

# CERTIFICATE OF CONFORMITY

## 1. ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. Certificate No: FM24US0147
3. Equipment:  
(Type Reference and Name) CERABAR PMP50, DELTABAR PMD50 Pressure Transmitter
4. Name of Listing Company: Endress+Hauser SE+Co. KG
5. Address of Listing Company: Hauptstrasse 1, Maulburg D-79689, Germany
6. The examination and test results are recorded in confidential report number:

PR464557 dated 4 September 2024

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

FM 3810:2021, ANSI/UL 50E:2020, ANSI/IEC 60529:2020, ANSI/UL 61010-1:2019

8. 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.

## 9. Equipment Ratings:

IP66/68; Type 4X, 6P

## 10. Description of Equipment:

The Cerabar PMP50 and Deltabar PMD50 Pressure Transmitters are electrical instruments used to measure pressure (Absolute, Gauge, Differential, Remote, Flange types). The measured pressure is communicated via 4...20mA signal, HART protocol.

The Cerabar PMP50 and Deltabar PMD50 Pressure Transmitters housing is constructed of aluminium alloy or stainless steel. The enclosure is a two-compartment enclosure with thread-on covers (blank or windowed if ordered). One compartment for terminals (field wiring connection), and the other compartment for electronics (housing the electronics and optional display). The compartments are interconnected together with various feedthrough designs to route signal and power from the terminal compartment into the electronics compartment. The sensor module, used for measuring the pressure, is threaded to the base of

## Certificate issued by:

*J.E. Marquedant*

J.E. Marquedant  
VP, Manager - Electrical Systems

4 September 2024

Date

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

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the enclosure entering the electronics compartment. There are 2 main sensor modules (SP12B and SP11B types).

The enclosure field wiring entries are provided with two M20 or two ½ inch NPT openings. The overall dimensions of the Cerabar PMP50 and Deltabar PMD50 Pressure Transmitter housing without cover is 72 mm long, 106 mm wide, 117 mm height. The free internal volume, both compartments total, is less than 500 cm<sup>3</sup>.

The Cerabar PMP50 and Deltabar PMD50 Pressure Transmitter process connection (wet end) is constructed of 316/316L/EN 1.4404 Stainless Steel, Alloy 625, Alloy C-246 (austenitic nickel-molybdenum-chromium alloy), Alloy 400, each containing less than 6% magnesium by weight. Further material type process connection versions, for example with plastic coatings or titanium are possible. The following table below defines the Sensor Module Types and their corresponding maximum working pressure ratings (MWPR).

| Code  | Type   | Maximum Working Pressure Rating and Process Temperature Range                 |
|-------|--|---|
| SP11B | Cerabar product<br>(Absolute or Relative Pressure) | -1...400 bar;<br>-40°C...+125°C...+400°C<br>(depending on process connection) |
| SP12B | Deltabar product<br>(Differential)                 | -1...40 bar differential<br>-1...420 bar static pressure<br>-40°C...+100°C    |

### Operation Temperature Ranges:

The ambient operating temperature range of the Cerabar PMP50 and Deltabar PMD50 Pressure Transmitter is -40°C...85°C. For Cerabar PMP50 the process temperature range is -40°C...400°C depending on process connection type. For Deltabar PMD50 the process temperature range is -40°C...100°C.

### Electrical data:

The Cerabar PMP50 and Deltabar PMD50 Pressure Transmitter require 10.5 Vdc minimum to 35 Vdc maximum input voltage (±10%) for operation. The transmitters use 900mW of power. Electrical signal is digital HART communication over 4...20mA signal.

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**11. Specific Conditions of Use:**

None

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

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

**13. Schedule Drawings**

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

**14. Certificate History**

Details of the supplements to this certificate are described below:

| Date             | Description     |
|------------------|-----------------|
| 4 September 2024 | Original Issue. |

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## ANNEX

### **CERABAR PMP50-FAbbcdefghiikllmmno+(options) Pressure Transmitter**

**Equipment Ratings:**

IP 66/68; Type 4X, 6P

**Description of Equipment:**

*CERABAR PMP50-FAbbcdefghiikllmmno+(options) Pressure Transmitter*

**Model Code Options:**

|    |   |
|----|---|
| bb | Output:<br>BA: 2-wire 4-20 mA HART  |
| c  | Display; Operation:<br>A: Blind cover<br>C: Color display w/o buttons   |
| d  | Housing; Material:<br>J: Dual compartment; Alu, coated<br>K: Dual compartment; 316L<br>Y: Modifications of one of the above options; changes not relevant for explosion protection  |
| e  | Electrical Connection:<br>A: Gland M20, plastic, IP66/68, NEMA Type 4X/6P<br>B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P<br>C: Gland M20, 316L, IP66/68, NEMA Type 4X/6P<br>F: Thread M20, IP66/68 NEMA Type 4X/6P<br>G: Thread G1/2, IP66/68 NEMA Type 4X/6P<br>H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P<br>J: Gland M20, plastic, blue color, IP66/68, NEMA Type 4X/6P<br>Y: Modification of one of the above mentioned options: Assembled with third party certified cable gland or blanking element, plug connector for Ex i; changes not relevant for explosion protection |
| f  | Pressure Type:<br>6: Gauge<br>8: Absolute   |
| g  | Application:<br>A: Standard<br>B: Diaphragm seal  |

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|           |   |
|-----------|---|
| h         | Diaphragm Seal:<br>A: W/o<br>D: Compact<br>G: Temperature isolator<br>Y: Special version, e.g. capillary PE coat., capillary made of other materials (e.g. alloy)   |
| ii        | Sensor Range:<br>3x: pressure ranges up to 400 bar<br>9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety   |
| k         | Calibration; Unit:<br>Any single character or number not relevant for safety  |
| ll        | Process connection, Sealing Surface:<br>AA to ZZ: Standard industrial process connection: threaded, flange<br>99: Modification of one of the above mentioned options: not relevant for explosion protection   |
| mmm       | Process Connection:<br>AAA to ZZZ: Standard industrial process connection: flanges, threaded , flushmount diaphragm seal, 316L, Alloy C , plastic coated<br>9YY: Modification of one of the above mentioned options: customer specific connections, not relevant for explosion protection |
| n         | Membrane Material:<br>Any single character not relevant for safety  |
| o         | Fill fluid:<br>Any single character or number not relevant for safety   |
| (options) | Options:<br>Not relevant for safety   |

### Specific Conditions of Use:

None

## **DELTABAR PMD50-FAbbcdefgghikkkllmn+(options) Pressure Transmitter**

### Equipment Ratings:

IP 66/68; Type 4X, 6P

### Description of Equipment:

*DELTABAR PMD50-FAbbcdefgghikkkllmn+(options) Pressure Transmitter*

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### Model Code Options:

|     |   |
|-----|---|
| bb  | Output:<br>BA: 2-wire 4-20 mA HART  |
| c   | Display; Operation:<br>A: Blind cover<br>C: Color display w/o buttons   |
| d   | Housing; Material:<br>J: Dual compartment; Alu, coated<br>K: Dual compartment; 316L<br>Y: Modifications of one of the above options; changes not relevant for explosion protection  |
| e   | Electrical Connection:<br>A: Gland M20, plastic, IP66/68, NEMA Type 4X/6P<br>B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P<br>C: Gland M20, 316L, IP66/68, NEMA Type 4X/6P<br>F: Thread M20, IP66/68 NEMA Type 4X/6P<br>G: Thread G1/2, IP66/68 NEMA Type 4X/6P<br>H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P<br>J: Gland M20, plastic, blue color, IP66/68, NEMA Type 4X/6P<br>Y: Modification of one of the above mentioned options: Assembled with third party certified cable gland or blanking element, plug connector for Ex i; changes not relevant for explosion protection |
| f   | Pressure Type:<br>3: Differential<br>6: Gauge   |
| gg  | Sensor Range:<br>7x: Dp pressure ranges up to 40 bar<br>9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety   |
| h   | Calibration; Unit:<br>Any single character or number not relevant for safety  |
| i   | Installation:<br>Any single character or number not relevant for safety   |
| kkk | Process Connection:<br>AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C, plastic coated<br>9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection   |
| l   | Membrane Material:<br>Any single character not relevant for safety  |

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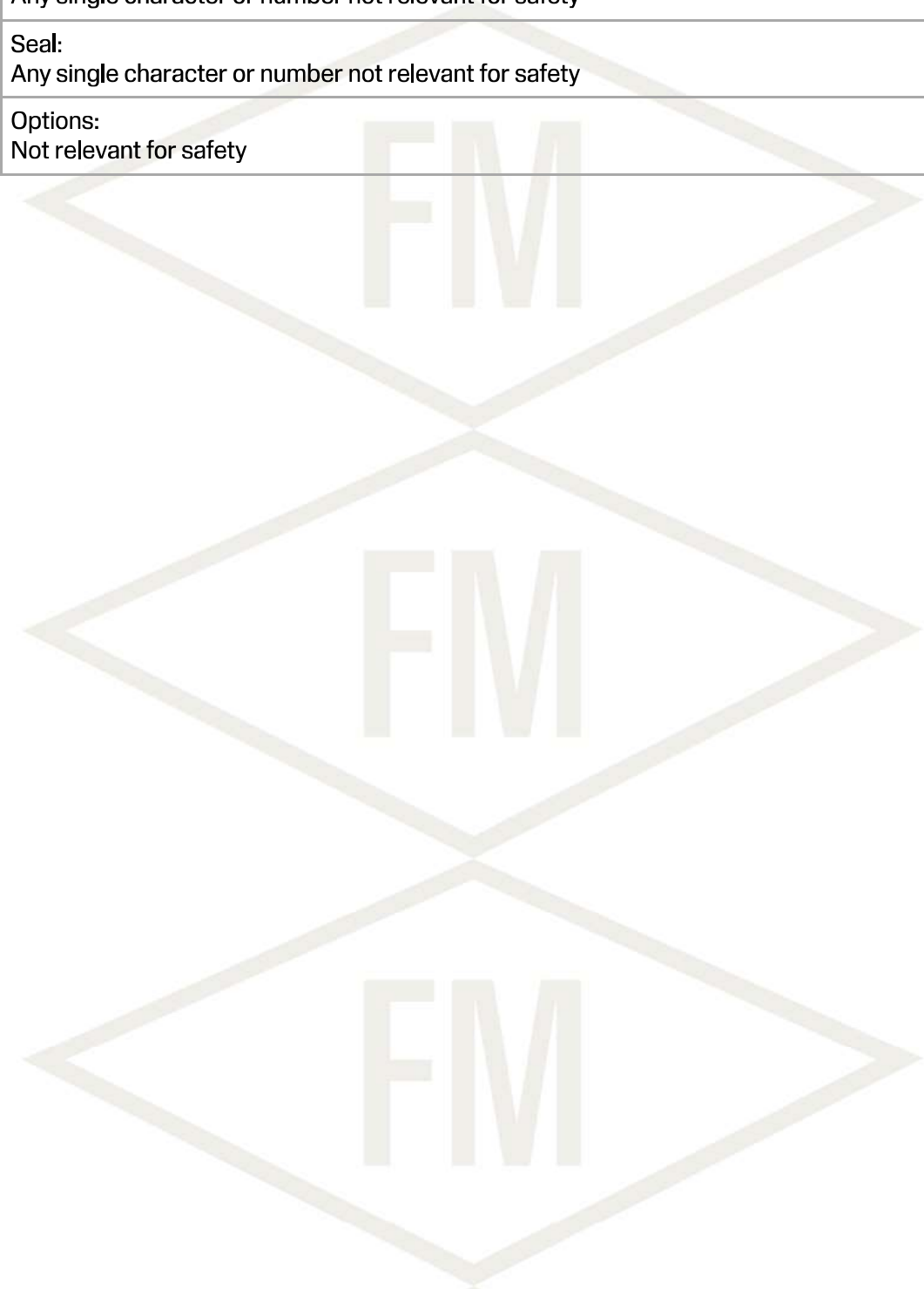
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|           |   |
|-----------|---|
| m         | Fill Fluid:<br>Any single character or number not relevant for safety |
| n         | Seal:<br>Any single character or number not relevant for safety       |
| (options) | Options:<br>Not relevant for safety                                   |



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