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Safety Instructions
Cerabar PMC51B, PMP51B

Ex ta/tb IIIC T* °C Da/Db
Ex tb IIIC T* °C Db

Segurança
INMETRO TÜVRheinland OCP 0004

Endress+Hauser
People for Process Automation

Cerabar PMC51B, PMP51B

Table of contents

About this document 4
Associated documentation 4
Supplementary documentation 4
Manufacturer's certificates 4
Manufacturer address 4
Extended order code 4
Safety instructions: General 6
Safety instructions: Special conditions 7
Safety instructions: Installation 8
Temperature tables 9
Connection data 11

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

Certificate of Conformity

Certificate number:
TÜV 20.1908 X

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

- ABNT NBR IEC 60079-0:2013
- ABNT NBR IEC 60079-31:2014

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 MG PMP51B	INMETRO Ex ta/tb IIIC T* °C Da/Db INMETRO Ex tb IIIC T* °C Db

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

Position 7 (Electrical Connection)		
Selected option		**Description**
PMC51B PMP51B	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C	Gland M20, 316L, IP66/68 NEMA Type 4X/6P
	F	Thread M20, IP66/68 NEMA Type 4X/6P
	G	Thread G1/2, IP66/68 NEMA Type 4X/6P
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P

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

No options specific to hazardous locations are available.

Safety instructions: General

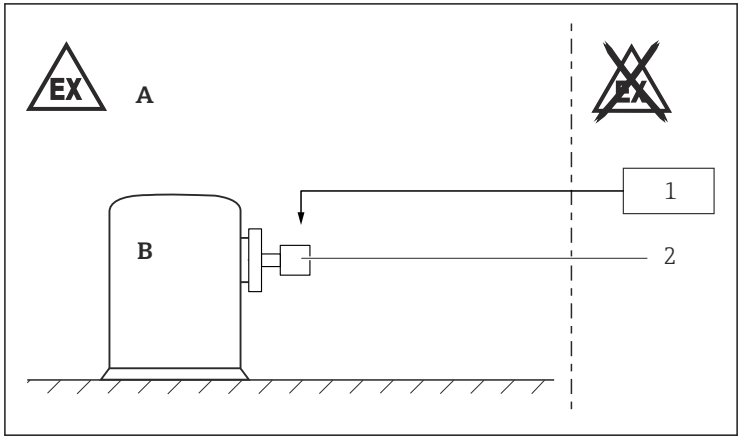
- Devices suitable for zone separation (marked Ga/Gb or Da/Db) are always suitable for installation in the less critical zone (Gb or Db). Due to space limitations the corresponding marking maybe not indicated on the nameplate.
- Comply with the installation and safety instructions in the Operating Instructions.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

- 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.

Safety instructions: Installation

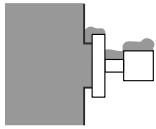
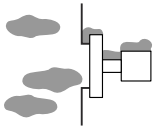


A Zone 21, Electronic
B Zone 20 or Zone 21, Process
1 Power supply
2 PMC51B, PMP51B

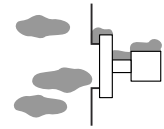
- After aligning (rotating) the housing, retighten the fixing screw.
- Do not open in a potentially explosive dust atmosphere.
- Seal the cable entry or piping tight (see ingress protection of housing in the "Temperature tables" chapter).
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing screw on the cover.

Permitted ambient conditions

Ex ta/tb IIIC T* °C Da/Db

Process Zone 20		Housing 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 tb IIIC T* °C Db

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

Temperature tables

- The specified surface temperature takes into account all direct heat influences from process heat and self-heating at the housing.
- 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 housing.
- The process temperatures refer to the temperature at the separation membrane.

For detailed information see Technical Information.

Ingress protection of housing: IP66/67

Device Type PMC51B

Ex ta/tb IIIC T_{200} 125°C Da/Db
Ex tb IIIC T_L 125°C Db

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	−40 °C ≤ T_p ≤ +70 °C	−40 °C ≤ T_a ≤ +65 °C
	−40 °C ≤ T_p ≤ +100 °C	−40 °C ≤ T_a ≤ +60 °C
	−40 °C ≤ T_p ≤ +125 °C	−40 °C ≤ T_a ≤ +55 °C

Specific conditions of use:
- The surface temperature is
  - for equipment protection level (EPL) Da: T_{200} 125 °C (with 200 mm dust deposit)
  - and equipment protection level (EPL) Db: T_L 125 °C (with dust accumulation T_L)
- The surface temperature is
  for equipment protection level (EPL) Db: T_L 125 °C (with dust accumulation T_L)

T_L marking:
The assigned surface temperature without dust layer is the same.

Device Type PMP51B

Ex ta/tb IIIC T_{200} 125°C Da/Db
Ex tb IIIC T_L 125°C Db

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +65 °C
	−40 °C ≤ T_p ≤ +100 °C	−40 °C ≤ T_a ≤ +60 °C
	−40 °C ≤ T_p ≤ +125 °C	−40 °C ≤ T_a ≤ +50 °C

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

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	−40 °C ≤ T_p ≤ +190 °C	−40 °C ≤ T_a ≤ +60 °C
	−40 °C ≤ T_p ≤ +290 °C	−40 °C ≤ T_a ≤ +55 °C
	−40 °C ≤ T_p ≤ +400 °C	−40 °C ≤ T_a ≤ +50 °C

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

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	−40 °C ≤ T_p ≤ +190 °C	−40 °C ≤ T_a ≤ +70 °C
	−40 °C ≤ T_p ≤ +290 °C	
	−40 °C ≤ T_p ≤ +400 °C	

Specific conditions of use:
- The surface temperature is
  - for equipment protection level (EPL) Da: T_{200} 125 °C (with 200 mm dust deposit)
  - and equipment protection level (EPL) Db: T_L 125 °C (with dust accumulation T_L)
- The surface temperature is
  for equipment protection level (EPL) Db: T_L 125 °C (with dust accumulation T_L)

T_L marking:
The assigned surface temperature without dust layer is the same.

Connection data

Power supply
$U \leq 35\ V_{DC}$ $P \leq 1\ W$

Cable entry: Connection compartment

Ex tb

Cable gland: *Basic specification, Position 7 (Electrical Connection) = B*

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	ø 8 to 10.5 mm [1] ø 6.5 to 13 mm [2]	Ms, nickel-plated	Silicone	EPDM (ø 17x2)

1) Standard
2) Separate clamping inserts available

Cable gland: *Basic specification, Position 7 (Electrical Connection) = C*

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	ø 7 to 12 mm	1.4404	NBR	EPDM (ø 17x2)

- The tightening torque refers to cable glands installed by the manufacturer:
  - Recommended: 3.5 Nm
  - Maximum: 10 Nm
- This value may be different depending on the type of cable. However, the maximum value must not be exceeded.

- Only suitable for fixed installation. The operator must pay attention to a suitable strain relief of the cable.
- The cable glands are suitable for a low risk of mechanical danger (4 Joule) and must be mounted in a protected position if larger impact energy levels are expected.
- To maintain the ingress protection of the housing: Install the housing cover, cable glands and blind plugs correctly.

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