

Safety Instructions

Cerabar PMP50

Ex ia IIC T4...T1 Ga/Gb

Ex ia IIIC T135 °C Da/Db



Cerabar PMP50

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About this document

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

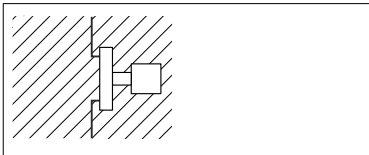
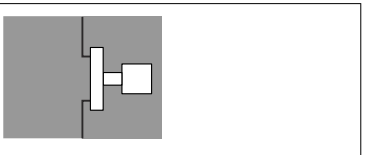
Associated documentation

All documentation is available on the Internet:
www.endress.com/Deviceviewer
(enter the serial number from the nameplate).
To commission the device, please observe the Operating Instructions pertaining to the device:
BA02332P

Supplementary documentation

Explosion protection brochure: CP00021Z
The explosion protection brochure is available on the Internet:
www.endress.com/Downloads

General notes:
Combined approval

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

Certificate of Conformity

Certificate number:
Production Maulburg, Germany
CPEX 25.2356 X
Production Itatiba, Brazil
CPEX 25.2378 X
Production Greenwood, Indiana, USA
CPEX 25.2379 X

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

- ABNT NBR IEC 60079-0:2020
- ABNT NBR IEC 60079-11:2013
- ABNT NBR IEC 60079-26:2022

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

PMP50	–	*****	+	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: Cerabar

-  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
PMP50

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
PMP50	MK	INMETRO Ex ia IIC T4...T1 Ga/Gb
		INMETRO Ex ia IIC T4...T1 Gb
		INMETRO Ex ia IIIC T135 °C Da/Db
		INMETRO Ex ia IIIC T135 °C Db

Position 6 (Housing, Material)		
Selected option		Description
PMP50	J	Dual compartment; Alu, coated
	K	Dual compartment; 316L

Position 10 (Diaphragm Seal Type)		
Selected option		Description
PMP50	G	Temperature isolator

Optional specifications

ID Nx, Ox (Accessory Mounted)		
Selected option		Description
PMP50	NA	Overvoltage protection

**Safety
instructions:
General**

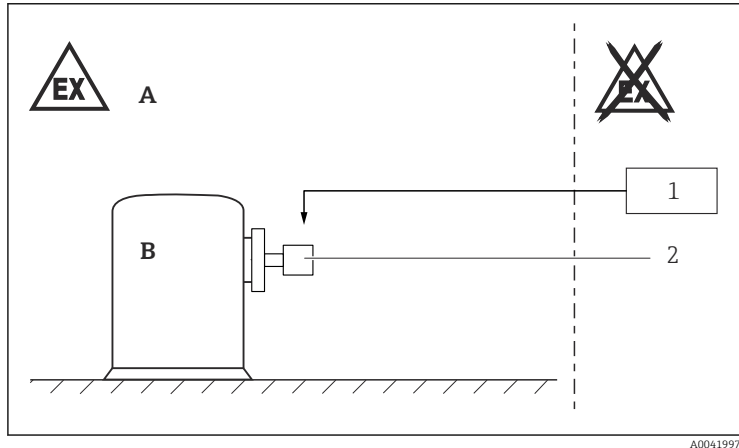
- The device is intended to be used in explosive atmospheres as defined in the scope of IEC 60079-0 or equivalent national standards. If no potentially explosive atmospheres are present or if additional protective measures have been taken: The device may be operated according to the manufacturer's specifications.
- 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
- 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.
- 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 ≥ 0.3 mm welds between the glass feedthrough and the stainless steel.

Safety instructions: Installation



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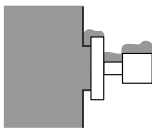
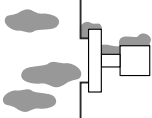
- A Zone 1 or Zone 21, Electronic
 B Zone 0, Zone 1 or Zone 20, Zone 21, Process
 1 Associated intrinsically safe power supply units
 2 PMP50

- 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.

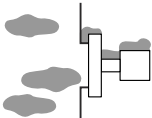
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- Perform the following to achieve the degree of protection IP66/67:
 - Screw the cover tight.
 - Mount the cable entry correctly.
- Seal unused entry 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_{rms}.

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 range
T4...T1	+80 °C	-40 to +65 °C
	+100 °C	-40 to +60 °C
	+125 °C	-40 to +50 °C

Basic specification, Position 10 = G

Temperature class	Process temperature T _p (process)	Ambient temperature range
T3	+190 °C	-40 to +60 °C
T2	+290 °C	-40 to +60 °C
T1	+300 °C	-40 to +60 °C
	+400 °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 T₂₀₀ 135 °C Da/Db

Ex ia IIIC T_L 135 °C Db

Maximum surface temperature	Process temperature T _p (process)	Ambient temperature range
T135 °C	+80 °C	–40 to +65 °C
	+100 °C	–40 to +60 °C
	+125 °C	–40 to +50 °C

Basic specification, Position 10 = G

Maximum surface temperature	Process temperature T _p (process)	Ambient temperature range
T135 °C	+190 °C	–40 to +60 °C
	+290 °C	–40 to +60 °C
	+300 °C	–40 to +60 °C
	+400 °C	–40 to +55 °C

Specific conditions of use:

- The surface temperature is
 - for equipment protection level (EPL) Da: T_{200} 135 °C (with 200 mm dust deposit)
 - and equipment protection level (EPL) Db: T_L 135 °C (with dust accumulation T_L)
- The surface temperature is for equipment protection level (EPL) Db: T_L 135 °C (with dust accumulation T_L)



T_L marking:

The assigned surface temperature without dust layer is the same.

Connection data

Power supply
$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 100\text{ mA}$ $P_i \leq 0.7\text{ W}$ $C_i \leq 10\text{ nF}$ $L_i = 0$



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www.addresses.endress.com
