

Safety Instructions

Cerabar PMC71B, PMP71B

Ex ia IIC T1...T6 Ga/Gb

Ex ia IIC T1...T6 Gb



Cerabar PMC71B, PMP71B

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About this document

This document has been translated into several languages. Legally determined is solely the English source text.

Associated documentation

This document is an integral part of the following Operating Instructions:

PMC71B
BA02010P/00, TI01507P/00

PMP71B
BA02012P/00, TI01509P/00

Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:

- In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Media Type:
Documentation -> Documentation Type: Brochures and catalogs ->
Text Search: CP00021Z
- On the CD for devices with CD-based documentation

Manufacturer's certificates**NEPSI Declaration of Conformity**

Certificate number:
GYJ21.1017X

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

- GB 3836.1-2010
- GB 3836.4-2010
- GB 3836.20-2010

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.

Position 6 (Housing, Material)		
Selected option		Description
PMC71B PMP71B	B	Single compartment; Alu, coated
	J	Dual compartment; Alu, coated
	K	Dual compartment; 316L

Position 10 (Diaphragm Seal Type)		
Selected option		Description
PMP71B	G	Temperature isolator
	M m capillary, 316L
	N m capillary, PVC>316L
	O m capillary, PTFE>316L
	R ft capillary, 316L
	S ft capillary, PVC>316L
	T ft capillary, PTFE>316L

Optional specifications

ID Ex (Application Package)		
Selected option		Description
PMC71B	EC	High temperature version, 150°C/302°F process

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		Description
PMP71B	JL	Ambient temp. transmitter -50°C/-58°F, sensor see specification

ID Nx, Ox (Accessory Mounted)		
Selected option		Description
PMC71B PMP71B	NA	Overvoltage protection

ID Px, Rx (Accessory Enclosed)		
Selected option		Description
PMC71B	PA	Weather protection cover, 316L ¹⁾
PMP71B	PB	Weather protection cover, plastic ²⁾

1) Only in connection with Position 6 (Housing, Material) = J, K

2) Only in connection with Position 6 (Housing, Material) = B

Safety instructions: General

- 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 device for explosion atmospheres and fire hazard electrical equipment installation engineering".
 - GB 3836.13-2013: "Explosive atmospheres, Part 13: Equipment repair, overhaul and reclamation".
 - GB/T 3836.15-2017: "Explosive atmospheres, Part 15: Electrical installations design, selection and erection".
 - GB/T 3836.16-2017: "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.

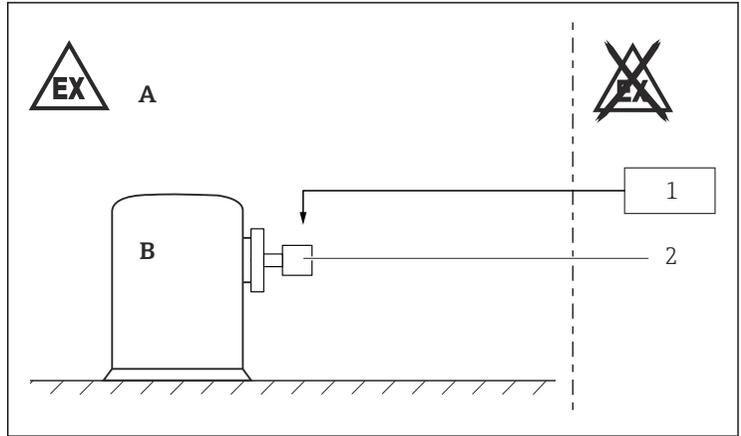
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
 - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
 - Of isolated capacities (e.g. isolated metallic plates)
- Modifications 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:
Special conditions**

- 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 housing 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.

Optional specification, ID Px, Rx (Accessory Enclosed) = PA
Connect the weather protection cover to the local potential equalization.

Safety instructions: Installation



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- A Zone 1, Electronic
 B Zone 0 or Zone 1, Process
 1 Associated intrinsically safe power supply units
 2 PMC71B, PMP71B

- After aligning (rotating) the housing, 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.
- Continuous service temperature of the connecting cable: $\geq T_a + 20 \text{ K}$.
- 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.

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 $500 V_{\text{rms}}$.

Optional specification, ID Nx, Ox (Accessory Mounted) = NA

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

Potential equalization

Integrate the device into the local potential equalization.

Safety instructions: Zone 0

- In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.
 - Temperature: -20 to $+60$ °C
 - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
 - Air with normal oxygen content, usually 21 % (V/V)
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.
- Only use the device in media to which the wetted materials have sufficient durability (e.g. process connection seal).

Temperature tables

-  ■ 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 housing.
 - The process temperatures refer to the temperature at the separation membrane.

 *Optional specification, ID Jx, Kx (Test, Certificate, Declaration) = JL*
Lower limit of the ambient temperature for explosion protection changes to -50 °C.

Optional specification, ID Px, Rx (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the admissible ambient temperature by 10 K.

Device Type PMC71B

Temperature class	Process temperature range	Ambient temperature range
T6	-40 °C $\leq T_p \leq +80$ °C	-40 °C $\leq T_a \leq +45$ °C
	-40 °C $\leq T_p \leq +60$ °C	-40 °C $\leq T_a \leq +50$ °C
T4	-40 °C $\leq T_p \leq +100$ °C	-40 °C $\leq T_a \leq +50$ °C
T4...T1	-40 °C $\leq T_p \leq +125$ °C	-40 °C $\leq T_a \leq +45$ °C

Optional specification, ID Ex (Application Package) = EC

Temperature class	Process temperature range	Ambient temperature range
T6	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$
T4	$-40\text{ °C} \leq T_p \leq +100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
T4	$-40\text{ °C} \leq T_p \leq +125\text{ °C}$	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
T3...T1	$-40\text{ °C} \leq T_p \leq +150\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$

Device Type PMP71B

Temperature class	Process temperature range	Ambient temperature range
T6	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +45\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +70\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$
T4...T1	$-40\text{ °C} \leq T_p \leq +125\text{ °C}$	$-40\text{ °C} \leq T_a \leq +45\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$

Basic specification, Position 10 (Diaphragm Seal Type) = G

Temperature class	Process temperature range	Ambient temperature range
T6	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$
T4	$-40\text{ °C} \leq T_p \leq +130\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
T3	$-40\text{ °C} \leq T_p \leq +190\text{ °C}$	
T2	$-40\text{ °C} \leq T_p \leq +285\text{ °C}$	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
T1	$-40\text{ °C} \leq T_p \leq +400\text{ °C}$	

Basic specification, Position 10 (Diaphragm Seal Type) = M, N, O, R, S, T

Temperature class	Process temperature range	Ambient temperature range
T6	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
T4	$-40\text{ °C} \leq T_p \leq +130\text{ °C}$	$-40\text{ °C} \leq T_a \leq +65\text{ °C}$
T3	$-40\text{ °C} \leq T_p \leq +190\text{ °C}$	
T2	$-40\text{ °C} \leq T_p \leq +285\text{ °C}$	
T1	$-40\text{ °C} \leq T_p \leq +400\text{ °C}$	

Connection data**Power supply**

$$U_i \leq 30 \text{ V}_{\text{DC}}$$

$$I_i \leq 300 \text{ mA}$$

$$P_i \leq 1 \text{ W}$$

$$C_i \leq 10 \text{ nF}$$

$$L_i = 0$$



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