

CERTIFICATE OF CONFORMITY

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

2. Certificate No: FM24US0028X
3. Equipment:
(Type Reference and Name) CERABAR PMP50, DELTABAR PMD50 Pressure Transmitters
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 3600:2022, FM 3610:2021, FM 3611:2021, FM 3615:2022, FM 3616:2022, FM 3810:2021, ANSI/UL 50E:2020, ANSI/UL 60079-0:2020, ANSI/UL 60079-1:2015, ANSI/UL 60079-11:2018, ANSI/UL 60079-26:2017, ANSI/IEC 60529:2020, ANSI/UL 61010-1:2019, ANSI/UL 121201:2021, ANSI/UL 122701:2017

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:

See Annex

11. The marking of the equipment shall include:

See Annex

Certificate issued by:



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

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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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12. 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 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 cm³.

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 in combination with warning advice as mentioned in the specific products safety instructions.

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	Available for Flameproof version or for Zone separation
SP11B	Cerabar product (Absolute or Relative Pressure)	-1...400 bar; -40°C...+125°C...+400°C (depending on process connection)	YES
SP12B	Deltabar product (Differential)	-1...40 bar differential -1...420 bar static pressure -40°C...+100°C	YES

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Operation Temperature Ranges:

The ambient operating temperature range of the Cerabar PMP50 and Deltabar PMD50 Pressure Transmitter is -40°C...70°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 ($\pm 10\%$) for operation. The transmitters use 900 mW of power. Electrical signal is digital HART communication over 4...20mA signal.

Ingress Protection:

IP66, IP68; Type 4X, 6P

See Annex for additional information.

13. Specific Conditions of Use:

See Annex

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 September 2024	Original Issue.

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ANNEX

CERABAR PMP50-FBbbcddefghiiikllmmno+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03244P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga, in accordance with document XA03244P
Ta = -40°C to +65°C

Markings:

IS Class I, II, III, Division 1, Groups ABCDEFG, T4...T1
Class I, Zone 0, AEx ia IIC T4...T1 Ga
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +65°C

Description of Equipment:

Electrical Data:

4...20mA / HART IS; with Intrinsic Safety Entity Parameters in accordance with document XA03244P:
Ui ≤ 30Vdc; Ii ≤ 100mA; Pi ≤ 700mW; Ci ≤ 10nF; Li = 0mH

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L Y: Modifications of one of the above options; changes not relevant for explosion protection
e	Electrical Connection: B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P C: Gland M20, 316L, IP66/68, NEMA Type 4X/6P F: Thread M20, IP66/68 NEMA Type 4X/6P G: Thread G1/2, IP66/68 NEMA Type 4X/6P H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P

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f	Pressure Type: 6: Gauge 8: Absolute
g	Application: A: Standard B: Diaphragm seal
h	Diaphragm Seal: A: W/o D: Compact G: Temperature isolator Y: Special version, e.g. capillary PE coat., capillary made of other materials (e.g. alloy)
ii	Sensor Range: 3x: pressure ranges up to 400 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
k	Calibration; Unit: Any single character or number not relevant for safety
ll	Process connection, Sealing Surface: AA to ZZ: Standard industrial process connection: threaded, flange 99: Modification of one of the above mentioned options: not relevant for explosion protection
mmm	Process Connection: AAA to ZZZ: Standard industrial process connection: flanges, threaded , flushmount diaphragm seal, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, not relevant for explosion protection
n	Membrane Material: Any single character not relevant for safety
o	Fill fluid: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

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4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03244P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

CERABAR PMP50-FCbbcddefghiiKllmmno+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups ABCD, T4...T1, in accordance with document XA03244P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga, in accordance with document XA03244P
Ta = -40°C to +65°C

Markings:

IS Class I, Division 1, Groups ABCD, T4...T1
Class I, Zone 0, AEx ia IIC T4...T1 Ga
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +65°C

Description of Equipment:

Electrical Data:

4...20mA / HART IS; with Intrinsic Safety Entity Parameters in accordance with document XA03244P:
Ui \leq 30Vdc; Ii \leq 100mA; Pi \leq 700mW; Ci \leq 10nF; Li = 0mH

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L Y: Modifications of one of the above options; changes not relevant for explosion protection

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e	Electrical Connection: B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P C: Gland M20, 316L, IP66/68,NEMA Type 4X/6P F: Thread M20, IP66/68 NEMA Type 4X/6P G: Thread G1/2, IP66/68 NEMA Type 4X/6P H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 6: Gauge 8: Absolute
g	Application: A: Standard B: Diaphragm seal
h	Diaphragm Seal: A: W/o D: Compact G: Temperature isolator Y: Special version, e.g. capillary PE coat., capillary made of other materials (e.g. alloy)
ii	Sensor Range: 3x: pressure ranges up to 400 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
k	Calibration; Unit: Any single character or number not relevant for safety
ll	Process connection, Sealing Surface: AA to ZZ: Standard industrial process connection: threaded, flange 99: Modification of one of the above mentioned options: not relevant for explosion protection
mmm	Process Connection: AAA to ZZZ: Standard industrial process connection: flanges, threaded , flushmount diaphragm seal, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, not relevant for explosion protection
n	Membrane Material: Any single character not relevant for safety
o	Fill fluid: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

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Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03244P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

CERABAR PMP50-FDbbcddefghiiikllmmno+(options) Pressure Transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Dust ignition-proof for Class II, III, Division 1, Groups EFG, T6...T1
Flameproof for Class I, Zone 1, AEx db IIC T6...T1 Gb
Nonincendive for Class I, Division 2, Groups ABCD, T4
Ta = -40°C to +65°C

Markings:

Class I, Division 1, Groups BCD, T6...T1
DIP Class II, III, Division 1, Groups EFG, T6...T1
Class I, Zone 1, AEx db IIC T6...T1 Gb
Class I, Division 2, Groups ABCD, T4
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +65°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover

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d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 6: Gauge 8: Absolute
g	Application: A: Standard B: Diaphragm seal
h	Diaphragm Seal: A: W/o D: Compact G: Temperature isolator Y: Special version, e.g. capillary PE coat., capillary made of other materials (e.g. alloy)
ii	Sensor Range: 3x: pressure ranges up to 400 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
k	Calibration; Unit: Any single character or number not relevant for safety
ll	Process connection, Sealing Surface: AA to ZZ: Standard industrial process connection: threaded, flange 99: Modification of one of the above mentioned options: not relevant for explosion protection
mmm	Process Connection: AAA to ZZZ: Standard industrial process connection: flanges, threaded , flushmount diaphragm seal, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, not relevant for explosion protection
n	Membrane Material: Any single character not relevant for safety
o	Fill fluid: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

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1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Flameproof joints are not intended to be repaired.
7. Refer to Temperature Tables in document XA03245P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

CERABAR PMP50-FFbbcddefghijklmmno+(options) Pressure Transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Flameproof for Class I, Zone 1, Ex db IIC T6...T1 Gb
Ta = -40°C to +65°C

Markings:

Class I, Division 1, Groups BCD, T6...T1
Class I, Zone 1, Ex db IIC T6...T1 Gb
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +65°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P

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f	Pressure Type: 6: Gauge 8: Absolute
g	Application: A: Standard B: Diaphragm seal
h	Diaphragm Seal: A: W/o D: Compact G: Temperature isolator Y: Special version, e.g. capillary PE coat., capillary made of other materials (e.g. alloy)
ii	Sensor Range: 3x: pressure ranges up to 400 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
k	Calibration; Unit: Any single character or number not relevant for safety
ll	Process connection, Sealing Surface: AA to ZZ: Standard industrial process connection: threaded, flange 99: Modification of one of the above mentioned options: not relevant for explosion protection
mmm	Process Connection: AAA to ZZZ: Standard industrial process connection: flanges, threaded , flushmount diaphragm seal, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, not relevant for explosion protection
n	Membrane Material: Any single character not relevant for safety
o	Fill fluid: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

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4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Flameproof joints are not intended to be repaired
7. Refer to Temperature Tables in document XA03245P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

CERABAR PMP50-FGbbcddefghiiikllmmno+(options) Pressure Transmitter

Equipment Ratings:

Dust ignitionproof for Class II, III, Division 1, Groups EFG, T125°C
Ta = -40°C to +70°C

Markings:

DIP Class II, III, Division 1, Groups EFG, T125°C
IP66, IP68; Type 4X, 6P
Ta = -40°C to +70°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 6: Gauge 8: Absolute
g	Application: A: Standard B: Diaphragm seal

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

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03245P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

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CERABAR PMP50-F1bbcddefghiikllmmno+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03246P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga in accordance with document XA03246P
Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Flameproof for Class I, Zone 1, AEx db IIC T6...T1 Gb
Nonincendive for Class I, Division 2, Groups ABCD, T4
Dust ignitionproof for Class II, III, Division 1, Groups EFG, T125°C
Ta = -40°C to +70°C

Markings:

IS Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03246P
Class I, Zone 0, AEx ia IIC T4...T1 Ga
Class I, Division 1, Groups BCD, T6...T1
Class I, Zone 1, AEx db IIC T6...T1 Gb
Class I, Division 2, Groups ABCD, T4
DIP Class II, III, Division 1, Groups EFG, T125°C
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +70°C

Description of Equipment:

Electrical Data for Ex ia version:

4...20mA / HART IS; with Intrinsic Safety Entity Parameters in accordance with document XA03246P:
Ui ≤ 30Vdc; Ii ≤ 100mA; Pi ≤ 700mW; Ci ≤ 10nF; Li = 0mH

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 6: Gauge 8: Absolute

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

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.

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6. Flameproof joints are not intended to be repaired.
7. Refer to Temperature Tables in document XA03246P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.
8. Refer to the marking requirements in the "General notes: Combined approval" chapter

DELTABAR PMD50-FBbbcdffghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03247P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga, in accordance with document XA03247P
Ta = -40°C to +70°C

Markings:

IS Class I, II, III, Division 1, Groups ABCDEFG, T4...T1
Class I, Zone 0, AEx ia IIC T4...T1 Ga
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +70°C

Description of Equipment:

Electrical Data:

4...20mA / HART IS; with Intrinsic Safety Energy Limitation Parameters in accordance with document XA03247P:
Ui ≤ 30Vdc; Ii ≤ 100mA; Pi ≤ 700mW; Ci ≤ 10nF; Li = 0mH

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L Y: Modifications of one of the above options; changes not relevant for explosion protection
e	Electrical Connection: B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P C: Gland M20, 316L, IP66/68, NEMA Type 4X/6P F: Thread M20, IP66/68 NEMA Type 4X/6P G: Thread G1/2, IP66/68 NEMA Type 4X/6P H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P

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f	Pressure Type: 3: Differential 6: Gauge
gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety
i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety
n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03247P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

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DELTABAR PMD50-FCbbcddefggghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups ABCD, T4...T1, in accordance with document XA03247P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga, in accordance with document XA03247P
Ta = -40°C to +70°C

Markings:

IS Class I, Division 1, Groups ABCD, T4...T1
Class I, Zone 0, AEx ia IIC T4...T1 Ga
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +70°C

Description of Equipment:

Electrical Data:

4...20mA / HART IS; with Intrinsic Safety Energy Limitation Parameters in accordance with document XA03247P:
Ui ≤ 30Vdc; Ii ≤ 100mA; Pi ≤ 700mW; Ci ≤ 10nF; Li = 0mH

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L Y: Modifications of one of the above options; changes not relevant for explosion protection
e	Electrical Connection: B: Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P C: Gland M20, 316L, IP66/68, NEMA Type 4X/6P F: Thread M20, IP66/68 NEMA Type 4X/6P G: Thread G1/2, IP66/68 NEMA Type 4X/6P H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 3: Differential 6: Gauge

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gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety
i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety
n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03247P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

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DELTABAR PMD50-FDbbcdefgghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Dust ignition-proof for Class II, III, Division 1, Groups EFG, T6...T1
Flameproof for Class I, Zone 1, AEx db IIC T6...T1 Gb
Nonincendive for Class I, Division 2, Groups ABCD, T4
Ta = -40°C to +60°C

Markings:

Class I, Division 1, Groups BCD, T6...T1
DIP Class II, III, Division 1, Groups EFG, T6...T1
Class I, Zone 1, AEx db IIC T6...T1 Gb
Class I, Division 2, Groups ABCD, T4
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +60°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 3: Differential 6: Gauge
gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety

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i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety
n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Flameproof joints are not intended to be repaired.
7. Refer to Temperature Tables in document XA03248P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

DELTABAR PMD50-FFbbcdefgghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Flameproof for Class I, Zone 1, AEx db IIC T6...T1 Gb
Ta = -40°C to +60°C

Markings:

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Class I, Division 1, Groups BCD, T6...T1
Class I, Zone 1, AEx db IIC T6...T1 Gb
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +60°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 3: Differential 6: Gauge
gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety
i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety

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n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Flameproof joints are not intended to be repaired.
7. Refer to Temperature Tables in document XA03248P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

DELTABAR PMD50-FGbbccdefghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Dust ignitionproof for Class II, III, Division 1, Groups EFG, T100°C
Ta = -40°C to +70°C

Markings:

DIP Class II, III, Division 1, Groups EFG, T100°C
IP66, IP68; Type 4X, 6P
Ta = -40°C to +70°C

Description of Equipment:

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover C: Color display w/o buttons

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d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L
e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 3: Differential 6: Gauge
gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety
i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety
n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.

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- Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Refer to Temperature Tables in document XA03248P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.

DELTABAR PMD50-F1bbcddefgghikkllmn+(options) Pressure Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03249P
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T4...T1 Ga in accordance with document XA03249P
Explosionproof for Class I, Division 1, Groups BCD, T6...T1
Flameproof for Class I, Zone 1, AEx db IIC T6...T1 Gb
Nonincendive for Class I, Division 2, Groups ABCD, T4
Dust ignitionproof for Class II, III, Division 1, Groups EFG, T100°C
Ta = -40°C to +70°C

Markings:

IS Class I, II, III, Division 1, Groups ABCDEFG, T4...T1, in accordance with document XA03249P
Class I, Zone 0, AEx ia IIC T4...T1 Ga
Class I, Division 1, Groups BCD, T6...T1
Class I, Zone 1, AEx db IIC T6...T1 Gb
Class I, Division 2, Groups ABCD, T4
DIP Class II, III, Division 1, Groups EFG, T100°C
IP66, IP68; Type 4X, 6P
Single Seal
Ta = -40°C to +70°C

Description of Equipment:

Electrical Data for Ex ia version:

4...20mA / HART IS; with Intrinsic Safety Energy Limitation Parameters in accordance with document XA03249P:
 $U_i \leq 30Vdc$; $I_i \leq 100mA$; $P_i \leq 700mW$; $C_i \leq 10nF$; $L_i = 0mH$

Model Code Options:

bb	Output: BA: 2-wire 4-20 mA HART
c	Display; Operation: A: Blind cover
d	Housing; Material: J: Dual compartment; Alu, coated K: Dual compartment; 316L

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e	Electrical Connection: H: Thread NPT1/2, IP66/68 NEMA Type 4X/6P
f	Pressure Type: 3: Differential 6: Gauge
gg	Sensor Range: 7x: Dp pressure ranges up to 40 bar 9Y: Modification of one of the above mentioned options: customer specific pressure range; not relevant for safety
h	Calibration; Unit: Any single character or number not relevant for safety
i	Installation: Any single character or number not relevant for safety
kkk	Process Connection: AAA to ZZZ: Standard industrial process connection: e.g. Oval flange NPT1/4", coplanar compatible, 316L, Alloy C , plastic coated 9YY: Modification of one of the above mentioned options: customer specific connections, e.g. PVDF inlay, not relevant for explosion protection
l	Membrane Material: Any single character not relevant for safety
m	Fill Fluid: Any single character or number not relevant for safety
n	Seal: Any single character or number not relevant for safety
(options)	Options: Not relevant for safety

Specific Conditions of Use:

1. In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
2. For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
3. To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
4. In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:
 - Observe the danger of electrostatic charging and discharge.
 - Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.
5. Avoid sparks caused by impact and friction.
6. Flameproof joints are not intended to be repaired.

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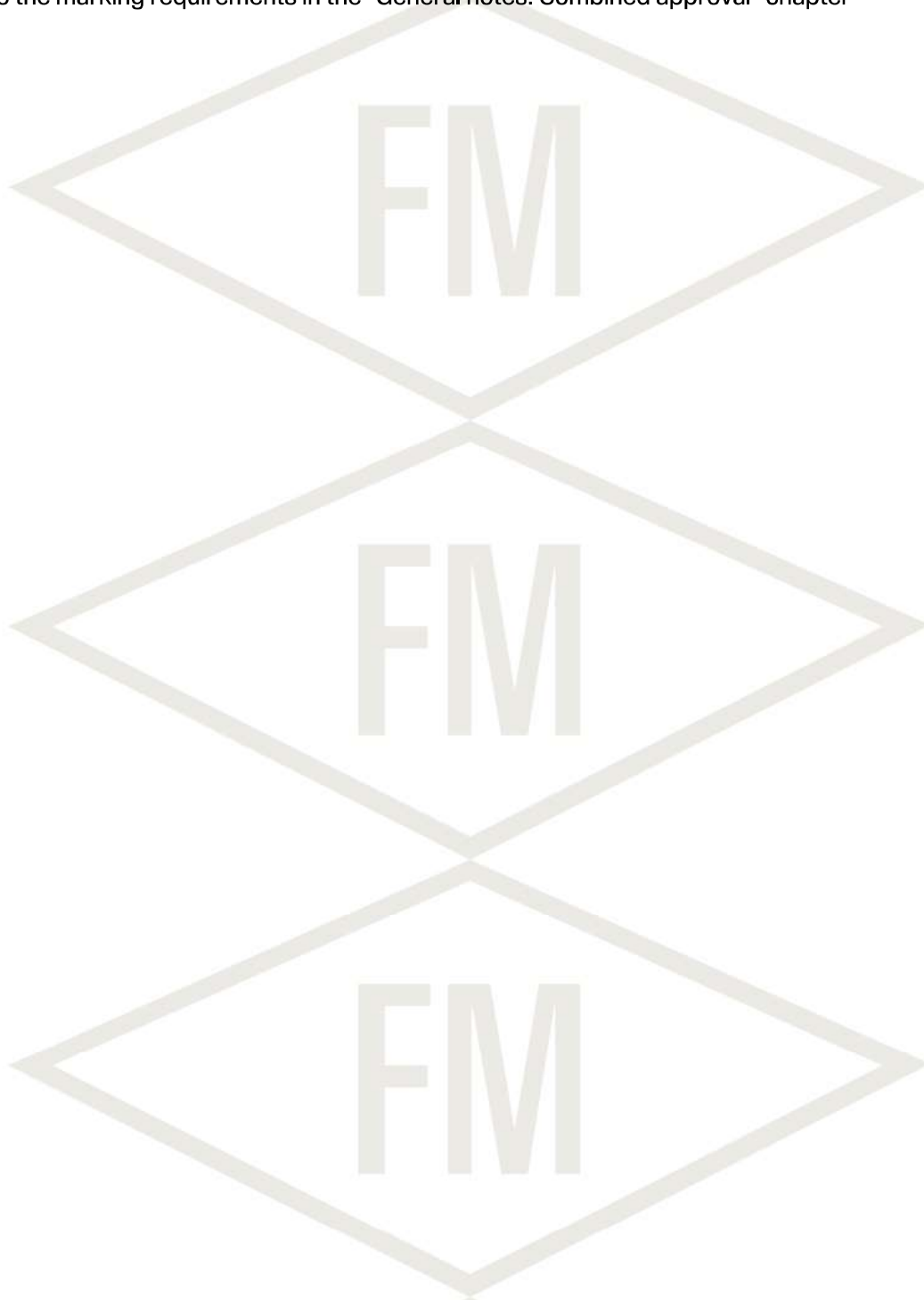
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- 7. Refer to Temperature Tables in document XA03249P for various ambient and process temperature ranges allowed for the various temperature classes / surface temperatures.
- 8. Refer to the marking requirements in the "General notes: Combined approval" chapter



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