

# 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:** Model FT4X Thermal Mass Flow Meter and Temperature Transmitter  
(Type Reference and Name) 645i, 650i, 745i and 750i Series Thermal Mass Flow Meter and Temperature Transmitter

5 **Name of Applicant:** Fox Thermal Instruments Inc.

6 **Address of Applicant:** 399 Reservation Road  
Marina, CA 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 31<sup>st</sup> 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  
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:



**Main Enclosure:**

II 2 G Ex db IIB+H<sub>2</sub> 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+H<sub>2</sub> T4 Gb Ta = -20°C to +70°C  
II 2 D Ex tb IIIC T135°C Db Ta = -20°C to +70°C

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

Issue date: 24<sup>th</sup> May 2022

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F ATEX 020 (Dec/2020)



# SCHEDULE



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## 13 Description of Equipment or Protective System:

**General** - The Model FT4X and 645i, 650i, 745i and 750i Series Thermal Mass 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 645i, 650i, 745i and 750i Series Thermal Mass 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 645i, 650i, 745i and 750i Series Thermal Mass 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 and FTZU04ATEX0332U). The enclosures are provided with ¼ 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 645i, 650i, 745i and 750i Series Thermal Mass 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.

See 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.

Model Code Enclosure (variable "b")	Temperature Code Marking-Gas		Temperature Code Marking-Dust	
	Main Enclosure	Remote Enclosure	Main Enclosure	Remote Enclosure
E1	T4	N/A	T135°C	N/A
E2	T4	N/A	T135°C	N/A
E3	T6	T4	T85°C	T135°C
E4	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.

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**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
07 <sup>th</sup> April 2017	Original Issue.
02 <sup>nd</sup> February 2018 to 20 <sup>th</sup> October 2021	Supplement 1 to 10: See certificate dated 20 <sup>th</sup> October 2021.
24 <sup>th</sup> May 2022	Supplement 11: Report Reference: PR461840 dated 17 <sup>th</sup> May 2022. Description of the Change: Add 645i, 650i, 745i and 750i Series.

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## **ANNEX**

### **FT4X-a-b-c-d. Thermal Mass Flow Meter and Temperature Transmitter (Insertion).**

- a = Probe 04I, 05I, 06I, 07I, 08I, 09I, 10I, 11I, 12I, 13I, 14I, 15I, 16I, 17I, 18I, 19I, 20I, 21I, 22I, 23I, 24I, 25I, 26I, 27I, 28I, 29I, 30I, 31I, 32I, 33I, 34I, 35I, 36I, 15R, 18R, 24R, 30R or 36R.
- b = Enclosure E1, E2, E3 or E4.
- c = Communication BH, BN, B0 or RS.
- d = Data logger, display and sensor L0, BLANK, D0, LD0, SH, SJ or SI.

### **FT4X-a-b-c-d. Thermal Mass Flow Meter and Temperature Transmitter (Inline).**

- a = Flow body 05F, 075F, 10F, 15F, 20F, 25F, 30F, 40F, 60F, 125F, 20FC, 25FC, 30FC, 40FC, 60FC, 075G, 10G, 15G, 20G, 25G, 30G, 40G, 60G, 125G, 20GC, 25GC, 30GC, 40GC, 60GC, 025P, 05P, 075P, 10P, 15P, 20P, 25P, 30P, 40P, 125P, 20PC, 25PC, 30PC or 40PC.
- b = Enclosure E1, E2, E3 or E4.
- c = Communication BH, BN, B0 or RS.
- d = Data logger, display and sensor L0, BLANK, D0, LD0, SH, SJ or SI.

### **6ai-b-c-d-e. Thermal Mass Flow Meter and Temperature Transmitter (Insertion).**

- a = Meter 45 or 50.
- b = Probe 04I, 05I, 06I, 07I, 08I, 09I, 10I, 11I, 12I, 13I, 14I, 15I, 16I, 17I, 18I, 19I, 20I, 21I, 22I, 23I, 24I, 25I, 26I, 27I, 28I, 29I, 30I, 31I, 32I, 33I, 34I, 35I, 36I, 15R, 18R, 24R, 30R or 36R.
- c = Enclosure E1, E2, E3 or E4.
- d = Communication BH, BN, B0 or RS.
- e = Data logger, display and sensor L0, BLANK, D0, LD0, SH, SJ or SI.

### **7ai-b-c-d-e. Thermal Mass Flow Meter and Temperature Transmitter (Inline).**

- a = Meter 45 or 50.
- b = Flow body 05F, 075F, 10F, 15F, 20F, 25F, 30F, 40F, 60F, 125F, 20FC, 25FC, 30FC, 40FC, 60FC, 075G, 10G, 15G, 20G, 25G, 30G, 40G, 60G, 125G, 20GC, 25GC, 30GC, 40GC, 60GC, 025P, 05P, 075P, 10P, 15P, 20P, 25P, 30P, 40P, 125P, 20PC, 25PC, 30PC or 40PC.
- c = Enclosure E1, E2, E3 or E4.
- d = Communication BH, BN, B0 or RS.
- e = Data logger, display and sensor L0, BLANK, D0, LD0, SH, SJ or SI.

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