

# Safety Instructions

## Cerabar M

### PMC51, PMP51, PMP55

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Ga/Gb Ex ia IIC T6...T3

Ex ia IIIC T75°C Da/Db



Document: XA01954P-A

Safety instructions for electrical apparatus for explosion-hazardous areas →  3

---

# Cerabar M PMC51, PMP51, PMP55

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

## Table of contents

Associated documentation . . . . .	4
Supplementary documentation . . . . .	4
Manufacturer's certificates . . . . .	4
Manufacturer address . . . . .	4
Extended order code . . . . .	4
Safety instructions: General . . . . .	5
Safety instructions: Special conditions . . . . .	6
Safety instructions: Installation . . . . .	6
Safety instructions: Zone 0 . . . . .	6
Safety instructions: Zone 20, Zone 21 . . . . .	7
Temperature tables . . . . .	7
Connection data . . . . .	7

<b>Associated documentation</b>	<p>This document is an integral part of the following Operating Instructions:</p> <p>HART BA00382P/00</p> <p>PROFIBUS PA BA00383P/00</p> <p>FOUNDATION Fieldbus BA00384P/00</p>										
<b>Supplementary documentation</b>	<p>Explosion-protection brochure: CP00021Z/11</p> <p>The Explosion-protection brochure is available:</p> <ul style="list-style-type: none"> <li>■ In the download area of the Endress+Hauser website: <a href="http://www.endress.com">www.endress.com</a> -&gt; Downloads -&gt; Media Type: Documentation -&gt; Documentation Type: Brochures and catalogs -&gt; Text Search: CP00021Z</li> <li>■ On the CD for devices with CD-based documentation</li> </ul>										
<b>Manufacturer's certificates</b>	<p><b>Certificate of Conformity TP TC 012/2011</b></p> <p>Inspection authority: LLC NANIO CCVE (ООО «НАНИО ЦСВЭ»)</p> <p>Certificate number: EAЭC RU C-DE.AA87.B.00320/20</p> <p>Affixing the certificate number certifies conformity with the following standards (depending on the device version):</p> <ul style="list-style-type: none"> <li>■ GOST 31610.0-2014 (IEC 60079-0:2011)</li> <li>■ GOST 31610.11-2014 (IEC 60079-11:2011)</li> <li>■ GOST 31610.26-2012 / IEC 60079-26:2006</li> </ul>										
<b>Manufacturer address</b>	<p>Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.</p>										
<b>Extended order code</b>	<p>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.</p> <p><b>Structure of the extended order code</b></p> <table border="0" style="margin-left: 40px;"> <tr> <td style="text-align: center;">PMC51, PMP5x</td> <td style="text-align: center;">–</td> <td style="text-align: center;">*****</td> <td style="text-align: center;">+</td> <td style="text-align: center;">A*B*C*D*E*F*G*..</td> </tr> <tr> <td style="text-align: center;"><i>(Device type)</i></td> <td></td> <td style="text-align: center;"><i>(Basic specifications)</i></td> <td></td> <td style="text-align: center;"><i>(Optional specifications)</i></td> </tr> </table> <p>* = Placeholder At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.</p> <p><i>Basic specifications</i></p> <p>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.</p>	PMC51, PMP5x	–	*****	+	A*B*C*D*E*F*G*..	<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>
PMC51, PMP5x	–	*****	+	A*B*C*D*E*F*G*..							
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>							

*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 M**

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*

PMC51, PMP51, PMP55

*Basic specifications*

Position 1, 2 (Approval)		
Selected option		Description
PMC51	G1	EAC Ga/Gb Ex ia IIC T6...T3
PMP5x		EAC Ex ia IIIC T75°C Da/Db

Position 3 (Output)		
Selected option		Description
PMC51	2	4-20 mA HART
PMP5x	3	PROFIBUS PA
	4	FOUNDATION Fieldbus

*Optional specifications*

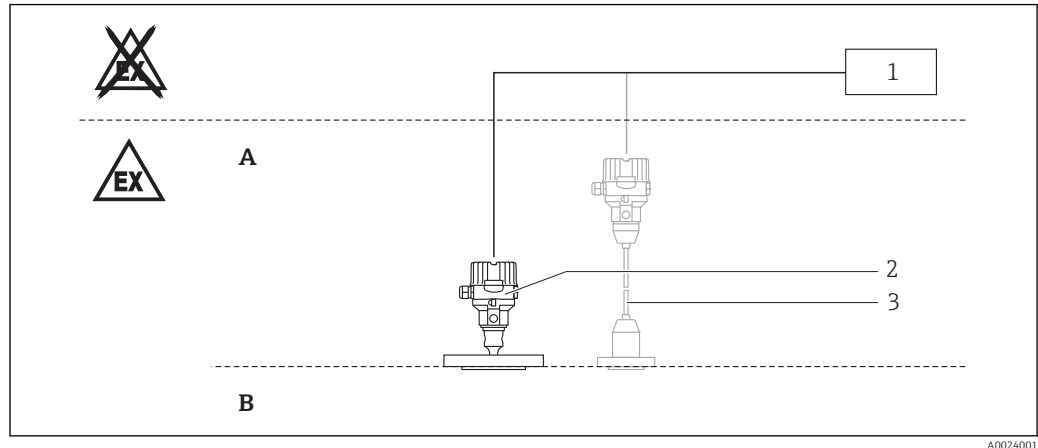
No options specific to hazardous locations are available.

**Safety instructions: General**

- 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.
- 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)

**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.
- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

**Safety instructions:  
Installation**

- A Zone 1 or Zone 21, Electronic  
 B Zone 0 or Zone 20, Process  
 1 Certified associated apparatus  
 2 PMC51, PMP51, PMP55  
 3 Option: Separate housing

The device is designed for operation in Zone 1 or Zone 21 (housing) as well as Zone 0 or Zone 20 (process connection). In the event of potentially explosive gas-air and dust-air mixtures occurring simultaneously: Suitability requires further assessment.

**Intrinsic safety**

- When the device is connected to an intrinsically safe circuit Ex ib, the type of protection changes to Ex ib. Do not operate intrinsically safe circuits Ex ib in Zone 0 or Zone 20.
- When the device is connected to an intrinsically safe circuit Ex ic, the type of protection changes to Ex ic. Do not operate intrinsically safe circuits Ex ic in Zone 0, Zone 1 or Zone 20, Zone 21.
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V<sub>rms</sub>.

**Safety instructions: Zone 0**

- In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.
  - Temperature: -20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with normal oxygen content, usually 21 % (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.
- Associated devices with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.

For Device type PMC51, the following also applies:

For installations which require overvoltage protection to comply with national regulations or standards, install the device using overvoltage protection (e.g. HAW56x from Endress+Hauser).

**Safety instructions:**  
Zone 20, Zone 21

- Seal the cable entry or piping tight (see ingress protection of housing in the "Temperature tables" chapter).
- Connect the device using suitable cable and wire entries of protection type "Equipment dust ignition protection by enclosure (Ex t)" or "Increased safety (Ex e)" (ingress protection of at least IP65). Lay connecting cable and secure.

**Temperature tables**

Type of protection	Temperature class	Process temperature T <sub>p</sub> (process)	Ambient temperature T <sub>a</sub> (ambient): housing
Ga/Gb Ex ia IIC T6...T3	T6	≤ 80 °C	-40 °C ≤ T <sub>a</sub> ≤ +40 °C
	T4	≤ 125 °C	-40 °C ≤ T <sub>a</sub> ≤ +70 °C
	T3 <sup>1)</sup>	≤ 150 °C	-40 °C ≤ T <sub>a</sub> ≤ +70 °C

1) At Device type PMC51 and PMP51 acc. nameplate



*Device type PMC51, PMP51*

- The process temperatures refer to the temperature at the separation membrane.
- Do not exceed the max. ambient temperature at the housing.

*Device type PMP55*

- Higher temperatures are permitted depending on the type of diaphragm seal.
- Do not exceed the max. ambient temperature at the housing.

Type of protection	Ingress protection of housing	Max. surface temperature at max. ambient temperature	Ambient temperature T <sub>a</sub> (ambient): housing
Ex ia IIIC T75°C Da/Db	IP66/67	+75 °C <sup>1)</sup>	-40 °C ≤ T <sub>a</sub> ≤ +70 °C

1) Measured at max. ambient temperatur of +70 °C

**Connection data**

*Basic specification, Position 3 (Output) = 2*

Power supply
U <sub>i</sub> ≤ 30 V <sub>DC</sub> I <sub>i</sub> ≤ 300 mA P <sub>i</sub> ≤ 1 W C <sub>i</sub> ≤ 10 nF L <sub>i</sub> = 0

*Basic specification, Position 3 (Output) = 3, 4*

Power supply	
FISCO U <sub>i</sub> ≤ 17.5 V <sub>DC</sub> I <sub>i</sub> ≤ 500 mA P <sub>i</sub> ≤ 5.5 W C <sub>i</sub> ≤ 5 nF L <sub>i</sub> ≤ 10 μH	Entity U <sub>i</sub> ≤ 24 V <sub>DC</sub> I <sub>i</sub> ≤ 250 mA P <sub>i</sub> ≤ 1.2 W C <sub>i</sub> ≤ 5 nF L <sub>i</sub> ≤ 10 μH



71456078

[www.addresses.endress.com](http://www.addresses.endress.com)

---