

# Safety Instructions

## Cerabar PMC51B, PMP51B

II 1/2 D Ex ta/tb IIIC T<sub>200</sub> xxx°C Da/Db

II 2 D Ex tb IIIC T<sub>L</sub> xxx°C Db

**UK  
CA**





# Cerabar PMC51B, PMP51B

## Table of contents

Associated documentation .....	4
Supplementary documentation .....	4
Certificates and declarations .....	4
Manufacturer address .....	4
Other standards .....	4
Extended order code .....	5
Safety instructions: General .....	7
Safety instructions: Specific conditions of use .....	8
Safety instructions: Installation .....	8
Temperature tables .....	9
Connection data .....	11

<b>Associated documentation</b>	<p>To commission the device, please observe the Operating Instructions pertaining to the device:</p> <p>PMC51B BA02009P, TI01506P</p> <p>PMP51B BA02011P, TI01508P</p>
<b>Supplementary documentation</b>	<p>Explosion protection brochure: CP00021Z</p> <p>The explosion protection brochure is available on the Internet: <a href="http://www.endress.com/Downloads">www.endress.com/Downloads</a></p>
<b>Certificates and declarations</b>	<p><b>UK Declaration of Conformity</b></p> <p>Declaration Number: UK_00024</p> <p>The UK Declaration of Conformity is available: In the download area of the Endress+Hauser website: <a href="http://www.endress.com">www.endress.com</a> -&gt; Downloads -&gt; Declaration -&gt; Type: UKCA Declaration -&gt; Product Code: ...</p> <p><b>UKCA type-examination certificate</b></p> <p>Certificate number: CML 21UKEX2338X</p> <p>List of applied standards: See UK Declaration of Conformity.</p>
<b>Manufacturer address</b>	<p>Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany</p> <p>Address of the manufacturing plant: See nameplate.</p>
<b>Other standards</b>	<p>Among other things, the following standards shall be observed in their current version for proper installation:</p> <ul style="list-style-type: none"><li>■ IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"</li><li>■ EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"</li></ul>

## 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*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = 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
PMC5 1B	UG	UK Ex II 1/2 D Ex ta/tb IIIC T <sub>200</sub> xxx°C Da/Db
PMP5 1B		UK Ex II 2 D Ex tb IIIC T <sub>L</sub> xxx°C Db

Position 3, 4 (Output)		
Selected option		Description
PMC5 1B	BA	2-wire, 4-20 mA HART
PMP5 1B	DA	2-wire, PROFIBUS PA
	FA	2-wire, PROFINET, 10Mbit/s (APL)

Position 5 (Display, Operation)		
Selected option		Description
PMC5 1B	M	Prepared for display FHX50B + Gland M20
PMP5 1B	N	Prepared for display FHX50B + Thread NPT1/2
	O	Prepared for display FHX50B + Thread M20

Position 6 (Housing, Material)		
Selected option		Description
PMC5 1B	B	Single compartment; Alu, coated
PMP5 1B	J	Dual compartment; Alu, coated

Position 7 (Electrical Connection)		
Selected option		Description
PMC5 1B	B	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
PMP5 1B	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.

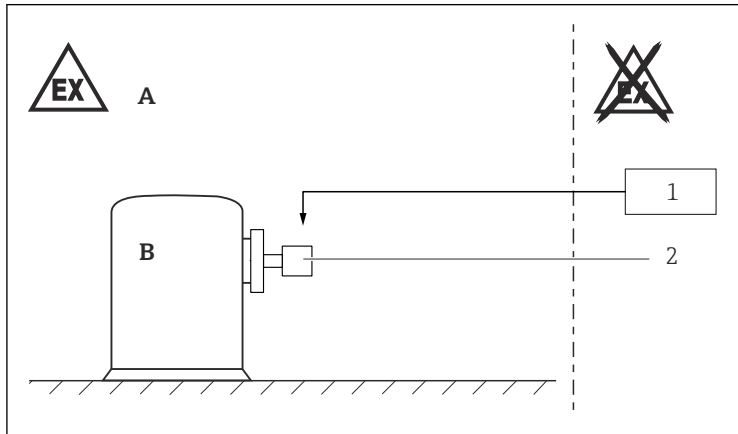
### Safety instructions: General

- The device is intended to be used in explosive atmospheres as defined in the scope of EN 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:**  
**Specific conditions of use**

- 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 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 ( $\leq 0.5$  m) generating strong electrostatic charges.
- Avoid sparks caused by impact and friction.

**Safety instructions:**  
**Installation**



A0041997

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

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

*Basic specification, Position 5 = N*

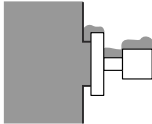
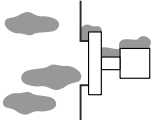
Observe the requirements according to IEC/EN 60079-14 for conduit systems and the wiring- and installation instructions of the suitable



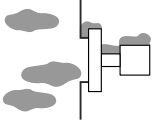
Safety Instructions (XA). In addition, observe national regulations and standards for conduit systems.

*Permitted ambient conditions*

**II 1/2 D Ex ta/tb IIIC T<sub>200</sub> xxx°C Da/Db**

Process Zone 20		Enclosure 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

**II 2 D Ex tb IIIC T<sub>L</sub> xxx°C Db**


Process Zone 21		Enclosure 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 enclosure.
- 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 enclosure.
- The process temperatures refer to the temperature at the separation membrane.

For detailed information see Technical Information.

 Protection type of enclosure: IP66/67

### Device Type PMC51B

II 1/2 D Ex ta/tb IIIC T<sub>200</sub> 125°C Da/Db

II 2 D Ex tb IIIC T<sub>L</sub> 125°C Db

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	$-40\text{ °C} \leq T_p \leq +70\text{ °C}$	$-40\text{ °C} \leq T_a \leq +65\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +125\text{ °C}$	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$

Specific conditions of use:

- The surface temperature is
  - for equipment protection level (EPL) Da: T<sub>200</sub> 125 °C (with 200 mm dust deposit)
  - and equipment protection level (EPL) Db: T<sub>L</sub> 125 °C (with dust accumulation T<sub>L</sub>)
- The surface dust temperature is
  - for equipment protection level (EPL) Db: T<sub>L</sub> 125 °C (with dust accumulation T<sub>L</sub>)

 T<sub>L</sub> marking:  
The assigned surface temperature without dust layer is the same.

### Device Type PMP51B

II 1/2 D Ex ta/tb IIIC T<sub>200</sub> 125°C Da/Db

II 2 D Ex tb IIIC T<sub>L</sub> 125°C Db

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	$-40\text{ °C} \leq T_p \leq +80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +65\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +125\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$

*Basic specification, Position 10 = G*

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	$-40\text{ °C} \leq T_p \leq +190\text{ °C}$	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +290\text{ °C}$	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +400\text{ °C}$	$-40\text{ °C} \leq T_a \leq +50\text{ °C}$

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

Maximum surface temperature	Process temperature range	Ambient temperature range
T125 °C	$-40\text{ °C} \leq T_p \leq +190\text{ °C}$	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	$-40\text{ °C} \leq T_p \leq +290\text{ °C}$	
	$-40\text{ °C} \leq T_p \leq +400\text{ °C}$	

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***Basic specification, Position 3 = BA*

Power supply
$U \leq 35\text{ V}_{DC}$ $P \leq 1\text{ W}$

*Basic specification, Position 3 = DA*

Power supply
$U \leq 32\text{ V}_{DC}$ $P \leq 0.7\text{ W}$

*Basic specification, Position 3 = FA***Power supply**

$U \leq 15 V_{DC}$   
 $P \leq 0.7 W$

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



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

**Cable entry: Connection compartment****Ex tb**

Cable gland: *Basic specification, Position 7 = B*

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

Cable gland: *Basic specification, Position 7 = 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 enclosure: Install the enclosure cover, cable glands and blind plugs correctly.









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