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Safety Instructions
Cerabar PMC51B, PMP51B

Ex ia IIC T6 Ga/Gb
Ex ia IIC T6 Gb

Endress+Hauser
People for Process Automation

Cerabar PMC51B, PMP51B

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Associated documentation

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

PMC51B
BA02009P, TI01506P

PMP51B
BA02011P, TI01508P

Supplementary documentation

Explosion protection brochure: CP00021Z

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

Certificates and declarations

Certificate of Conformity

Certificate number:
CML 23JPN2173X

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

- JNIOSH-TR-46-1:2020
- JNIOSH-TR-46-6:2015
- IEC 60079-26:2014

Certificate holder

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

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

PMC51B, PMP51B

Basic specifications

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

Position 3, 4 (Output)		
Selected option		**Description**
PMC51B PMP51B	BA	2-wire, 4-20 mA HART
	DA	2-wire, PROFIBUS PA
	FA	2-wire, PROFINET, 10Mbit/s (APL)

Position 5 (Display, Operation)		
Selected option		**Description**
PMC51B PMP51B	L	Prepared for display FHX50B + M12 connection
	M	Prepared for display FHX50B + Gland M20
	N	Prepared for display FHX50B + Thread NPT1/2
	O	Prepared for display FHX50B + Thread M20

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

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 Px, Rx (Accessory Enclosed)		
Selected option		**Description**
PMC51B PMP51B	PA	Weather protection cover, 316L [1]
	PB	Weather protection cover, plastic [2]

1) Only in connection with Position 6 = J
2) Only in connection with Position 6 = B

Safety instructions: General

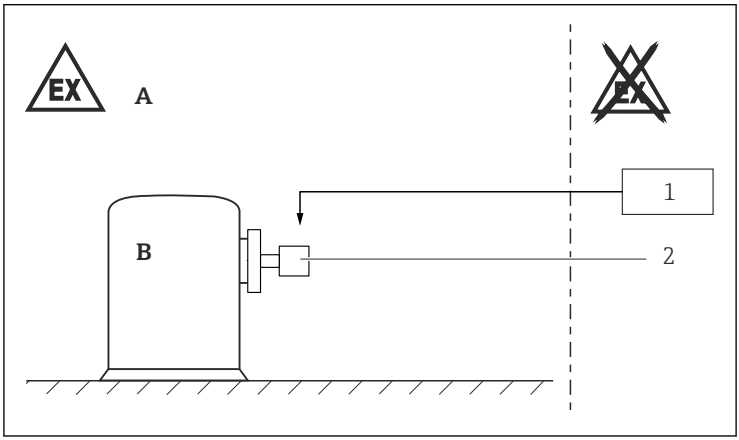
- The device is intended to be used in explosive atmospheres as defined in the scope of IEC 60079-0 or equivalent national standards. If no potentially explosive atmospheres are present or if additional protective measures have been taken: The device may be operated according to the manufacturer's specifications.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

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

Safety instructions: Installation



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 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.
- Continuous service temperature of the connecting cable: ≥ 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.

Basic specification, Position 5 = N
Observe the requirements according to IEC/EN 60079-14 for conduit systems and the wiring- and installation instructions of the suitable Safety Instructions (XA). In addition, observe national regulations and standards for conduit systems.

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}.

Potential equalization

Integrate the device into the local potential equalization.

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

Optional specification, ID Px, Rx = 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	$-40\ °C \le T_p \le +80\ °C$	$-40\ °C \le T_a \le +45\ °C$
	$-40\ °C \le T_p \le +60\ °C$	$-40\ °C \le T_a \le +50\ °C$
T4	$-40\ °C \le T_p \le +100\ °C$	$-40\ °C \le T_a \le +50\ °C$
T4...T1	$-40\ °C \le T_p \le +125\ °C$	$-40\ °C \le T_a \le +45\ °C$

Device Type PMP51B

Temperature class	Process temperature range	Ambient temperature range
T6	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +45 °C
	−40 °C ≤ T_p ≤ +70 °C	−40 °C ≤ T_a ≤ +50 °C
T4...T1	−40 °C ≤ T_p ≤ +125 °C	−40 °C ≤ T_a ≤ +45 °C
	−40 °C ≤ T_p ≤ +100 °C	−40 °C ≤ T_a ≤ +55 °C
	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +60 °C

Basic specification, Position 10 = G

Temperature class	Process temperature range	Ambient temperature range
T6	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +50 °C
T4	−40 °C ≤ T_p ≤ +130 °C	−40 °C ≤ T_a ≤ +60 °C
T3	−40 °C ≤ T_p ≤ +190 °C	
T2	−40 °C ≤ T_p ≤ +285 °C	−40 °C ≤ T_a ≤ +55 °C
T1	−40 °C ≤ T_p ≤ +400 °C	

Basic specification, Position 10 = M, N, O, R, S, T

Temperature class	Process temperature range	Ambient temperature range
T6	−40 °C ≤ T_p ≤ +80 °C	−40 °C ≤ T_a ≤ +60 °C
T4	−40 °C ≤ T_p ≤ +130 °C	−40 °C ≤ T_a ≤ +65 °C
T3	−40 °C ≤ T_p ≤ +190 °C	
T2	−40 °C ≤ T_p ≤ +285 °C	
T1	−40 °C ≤ T_p ≤ +400 °C	

Connection data

Basic specification, Position 3 = BA

Power supply
U_i ≤ 30 V_{DC} I_i ≤ 300 mA P_i ≤ 1 W C_i ≤ 10 nF L_i = 0

Basic specification, Position 3 = DA

Power supply	
FISCO $U_i \leq 17.5\ V_{DC}$ $I_i \leq 380\ mA$ $P_i \leq 5.32\ W$ $C_i \leq 5\ nF$ $L_i = 0$	Entity $U_i \leq 24\ V_{DC}$ $I_i \leq 300\ mA$ $P_i \leq 1.2\ W$ $C_i \leq 5\ nF$ $L_i = 0$

Basic specification, Position 3 = FA

Power supply	
2-WISE $U_i \leq 17.5\ V_{DC}$ $I_i \leq 380\ mA$ $P_i \leq 5.32\ W$ $C_i \leq 5\ nF$ $L_i = 0$	Entity $U_i \leq 17.5\ V_{DC}$ $I_i \leq 300\ mA$ $P_i \leq 1.2\ W$ $C_i \leq 5\ nF$ $L_i = 0$

In connection with: *Basic specification, Position 5 = L, M, N, O*
Installation according to the specifications of FHX50B.

Only the type of protection suitable for the device shall be connected!

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