

Safety Instructions

Cerabar PMC51B, PMP51B

Ex ia IIC T6...T1 Ga



Cerabar PMC51B, PMP51B

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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:

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):

- JNIO SH-TR-46-1:2020
- JNIO SH-TR-46-6:2015

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



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 | JA | JPN Ex ia IIC T6...T1 Ga |

| Position 3, 4 (Output) | | |
|------------------------|----|--|
| Selected option | | Description |
| PMC51B PMP51B | BA | 2-wire, 4-20 mA HART |
| | BB | 2-wire, 4-20 mA HART, switch output ¹⁾ |
| | BC | 2-wire, 4-20 mA HART + 4 to 20 mA analog ¹⁾ |
| | DA | 2-wire, PROFIBUS PA |
| | FA | PROFINET over Ethernet-APL, 10Mbit/s |

1) Only in connection with Position 6 = J

| 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 | A | Single compartment; plastic |
| | 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 Mx (Sensor Design) | | |
|-----------------------|----|--|
| Selected option | | Description |
| PMC51B PMP51B | MA | Sensor remote, cable PE, 2 m/80 in + mounting bracket, wall/pipe, 316L |
| | MB | Sensor remote, cable PE, 5 m/200 in + mounting bracket, wall/pipe, 316L |
| | MC | Sensor remote, cable PE, 10 m/400 in + mounting bracket, wall/pipe, 316L |
| | MD | Sensor remote, cable PE, 15 m/600 in + mounting bracket, wall/pipe, 316L |
| | MH | Sensor remote, cable FEP, 5 m/200 in, IP69 + mounting bracket, wall/pipe, 316L |

| 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.
- 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.

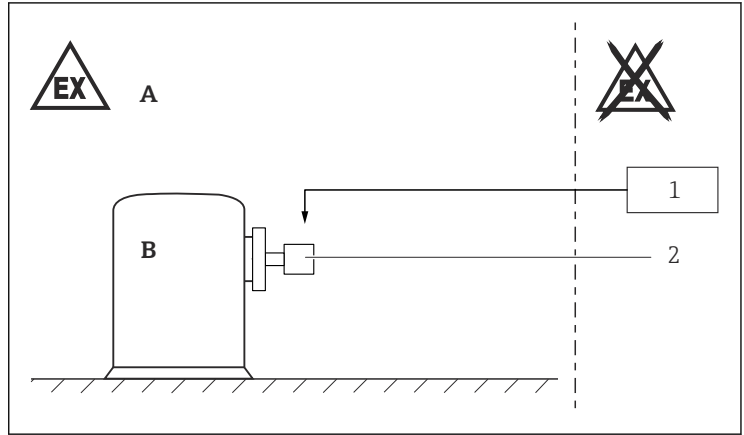
Safety instructions: Specific conditions of use

- 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



A0041997

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

- After aligning (rotating) the enclosure, retighten the fixing screw.
- 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.

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.
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least $500\text{ V}_{\text{rms}}$.

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 T _p (process) | Ambient temperature T _a (ambient) | | |
|-------------------|--|--|---------------|---------------|
| | | Basic specification, Position 3, 4 = | | |
| | | BA, DA, FA | | BB, BC |
| | | Basic specification, Position 6 = | | |
| | | B, J | A | J |
| T6 | +40 °C | −40 to +50 °C | −20 to +40 °C | −40 to +45 °C |
| | +80 °C | −40 to +45 °C | not suitable | −40 to +40 °C |
| T4...T1 | +60 °C | −40 to +60 °C | −20 to +45 °C | −40 to +55 °C |
| | +80 °C | −40 to +60 °C | −20 to +40 °C | −40 to +50 °C |
| | +100 °C | −40 to +55 °C | not suitable | −40 to +50 °C |
| | +125 °C | −40 to +50 °C | not suitable | −40 to +40 °C |

Device Type PMP51B

| Temperature class | Process temperature T_p (process) | Ambient temperature T_a (ambient) | | |
|-------------------|-------------------------------------|--------------------------------------|---------------|---------------|
| | | Basic specification, Position 3, 4 = | | |
| | | BA, DA, FA | | BB, BC |
| | | Basic specification, Position 6 = | | |
| | | B, J | A | J |
| | | | | |
| T6 | +60 °C | -40 to +50 °C | -20 to +45 °C | -40 to +45 °C |
| | +70 °C | -40 to +50 °C | -20 to +40 °C | -40 to +45 °C |
| | +80 °C | -40 to +45 °C | not suitable | -40 to +40 °C |
| T4...T1 | +70 °C | -40 to +65 °C | -20 to +50 °C | -40 to +55 °C |
| | +80 °C | -40 to +60 °C | -20 to +45 °C | -40 to +55 °C |
| | +100 °C | -40 to +55 °C | -20 to +45 °C | -40 to +50 °C |
| | +125 °C | -40 to +50 °C | not suitable | -40 to +45 °C |

Basic specification, Position 10 = G

| Temperature class | Process temperature T_p (process) | Ambient temperature T_a (ambient) | | |
|-------------------|-------------------------------------|--------------------------------------|---------------|---------------|
| | | Basic specification, Position 3, 4 = | | |
| | | BA, DA, FA | | BB, BC |
| | | Basic specification, Position 6 = | | |
| | | B, J | A | J |
| | | | | |
| T6 | +80 °C | -40 to +60 °C | -20 to +45 °C | -40 to +55 °C |
| T4 | +130 °C | -40 to +70 °C | -20 to +55 °C | -40 to +60 °C |
| T3 | +190 °C | -40 to +60 °C | -20 to +50 °C | -40 to +60 °C |
| T2 | +290 °C | -40 to +60 °C | -20 to +45 °C | -40 to +55 °C |
| T1 | +300 °C | -40 to +60 °C | -20 to +45 °C | -40 to +55 °C |
| | +400 °C | -40 to +55 °C | not suitable | -40 to +50 °C |

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

| Temperature class | Process temperature T _p (process) | Ambient temperature T _a (ambient) | | |
|-------------------|--|--|---------------|---------------|
| | | Basic specification, Position 3, 4 = BA, DA, FA | | |
| | | BB, BC | | |
| | | Basic specification, Position 6 = | | |
| | | B, J | A | J |
| | | | | |
| T6 | +80 °C | -40 to +60 °C | -20 to +60 °C | -40 to +55 °C |
| T4 | +130 °C | -40 to +70 °C | -20 to +70 °C | -40 to +60 °C |
| T3 | +190 °C | -40 to +70 °C | -20 to +70 °C | -40 to +60 °C |
| T2 | +290 °C | -40 to +70 °C | -20 to +70 °C | -40 to +60 °C |
| T1 | +400 °C | -40 to +70 °C | -20 to +70 °C | -40 to +60 °C |

Version with separate enclosure

| Temperature class | Process temperature T _p (process) | Ambient temperature T _a (ambient) | |
|-------------------|--|--|---------------|
| | | Basic specification, Position 3, 4 = BA, DA, FA | |
| | | BB, BC | |
| | | Basic specification, Position 6 = | |
| | | A, B, J | J |
| | | | |
| T6 | +80 °C | -20 to +60 °C | -20 to +55 °C |
| T4...T1 | +100 °C | -20 to +60 °C | -20 to +55 °C |

Connection data

Basic specification, Position 3, 4 = BA, BB, BC

| Power supply | |
|--|--|
| Channel 1 | Channel 2 (only BB, BC) |
| U _I ≤ 30 V _{DC} I _I ≤ 300 mA P _I ≤ 1 W C _I ≤ 10 nF L _I = 0 | U _I ≤ 30 V _{DC} I _I ≤ 300 mA P _I ≤ 1 W C _I ≤ 10 nF L _I = 0 |

Basic specification, Position 3, 4 = DA

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

Basic specification, Position 3, 4 = FA

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

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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