T4, Y1 or Y2.
l = Data logger and display: BLANK, D0, DD or L0.
m = Communication: B0, RS, BN or BH.

Model FT4X Insertion

Description of Equipment:

FT4X-abcd-e-f-g-h. Thermal Mass Flow Meter and Temperature Transmitter (Insertion).

- a = Probe length: 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 or 36.
b = Retractor: I, R or C.
c = Crank retractor diameter: BLANK, 1 or 2.
d = Crank retractor flange: BLANK, A1, A2, A3, N1, N2, J1 or J2.
e = Sensor diameter and material: BLANK, H3, J3, L3, S2, H2, J2 or L2.
f = Enclosure and power: E1, E2, E3, E4, T1, T2, T3, T4, Y1 or Y2.
g = Data logger and display: BLANK, D0, DD or L0.
h = Communication: B0, RS, BN or BH.

MDot Max Series Inline

Description of Equipment:

MDM-abcd-e-fghi-j-k-l-m. Thermal Mass Gas Flow Meter and Temperature Transmitter (Inline).

- a = Flowbody size: 025, 05, 075, 10, 125, 15, 20, 25, 30, 40, 60 or 80.
b = Flowbody type: P, F, G, H, D, E, J or K.
c = Flowbody material: BLANK or C.
d = Flowbody conditioner: BLANK or X.

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SCHEDULE

EU-Type Examination Certificate No. FM17ATEX0015X

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e = Flowbody pipe schedule: BLANK, S05, S10 or S80.
f = Retractor length: BLANK, 15, 18, 24, 30 or 36.
g = Retractor: BLANK, R or C.
h = Crank retractor diameter: BLANK, 1 or 2.
i = Crank retractor flange: BLANK, A1, A2, A3, N1, N2, J1 or J2.
j = Sensor diameter and material: BLANK, H3, J3, L3, S2, H2, J2 or L2.
k = Enclosure and power: E1, E2, E3, E4, T1, T2, T3, T4, Y1 or Y2.
l = Data logger and display: BLANK, D0, DD or L0.
m = Communication: B0, RS, BN or BH.

MDot Max Series Insertion

Description of Equipment:

MDM-abcd-e-f-g-h. Thermal Mass Gas Flow Meter and Temperature Transmitter (Insertion).

a = Probe length: 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35 or 36.
b = Retractor: I, R or C.
c = Crank retractor diameter: BLANK, 1 or 2.
d = Crank retractor flange: BLANK, A1, A2, A3, N1, N2, J1 or J2.
e = Sensor diameter and material: BLANK, H3, J3, L3, S2, H2, J2 or L2.
f = Enclosure and power: E1, E2, E3, E4, T1, T2, T3, T4, Y1 or Y2.
g = Data logger and display: BLANK, D0, DD or L0.
h = Communication: B0, RS, BN or BH.

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T: +353 (0) 1761 4200 E-mail: atex@fmaprovals.com www.fmaprovals.com

Blueprint Report

Fox Thermal Instruments Inc 1000008198

Class No. 3615

Original Project I.D. 3061039

Certificate I.D. FM17ATEX0015X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
102221	H	CONNECTION HEAD, TYPE XD-AD	RR239357
104173	F	ENCLOSURE, TYPE XD-ID100win	RR228249
104229	F	ENCLOSURE, TYPE XD-ID100	RR228249
105024	B	FUSE, BOARD MOUNT, 750MA, 125VAC/VDC	3061039
105418	B	FT1 DISPLAY BOARD SCHEMATIC	RR247020
105420	B	PCB DISPLAY BOARD FT1	RR247020
105420 BOM	B	PCB ASSY DISPLAY BOARD FT1 BOM	RR247020
105599	D	BATTERY LITHIUM 16MM 3V 130mAh COIN	RR217645
106010	F	OVERLAY, DISPLAY/KEYPAD, MODEL FT1	RR228249
106640	D	FT4X MAIN BOARD SCHEMATIC	RR215352
106642	E	PCB ASSY MAIN BOARD FT4X	RR234631
106642 BOM	E	PCB ASSY MAIN BOARD FT4X BOM	RR234631
106644	F	FT4X BRIDGE BOARD SCHEMATIC	RR224995
106646	C	PCB ASSY BRIDGE BOARD FT4X	RR224995
106646 BOM	C	PCB ASSY BRIDGE BD FT4X BOM	RR224995
106648	B	SCHEMATIC, FT4 TERMINAL BOARD	3061039
106650	B	PCB ASSY TERMINAL BOARD FT4X	PR459733
106650 BOM	B	ASSY TERMINAL BOARD FT4X BOM	PR459733
106713	D	FT4X DATA LOGGER BOARD SCHEMATIC	RR217645
106715	D	PCB ASSY DATA LOG BOARD FT4X	PR459733
106715 BOM	D	PCB ASSY DATA LOG BOARD FT4X BOM	PR459733
106796	H	MODEL FT4X INSTALLATION MANUAL	RR239357
106851	C	FT4X PROBE ADAPTER	RR213483
106955	C	PROBE FITTING, ROTATING, W/SNAP RING GROOVE, FT1/FT4	RR213483
107001	A	SCHEMATIC, FT4 REMOTE BOARD	3062176
107003	B	PCB ASSY REMOTE BOARD FT4X	RR228249
107003 BOM	B	PCB ASSY REMOTE TERM BD FT4X BOM	RR228249
107584	E	LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, LOCAL, FT4X	RR243270
107585	E	LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, REMOTE, FT4X	RR243270
107586	E	LABEL, SERIAL NUMBER, REMOTE ENCLOSURE, FT4X	RR243270
108992	A	BATTERY LITHIUM 2.5V 350mAh SEALED	RR217645
109273 BOM	A	PCB ASSY DATA LOG BD FT4X NO BAT	PR459733
109460	A	SCHEMATIC, FT4X TERMINAL AC BOARD	PR459733
109462	A	PCB ASSY FT4X TERMINAL AC BOARD	PR459733
109462 BOM	A	ASSY AC TERMINAL BOARD FT4X	PR459733
109547	B	LABEL TERMINAL BLK AC POWER FT4X	RR234631
109581	C	LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, LOCAL, AC, FT4X	RR243270

Fox Thermal Instruments Inc 1000008198

Class No. 3615

Original Project I.D. 3061039

Certificate I.D. FM17ATEX0015X

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>
		LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, REMOTE,	
109582	C	AC, FT4X	RR243270
109635	B	ENCLOSURE, TYPE XD-ID100win RED	RR239357
109636	B	ENCLOSURE, TYPE XD-ID100 RED	RR239357
109680	A	ENCLOSURE, TYPE XD-ID100win BLUE BODY, GREY COVERS	PR461958
109681	A	ENCLOSURE, TYPE XD-ID100 BLUE BODY, GREY COVERS	PR461958
109682	A	Model MDot Max Instruction Manual	PR461958
		LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, LOCAL,	
109683	B	PULSAR, MDOT MAX	RR243270
		LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE, REMOTE,	
109684	B	PULSAR, MDOT MAX	RR243270
		LABEL, SERIAL NUMBER, REMOTE ENCLOSURE, PULSAR, MDOT	
109685	B	MAX	RR243270
109686	B	CONFIGURATION, INSERTION, PULSAR, MODEL, MDOT MAX	RR243270
109687	B	CONFIGURATION, INLINE, PULSAR, MODEL MDOT MAX	RR243270
		LABEL, SERIAL NUMBER, ELECTRONICS ENCLOSURE LOCAL, AC	
109711	B	PULSAR, MDOT MAX	RR243270
		LABEL, SERIAL NUMBER, ELECTRONIC ENCLOSURE REMOTE,	
109712	B	AC, PULSAR, MDOT MAX	RR243270
113469	B	PROBE FITTING, ROTATING, W/SNAP RING GROOVE, 1/2"	RR243270
113500	A	ENCLOSURE, TYPE XD-SID100win, STAINLESS STEEL	RR243270
113501	A	CONNECTION HEAD, TYPE XD-SD4, STAINLESS STEEL	RR243270
SK1100	B	SENSOR WELDMENT 1/2 INCH	RR243270
SK1601	4	SENSOR WELDMENT, Ø3/4 INCH, FT1	3062176
SK1603	A	PROBE DRAWING, FT1, FM APPROVED	RR243270
SK1740	C	CONFIGURATION DRAWING, INSERTION, MODEL FT4X	RR243270
SK1741	C	CONFIGURATION DRAWING, INLINE, MODEL FT4X	RR243270
SK1742	1	DETAIL DRAWING, PROTECTIVE GROUNDING, FT4X	3061039
SK1743	A	FLAME PATH FT4X	RR243270
		LIST, SEALING AND NON-METALIC MATERIALS, FT4X	
SK1744	1	FLOWMETER	3061039