

# Safety Instructions

## Deltabar PMD50

Ex ia IIC T4...T1 Ga/Gb

Ex ia IIIC T135 °C Da/Db






# Deltabar PMD50

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**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](http://www.endress.com/Deviceviewer)  
 (enter the serial number from the nameplate).

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

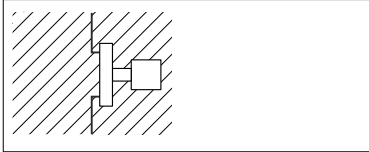
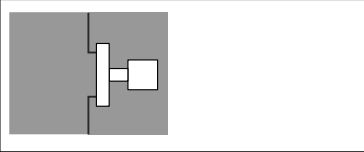
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**Supplementary documentation**

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:  
[www.endress.com/Downloads](http://www.endress.com/Downloads)

**General notes:  
 Combined approval**

	
Ex ia IIC Zone 0   Zone 1 or Zone 1	Ex ia IIIC Zone 20   Zone 21 or Zone 21

The device is designed for operation in explosive gas or explosive dust atmosphere as shown in the sketch above. In the event of potentially explosive gas-air and dust-air mixtures occurring simultaneously: Suitability requires further assessment.

**Certificates and declarations**

**NEPSI Declaration of Conformity**

Certificate number:  
 GYJ24.1280X

Affixing the certificate number certifies conformity with the following standards (depending on the device version):

- GB/T 3836.1-2021
- GB/T 3836.4-2021

**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**

PMD50	-	*****	+	A*B*C*D*E*F*G*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = 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

PMD50

### Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
PMD50	NK	NEPSI Ex ia IIC T4...T1 Ga/Gb NEPSI Ex ia IIC T4...T1 Gb NEPSI Ex ia IIIC T135 °C Da/Db NEPSI Ex ia IIIC T135 °C Db

Position 6 (Housing, Material)		
Selected option		Description
PMD50	J	Dual compartment; Alu, coated
	K	Dual compartment; 316L

### Optional specifications

ID Nx, Ox (Accessory Mounted)		
Selected option		Description
PMD50	NA	Overvoltage protection

## Safety instructions: General

- The device is intended to be used in explosive atmospheres as defined in the scope of IEC 60079-0 or equivalent national standards. If no potentially explosive atmospheres are present or if additional protective measures have been taken: The device may be operated according to the manufacturer's specifications.
- Devices suitable for zone separation (marked Ga/Gb or Da/Db) are always suitable for installation in the less critical zone (Gb or Db). Due to space limitations the corresponding marking maybe not indicated on the nameplate.
- Comply with the installation and safety instructions in the Operating Instructions.

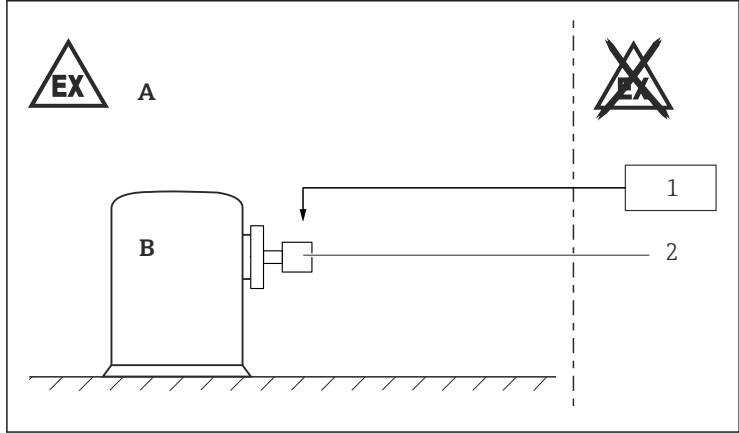
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
  - GB 50257-2014: "Code for construction and acceptance of electric equipment on fire and explosion hazard electrical equipment installation engineering".
  - GB/T 3836.13-2021: "Explosive atmospheres, Part 13: Equipment repair, overhaul, reclamation and modification".
  - GB/T 3836.15-2017: "Explosive atmospheres, Part 15: Electrical installations design, selection and erection".
  - GB/T 3836.16-2022: "Explosive atmospheres, Part 16: Electrical installations inspection and maintenance".
  - GB/T 3836.18-2017: "Explosive atmospheres, Part 18: Intrinsically safe electrical systems".
  - GB 15577-2018: "Safety regulations for dust explosive prevention and protection". (Only if installed in dust hazardous area.)
- 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 ( $\leq 0.5$  m) generating strong electrostatic charges.

- Avoid sparks caused by impact and friction.
- Refer to the temperature tables for various ambient and process temperature ranges.
- Material specification of the separating element: > 1 mm glass feedthrough, edged with > 1 mm stainless steel and  $\geq 0.3$  mm welds between the glass feedthrough and the stainless steel.

## Safety instructions: Installation



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- A Zone 1 or Zone 21, Electronic  
 B Zone 0, Zone 1 or Zone 20, Zone 21, Process  
 1 Associated intrinsically safe power supply units  
 2 PMD50

- After aligning (rotating) the enclosure, retighten the fixing screw.
- When the device is connected to certified intrinsically safe circuits of Category Ex ib for Equipment Groups IIC and IIB, the type of protection changes to Ex ib IIC and Ex ib IIB. Do not operate the sensor in Zone 0 if connecting to an intrinsically safe circuit of Category Ex ib.
- When the device is connected to certified intrinsically safe circuits of Category Ex ib for Equipment Groups IIIC and IIIB, the type of protection changes to Ex ib IIIC and Ex ib IIIB. Do not operate the sensor in Zone 20 if connecting to an intrinsically safe circuit of Category Ex ib.
- Continuous service temperature of the connecting cable:  $\geq T_a + 20$  K.
- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- 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.
- Perform the following to achieve the degree of protection IP66/67:
  - Screw the cover tight.
  - Mount the cable entry correctly.
- Seal unused entry glands with suitable sealing plugs that correspond to the type of protection.
- Supplied cable glands and metallic sealing plugs comply with the requirements of type of protection marked on the nameplate.
- The plastic sealing plug is used only as transport protection.

*Permitted ambient conditions*

**Ex ia IIC T135 °C Da/Db**

Process Zone 20	Enclosure Zone 21
Continuous dust submersion	Dust accumulation or temporary explosive dust atmosphere
Continuous explosive dust atmosphere and deposits	Dust accumulation or temporary explosive dust atmosphere

**Ex ia IIC T135 °C Db**

Process Zone 21	Enclosure Zone 21
Continuous dust deposits or temporary explosive dust atmosphere	Dust accumulation or temporary explosive dust atmosphere

**Intrinsic safety**

- The device is only suitable for connection to certified, intrinsically safe equipment with explosion protection Ex ia / Ex ib.
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V<sub>rms</sub>.

*Optional specification, ID Nx, Ox = NA*

The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least  $290 V_{rms}$ .

### Potential equalization

Integrate the device into the local potential equalization.

## Temperature tables

### Ex ia IIC T4...T1 Ga/Gb



- 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.

Temperature class	Process temperature $T_p$ (process)	Ambient temperature $T_a$ (ambient)
T4...T1	+60 °C	-40 to +70 °C
	+85 °C	-40 to +65 °C
	+100 °C	-40 to +55 °C

### Ex ia IIIC T135 °C Da/Db



- 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.

For detailed information see Technical Information.



Protection type of enclosure: IP66/67

Ex ia IIIC T<sub>200</sub> 135 °C Da/Db

Ex ia IIIC T<sub>L</sub> 135 °C Db

Maximum surface temperature	Process temperature T <sub>p</sub> (process)	Ambient temperature T <sub>a</sub> (ambient)
T135 °C	+70 °C	-40 to +65 °C
	+80 °C	-40 to +65 °C
	+100 °C	-40 to +55 °C

Specific conditions of use:

- The surface temperature is
  - for equipment protection level (EPL) Da: T<sub>200</sub> 135 °C (with 200 mm dust deposit)
  - and equipment protection level (EPL) Db: T<sub>L</sub> 135 °C (with dust accumulation T<sub>L</sub>)
- The surface temperature is for equipment protection level (EPL) Db: T<sub>L</sub> 135 °C (with dust accumulation T<sub>L</sub>)



T<sub>L</sub> marking:

The assigned surface temperature without dust layer is the same.

## Connection data

Power supply
U <sub>i</sub> ≤ 30 V <sub>DC</sub> I <sub>i</sub> ≤ 100 mA P <sub>i</sub> ≤ 0.7 W C <sub>i</sub> ≤ 10 nF L <sub>i</sub> = 0



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