

CERTIFICATE OF CONFORMITY



Member of the FM Global Group

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

2. **Certificate No:** FM23US0037X
3. **Equipment:** REFLECT-Wabcdehijklm. Distance Measuring Sensor
(Type Reference and Name)
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:

PR464059 dated 4 June 2023

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 60079-11:2018, ANSI/IEC 60529:2004

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 and III, Division 1, Groups A, B, C, D, E, F and G, T4;
Intrinsically safe for Zone 0, AEx ia, Group IIC, T4, Ga;
Intrinsically safe for Zone 20, AEx ia, Group IIIC, T100°C, Da;
-40°C ≤ Ta ≤ 80°C;
IP68.

Certificate issued by:

4 June 2023

J.E. Marquedant
VP, Manager - Electrical Systems

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. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: [information\(a\)fmapprovals.com](mailto:information(a)fmapprovals.com), www.fmapprovals.com

F 347 (Apr 21)



SCHEDULE

US Certificate Of Conformity No: FM23US0037X



11. The marking of the equipment shall include:

Intrinsically safe for:

Class I, Div. 1, Groups A, B, C & D, T4
Class II, Div 1, Groups E, F & G, T4
Class III, T4, Drwg. D-804-1420-B
Zone 0, AEx ia IIC T4 Ga
Zone 20, AEx ia IIIC T100°C Da
Tamb = -40°C to +80°C
IP68

12. **Description of Equipment:**

The Reflect is a non-invasive level-measuring device utilizing radar technology. It is powered from an intrinsically safe source in the non-hazardous area.

The equipment is comprised of a non-metallic enclosure in which are located two PCBs (CPU and LED), and the radar module. The radar module measures distance by processing the echo from a reflecting surface. The equipment has an integral two-core shielded cable which connects to the power source.

The interior of the enclosure is encapsulated with one of three types of encapsulant. The encapsulant surrounds all circuit components, and the enclosure has a wall thickness of 4 mm. The radar module is fronted by a Polysulfone dome.

The stored energy in the circuit is prevented from discharging into the hazardous area by triplicated series diodes D1-D3 on the supply connection.

Entity parameters:

Ui = 28V, Ii = 162 mA, Pi = 0.85W, Ci = 0, Li = 0.

REFLECT-Wabcdefghijklm. Distance Measuring Sensor.

ab = Range

08 = 8 meters

20 = 20 meters

cde = Cable length

005 = 5-meter cable connection

010 = 10-meter cable connection

020 = 20-meter cable connection

030 = 30-meter cable connection

050 = 50-meter cable connection

100 = 100-meter cable connection

f = Accessories

1 = Front-thread adaptor

g = Options

T = Built-in telemetry

hij = Approval options

F-- = FM

-L- = Lloyds (-M only)

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, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA

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

F 347 (Apr 21)



SCHEDULE

US Certificate Of Conformity No: FM23US0037X



Member of the FM Global Group

-S = SIL (-1 only)
klm = White label
NIV = NIVUS

13. Specific Conditions of Use:

1. Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the buildup of electrostatic charge on such surfaces. This is particularly important if the equipment is installed in a zone 0 location. In addition, the equipment shall only be cleaned with a damp cloth.
2. When installing the equipment, the installer shall consider the length of the integral cable attached to the equipment, in addition to any externally installed cable. The integral cable shall be considered to have parameters of 200 pF/m and 1 pH/m or 30 pF/ohm.

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
4 June 2023	Original Issue.

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. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

F 347 (Apr 21)

