

CERTIFICATE OF CONFORMITY



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

2. Certificate No: FM24US0040X

3. Equipment:
(Type Reference and Name) dBi-M Modbus series

4. Name of Listing Company: Pulsar Process Measurement Limited

5. Address of Listing Company: Cardinal Building,
Enigma Commercial Center,
Malvern, Worcestershire WR14 1JJ, United
Kingdom

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

PR467617 dated 26 April 2024

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

FM 3600:2022, FM 3610:2021, FM 3810:2021, ANSI/UL 60079-0:2020, ANSI/UL 60079-11:2014,
ANSI/IEC 60529:2004, ANSI/UL 50E:2015

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:

Intrinsically safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G;
AEx ia for Class I, Zone 0, Group IIC, T4, Ga; $-40^{\circ}\text{C} \leq T_a \leq +64^{\circ}\text{C}$;
AEx ia for Zone 20, Group IIC, T135°C, Da; $-40^{\circ}\text{C} \leq T_a \leq +64^{\circ}\text{C}$;
Hazardous (Classified) Locations: IP68, Type 4X.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

26 April 2024

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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

FM Approvals LLC. One Technology Way, Norwood, MA 02062 USA

T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

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11. The marking of the equipment shall include:

Intrinsically safe for:

Class I, Div 1, Group A, B, C & D; T4

Class II, Div 1, Group E, F & G; T4

Class III; T4

Class I, Zone 0, AEx ia IIC T4 Ga

Zone 20, AEx ia IIIC T135°C Da

$T_a = 40^{\circ}\text{C} \leq T_a \leq +64^{\circ}\text{C}$

Drawing D-804-1538

12. Description of Equipment:

General

The dBi-M ultrasonic sensors are a range of low power, compact acoustic measurement devices. They are intended to be approved via an intrinsically safe power supply such as a zener barrier.

The range of transducers consists of slightly different constructions with respect to dimensions, but all have non-metallic enclosures which house two internal electronic PCBs and a piezo crystal. The internal free space is potted with one of two types of encapsulating material. Each unit has an internal screened cable and are available in lengths of 5, 10, 20, and 30 meters. Some of the models use syntactic foam as a facing material. The dBi-M models are compatible with RS-485 Modbus communications.

Ratings:

$U_i = 15.1\text{V}$, $I_i = 350\text{ mA}$, $P_i = 0.65\text{W}$, $C_i = 0$, $L_i = 0$.

dBi-Modbus-abcdefghijklmn. Ultrasonic Sensor.

ab = Range;

03 = dBi-M3

06 = dBi-M6

10 = dBi-M10

15 = dBi-M15

cde = Cable length;

005 = 5m

010 = 10m

020 = 20m

030 = 30m

050 = 50m

100 = 100m

f = Mounting

0 = Standard

1 = Submersible

2 = Flange

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- 5 = Front thread
ghi = Thread or flange size
000 = Standard rear thread
015 = 1.5" front thread
020 = 2" front thread
003 = 3" AANSI flange
004 = 4" ANSI flange
080 = 80DN flange
100 = 100DN flange
j = Face material
0 = Valox
1 = Foam
2 = PTFE
4 = PVDF
k = Protection method
1 = Ex ia / I.S.
l = Communications
M = Modbus
P = Profibus
m = Approval / cap thread
B = ATEX/IECEX/UKEX = BSP
N = FM = NPT
n = Brand / label
P = Pulsar

13. Specific Conditions of Use:

1. The enclosure of the equipment is considered to constitute an electrostatic discharge hazard. Clean only with a damp cloth.
2. When installed in Zone 20, Zone 21, or Zone 22 locations, the equipment shall be routinely inspected to avoid the buildup of a dust layer.

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:

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Member of the FM Global Group

Date	Description
26 April 2024	Original Issue.

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