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71667768
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Safety Instructions
Deltabar PMD75B, PMD78B

Control Drawing XP
Class I, II, III, Div. 1, Groups A-G
Class I, Zone 1, AEx/Ex db IIC Gb
Class I, Div. 2, Groups A-D

C US

Endress+Hauser
People for Process Automation

Deltabar PMD75B, PMD78B

Table of contents

About this document

The document number of these Safety Instructions (XA) must match the information on the nameplate.

Associated documentation

All documentation is available on the Internet:
www.endress.com/Deviceviewer
(enter the serial number from the nameplate).

To commission the device, please observe the Operating Instructions pertaining to the device:

PMD75B
BA02014P, TI01511P

PMD78B
BA02015P, TI01512P

Certificates and declarations

CSA C/US certificate

Certificate number:
80066208

Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany

Address of the manufacturing plant: See nameplate.

Extended order code

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

Structure of the extended order code

PMD7xB	–	**********	+	A*B*C*D*E*F*G*..
(Device type)		*(Basic specifications)*		*(Optional specifications)*

* = Placeholder
At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

Basic specifications

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.
The selected option of a feature can consist of several positions.

Optional specifications

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

Extended order code: Deltabar

The following specifications reproduce an extract from the product structure and are used to assign:
- This documentation to the device (using the extended order code on the nameplate).
- The device options cited in the document.

Device type

PMD75B, PMD78B

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
PMD75B PMD78B	CD	CSA C/US XP Cl. I, II, III, Div. 1, Gp. A-G; Cl. I, Div. 2, Gp. A-D; Cl. I, Zone 1, AEx/Ex db IIC Gb
	CF	CSA C/US XP Cl. I, Div. 1, Gp. A-D; Cl. I, Zone 1, AEx/Ex db IIC Gb
	CG	CSA C/US Cl. II, III, Div. 1, Gp. E-G

Position 3, 4 (Output)		
Selected option		**Description**
PMD75B PMD78B	BA	2-wire, 4-20 mA HART
	BB	2-wire, 4-20 mA HART, switch output [1]
	BC	2-wire, 4-20 mA HART + 4 to 20 mA analog [1]
	DA	2-wire, PROFIBUS PA
	FA	PROFINET over Ethernet-APL, 10Mbit/s

1) Only in connection with Position 6 = J, K, M, N

Position 5 (Display, Operation)		
Selected option		**Description**
PMD75B PMD78B	N	Prepared for display FHX50B + Thread NPT1/2

Position 6 (Housing, Material)		
Selected option		**Description**
PMD75B	B	Single compartment; Alu, coated
PMD75B PMD78B	J	Dual compartment; Alu, coated
	K	Dual compartment; 316L
	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-shape; 316L

Optional specifications

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		**Description**
PMD75B PMD78B	JL	Ambient temp. transmitter -50°C/-58°F, sensor see specification
	JT	Ambient temp. transmitter -54°C/-65°F, sensor see specification [1]

1) Only in connection with Position 1, 2 = CF

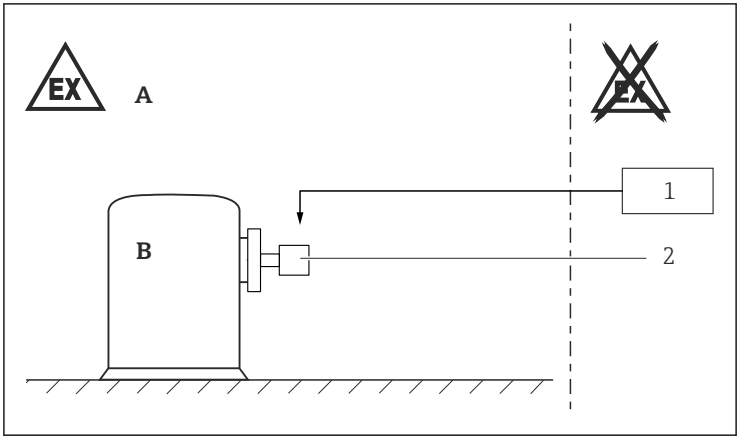
Safety instructions: General

- Comply with the installation and safety instructions in the Operating Instructions.
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. enclosure, sensor element, special varnishing, attached additional plates, ...)
  - Of isolated capacities (e.g. isolated metallic plates)
- Alterations to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.

Safety instructions: Specific conditions of use

- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
- To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
- 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.
- Avoid sparks caused by impact and friction.
- Flameproof joints are not intended to be repaired.

Safety instructions: Installation



A Zone 1 or 2; Class I, II, III, Div. 1, Groups A-G or Class I, Div. 2, Groups A-D
B Process;
Zone 1; Class I, II, III, Div. 1, Groups A-G or Class I, Div. 2, Groups A-D
1 Power supply
2 PMD75B, PMD78B

- After aligning (rotating) the enclosure, retighten the fixing screw.
- In potentially explosive atmospheres: Do not open the connection compartment cover and the electronics compartment cover when energized.
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing clamp on the cover.
- Continuous service temperature of the connecting cable: ≥ T_a+20 K.
- Observe the maximum process conditions according to the manufacturer's Operating Instructions.
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.

Explosionproof / Flameproof

Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III; Class I, Zone 1, AEx/Ex db IIC Gb

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use wiring and sealing methods appropriate for the location.
- XP conduit seal required within 450 mm (18 in) of the enclosure.
- For the maximum supply voltage: See "Connection data" section.

- Seal unused entries with approved plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation. The metal sealing plugs supplied meet this requirement.
- The transmitter enclosure is to be connected to ground via internal or external ground terminals.
- WARNINGS: Keep covers tight when explosive atmosphere is present.

Class II, III, Div. 1, Groups E, F, G

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use wiring and sealing methods appropriate for the location.
- Use a dust-tight seal for wiring at the conduit/cable entry.
- Seal unused entries with approved plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation. The metal sealing plugs supplied meet this requirement.
- WARNINGS: Keep covers tight when explosive atmosphere is present.

Class I, Div. 2, Groups A, B, C, D

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use wiring and sealing methods appropriate for the location.
- The device is a nonincendive (NI) electrical equipment per UL121201 and CSA C22.2 No. 213.
- Enclosure is not required to be explosionproof/flameproof when installed in Class I, Division 2 locations.
- WARNINGS: Substitution of components may impair suitability for hazardous locations. Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Basic specification, Position 5 = N
When prepared for use with an approved remote display FHX50B, remote display is suitable for Class I, Division 2 locations only and connection between transmitter enclosure and remote display is nonincendive field wiring.

Process seals

Device Type PMD75B
- The device is rated Single Seal in accordance with UL122701 and does not require the use of an external secondary process seal.
- The Single Seal rating is valid for a maximum pressure of up to 420 bar and a maximum process temperature (T_p) up to 100 °C.

Device Type PMD78B

- The device is rated Single Seal in accordance with UL122701 and does not require the use of an external secondary process seal.
- The Single Seal rating is valid for a maximum pressure of up to 420 bar and a maximum process temperature (T_p) up to 400 °C.

- Limitation of the Maximum Working Pressure (MWP) for each device is marked on the nameplate and must not be exceeded! This value may be less than 420 bar.
- Limitation of the maximum process temperature (T_p) with regards to the device options, temperature code rating and maximum ambient temperature as specified in the "Temperature tables" section of this document must be considered!
- Verify the chemical compatibility of the process fluid with the process seal material (see field "Mat." on the nameplate)!

Temperature tables

Optional specification, ID Jx, Kx = JL
Lower limit of the ambient temperature for explosion protection changes to −50 °C.

Optional specification, ID Jx, Kx = JT
Lower limit of the ambient temperature for explosion protection changes to −54 °C.

Class I, Div. 1 and 2 / Zone 1 and Zone 2

- The specified ambient and process temperature ranges exclusively refer to the explosion protection and must not be exceeded. Operationally permitted ambient temperature ranges can be restricted depending on the version: See Operating Instructions.
- Do not exceed the max. ambient temperature at the enclosure.
- The process temperatures refer to the temperature at the separation membrane.

Device Type PMD75B

Temperature class	Process temperature range	Ambient temperature range	
		Class I, Div. 1/Zone 1	Class I, Div. 2/Zone 2
T6	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +60 °C	−40 °C ≤ T_a ≤ +60 °C
T4	−40 °C ≤ T_p ≤ +100 °C	−40 °C ≤ T_a ≤ +60 °C	−40 °C ≤ T_a ≤ +60 °C
	−40 °C ≤ T_p ≤ +85 °C	−40 °C ≤ T_a ≤ +65 °C	−40 °C ≤ T_a ≤ +65 °C

Device Type PMD78B

Temperature class	Process temperature range	Ambient temperature range	
		Class I, Div. 1/Zone 1	Class I, Div. 2/Zone 2
T6	$-40\ °C \leq T_p \leq +80\ °C$	$-40\ °C \leq T_a \leq +60\ °C$	$-40\ °C \leq T_a \leq +60\ °C$
T4	$-40\ °C \leq T_p \leq +125\ °C$	$-40\ °C \leq T_a \leq +70\ °C$	-
	$-40\ °C \leq T_p \leq +130\ °C$	$-40\ °C \leq T_a \leq +70\ °C$	$-40\ °C \leq T_a \leq +70\ °C$
T3	$-40\ °C \leq T_p \leq +190\ °C$	$-40\ °C \leq T_a \leq +70\ °C$	$-40\ °C \leq T_a \leq +70\ °C$
T2	$-40\ °C \leq T_p \leq +290\ °C$	$-40\ °C \leq T_a \leq +70\ °C$	$-40\ °C \leq T_a \leq +70\ °C$
T1	$-40\ °C \leq T_p \leq +400\ °C$	$-40\ °C \leq T_a \leq +70\ °C$	$-40\ °C \leq T_a \leq +70\ °C$

Class II, III, Div. 1

- The specified surface temperature takes into account all direct heat influences from process heat and self-heating at the enclosure.
- Surface temperatures at the process side maybe higher and must be considered by the user (e.g. at high temperature process connections).
- The T-marking is based on the process temperature of the compact designs.
- The specified ambient and process temperature ranges exclusively refer to the explosion protection and must not be exceeded. Operationally permitted ambient temperature ranges can be restricted depending on the version: See Operating Instructions.
- Do not exceed the max. ambient temperature at the enclosure.
- The process temperatures refer to the temperature at the separation membrane.

Basic specification, Position 6 = K, N
When using the stainless steel enclosure: Reduce the admissible ambient temperature by 5 K.

Device Type PMD75B

Maximum surface temperature	Process temperature range	Ambient temperature range
T100 °C	$-40\ °C \leq T_p \leq +100\ °C$	$-40\ °C \leq T_a \leq +65\ °C$

Device Type PMD78B

Maximum surface temperature	Process temperature range	Ambient temperature range
T100 °C	−40 °C ≤ T_p ≤ +400 °C	−40 °C ≤ T_a ≤ +70 °C

Connection data

Basic specification, Position 3, 4 = BA, BB, BC

Power supply	
Channel 1 U ≤ 35 V_{DC} P ≤ 1 W	Channel 2 (only *BB, BC*) U ≤ 35 V_{DC} P ≤ 1 W

Basic specification, Position 3, 4 = DA

Power supply
U ≤ 32 V_{DC} P ≤ 0.7 W

Basic specification, Position 3, 4 = FA

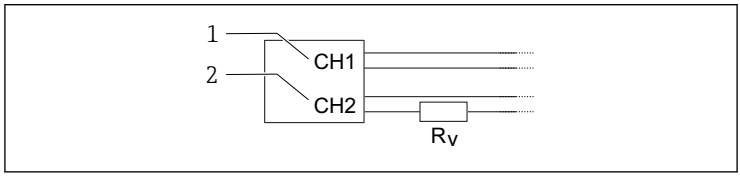
Power supply
U ≤ 15 V_{DC} P ≤ 0.7 W

In connection with: *Basic specification, Position 5 = N*
Installation according to the specifications of FHX50B.

Only the type of protection suitable for the device shall be connected!

Serial resistance (R_V)

Basic specification, Position 3, 4 = BC (only channel 2)



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1 4 to 20 mA
2 Switch output

The power consumption have to be limited for certain applications.

- Recommended: Power consumption ≤ 1 W. This is obtained for a supply voltage up to 27 V_{DC}.
- For higher supply voltages (U_{max}): Insert a serial resistance (R_V) in order to limit the power consumption, see table below.

U_{max} [V]	R_V min
35	199 Ω
34	171 Ω
33	143 Ω
32	115 Ω
31	88 Ω
30	60 Ω
29	32 Ω
28	4 Ω
27	0 Ω

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