

Safety Instructions

Cerabar PMC51B, PMP51B

Ex ia IIC T6...T1 Ga/Gb

Ex ia IIC T6...T1 Gb



Cerabar PMC51B, PMP51B

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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:

PMC51B
BA02009P/00, TI01506P/00

PMP51B
BA02011P/00, TI01508P/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**KC Declaration of Conformity**

Certificate number:
21-KA4BO-0830X

IEC Declaration of Conformity

Certificate number:
IECEX SEV 20.0009X

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

- IEC 60079-0 : 2017
- IEC 60079-11 : 2011
- IEC 60079-26 : 2014

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

PMx51B

–

+

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

Device type

PMC51B, PMP51B

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
PMC51B	KB	KC Ex ia IIC T6...T1 Ga/Gb
PMP51B		KC Ex ia IIC T6...T1 Gb

Position 6 (Housing, Material)		
Selected option		Description
PMC51B	B	Single compartment; Alu, coated
PMP51B		

Position 10 (Diaphragm Seal Type)		
Selected option		Description
PMP51B	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 Nx, Ox (Accessory Mounted)		
Selected option		Description
PMC51B	NA	Overvoltage protection
PMP51B		

ID Px, Rx (Accessory Enclosed)		
Selected option		Description
PMC51B	PB	Weather protection cover, plastic
PMP51B		

Safety instructions:
General

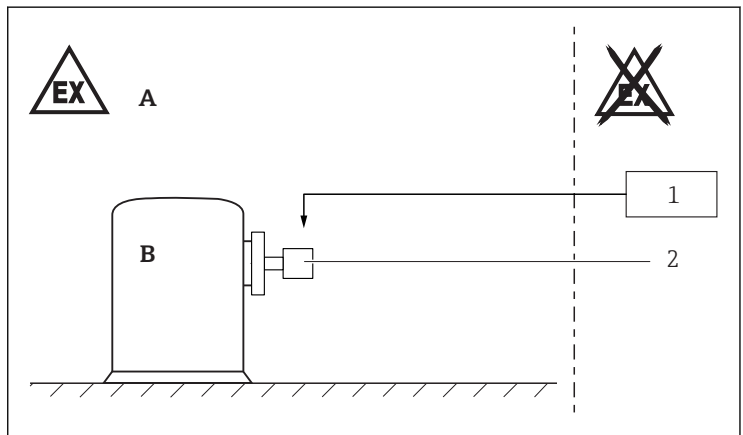
- Devices suitable for zone separation (marked Ga/Gb or Da/Db) are always suitable for installation in the less critical zone (Gb or Db). Due to space limitations the corresponding marking maybe not indicated on the nameplate.
- Comply with the installation and safety instructions in the Operating Instructions.
- 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

- 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**

- 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.

**Safety
instructions:
Installation**



A0041997

- A Zone 1, Electronic
 B Zone 0 or Zone 1, Process
 1 Associated intrinsically safe power supply units
 2 PMC51B, PMP51B

- 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 $500 \text{ V}_{\text{rms}}$.

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 $290 \text{ V}_{\text{rms}}$.

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 $+60 \text{ }^{\circ}\text{C}$
 - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
 - Air with normal oxygen content, usually $21 \text{ } \%$ (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 Px, Rx (Accessory Enclosed) = PB
When using the weather protection cover: Reduce the admissible ambient temperature by 10 K.

Device Type PMC51B

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

Device Type PMP51B

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	$-40\text{ }^{\circ}\text{C} \leq T_p \leq +80\text{ }^{\circ}\text{C}$	$-40\text{ }^{\circ}\text{C} \leq T_a \leq +50\text{ }^{\circ}\text{C}$
T4	$-40\text{ }^{\circ}\text{C} \leq T_p \leq +130\text{ }^{\circ}\text{C}$	
T3	$-40\text{ }^{\circ}\text{C} \leq T_p \leq +190\text{ }^{\circ}\text{C}$	
T2	$-40\text{ }^{\circ}\text{C} \leq T_p \leq +285\text{ }^{\circ}\text{C}$	$-40\text{ }^{\circ}\text{C} \leq T_a \leq +55\text{ }^{\circ}\text{C}$
T1	$-40\text{ }^{\circ}\text{C} \leq T_p \leq +400\text{ }^{\circ}\text{C}$	

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

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

Connection data

Power supply
$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 300\text{ mA}$ $P_i \leq 1\text{ W}$ $C_i \leq 10\text{ nF}$ $L_i = 0$



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