

# CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**

2. **Certificate No:** FM20US0093X  
3. **Equipment:** Model QEX1000 Series ActiveSONAR™  
**(Type Reference and Name)** Flowmeter System

4. **Name of Listing Company:** Expro Meters Inc

5. **Address of Listing Company:** 50 Barnes Industrial Park N  
Wallingford, CT 06492  
United States

6. The examination and test results are recorded in confidential report number:

3037424 dated 29<sup>th</sup> January 2010

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3810:2005, NEMA 250:2003, ANSI/IEC 60529:2004  
ANSI/UL 60079-0:2019, ANSI/UL 60079-1:2015 & ANSI/UL 60079-18:2019

8. 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.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

Flameproof and Encapsulated for Zone 1, AEx db mb IIB T6...T4 Gb, and Suitable for use in Class I, Division 2, Groups C and D hazardous (classified) locations; indoors and outdoors (Type 4X, IP66 or IP67) with an ambient temperature rating of -45°C or -50°C to +60°C.

**Certificate issued by:**

  
\_\_\_\_\_  
J.E. Marquedant  
VP, Manager - Electrical Systems

14 December 2020  
\_\_\_\_\_  
Date

To verify the availability of the Approved product, please refer to [www.approvalguide.com](http://www.approvalguide.com)

**THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE**

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA  
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information@fmapprovals.com](mailto:information@fmapprovals.com) [www.fmapprovals.com](http://www.fmapprovals.com)

# SCHEDULE



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11. The marking of the equipment shall include:

For the QEX1000 ActiveSONAR Flowmeter System consisting of the following TA1000, JB1000 and FT1000 electrical sub-assemblies:

CL I Div 2 Gp CD, Zn 1 AEx db mb IIB T6...T4 Gb Ta = -45°C (-50°C) to +60°C; Type 4X, IP66 or IP67

- TA1000 Transducer Assy: CL I Div 2 Gp CD, Zn 1 AEx mb IIB T6...T4 Gb Ta = -45°C to +60 °C, IP67

- JB1000 Jn. Box Assy: CL I Div 2 Gp CD, Zn 1 AEx db IIB T6...T4 Gb Ta = -50°C to +60 °C, Type 4X IP66

- FT1000 Flow Transmitter Assy: CL I Div 2 Gp CD, Zn 1 AEx db IIB T6...T4 Gb Ta = -50°C to +60°C, Type 4X, IP66

12. **Description of Equipment:**

The Model QEX1000 Series ActiveSONAR Flowmeter System is a family of clamp-on flowmeters designed to attach to the outside of a process pipe and use ultrasonic signals to measure properties of the fluid or gas flowing within. An array of encapsulated “mb” ultrasonic transducers (TA1000 Series Transducer Assy) on one side of the pipe communicates ultrasonically with a similar array on the opposite side. The driver and receiver electronics are located in a separate flameproof “db” enclosure (FT1000 Series Flow Transmitter Assy) and extract the flow information from the ultrasonic signals. That module is powered by external DC power connections and provides I/O signals to the customer which includes the measured flow information. An additional flameproof “db” enclosure (JB 1000 Series Junction Box Assy), located between the electronics enclosure and the transducer arrays, houses the electrical interconnections.

The parts of the QEX1000 Series have environmental ratings of Type 4X and Degree of Protection IP66 or IP67: with IP67 for the TA1000 Series Transducer Assy, Type 4X as well as IP66 for the JB1000 Series, and IP66 for the other parts of the system.

The specific models described by this Certificate are as follows:

**QEX1000a-b-D. Flow Meter System consisting of the following TA1000, JB1000 and FT1000 electrical sub-assemblies:**

*a = alphanumeric string indicating general configuration and application (Not Ex safety related)*

*b = A or B. Operational process temperature*

**TA1000-aaa-bbb-cc-de-fgh-ii-1-k-D. Transducer Assy**

*a = alphanumeric indicating pipe (Not Ex safety related)*

*b = alphanumeric indicating the set of transducer components (limited to those elements listed in ECD00027) (Not Ex safety related)*

*c = alphanumeric indicating primary transducer interface (Not Ex safety related)*

*d = 1 or 2 Protective cover material*

*e = alphanumeric indicating cover features (Not Ex safety related)*

*f = B or C. umbilical cable. (“B” is only permitted when the TA1000 “k” field is “B”).*

*g = 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, J, K, L, M, N, P, Q, R, S, or T. Cable gland*

*h = alphanumeric indicating cable length (Not Ex safety related)*

*i = alphanumeric indicating language (Not Ex safety related)*

*k = A or B. Operational process temperature (“B” is only permitted for systems where the QEX1000 “b” field is “B”).*

**JB1000-Ebc-1-e-ff-1-h-D. Junction Box Assy**

*b = alphanumeric indicating non-Ex safety-related enclosure options*

*c = A, B, C, or D. Ex safety-related enclosure options.*

*e = alphanumeric indicating bracket (Not Ex safety related)*

*f = alphanumeric indicating language (Not Ex safety related)*

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# SCHEDULE



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*h = A or B. Operational process temperature (“B” is only permitted for systems where the QEX1000 “b” field is “B”).*

***FT1000-aa-Ecd-efg-hh-i-jj-1-D. Flow Transmitter Assy***

*a = alphanumeric indicating software (Not Ex safety related)*

*c = alphanumeric indicating non-Ex safety-related enclosure options*

*d = A or B. Ex safety-related enclosure options.*

*e = B or C. umbilical cable. (“B” is only permitted for systems where the QEX1000 “b” field is “B”).*

*f = 1,2,3,4,5,6,7,8,9,A,B,C,D,E,F,G,H,I,J,K,L,M,N,P,Q,R,S, or T. Cable gland*

*g = alphanumeric indicating cable length (Not Ex safety related)*

*h = alphanumeric indicating electronics option (Not Ex safety related)*

*i = alphanumeric indicating communication protocol (Not Ex safety related)*

*j = alphanumeric indicating language (Not Ex safety related)*

**13. Specific Conditions of Use:**

1. Special temperature measurements are required if process temperatures can exceed 100°C. See instructions in ECD00036 or ECD00062.
2. Special gland and cable selection requirements may apply. See instructions in ECD00036 or ECD00062.

**14. Test and Assessment Procedure and Conditions:**

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

**15. Schedule Drawings**

A copy of the technical documentation has been kept by FM Approvals.

**16. Certificate History**

Details of the supplements to this certificate are described below:

Date	Description
29 <sup>th</sup> January 2010	Original Issue.
14 <sup>th</sup> December 2020	<u>Supplement 2:</u> Report Reference: – RR224365 dated 14 <sup>th</sup> December 2020. Description of the Changes: <ul style="list-style-type: none"><li>• Update to new FM Approvals United States certificate format</li><li>• Update FM Class 3600 from 2011 to 2018</li><li>• Update from ANSI/ISA 60079-0:2013 to ANSI/UL 60079-0:2019</li><li>• Update from ANSI/ISA 60079-1:2009 to ANSI/UL 60079-1:2015</li><li>• Update from ANSI/ISA 60079-18:2012 to ANSI/UL 60079-18:2019</li><li>• Minor updates to product markings and this certificate as a result of the above</li><li>• Other minor revisions to product and documentation not affecting safety</li></ul>

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