XA01592P-C/00/EN/03.18
71414775
2018-08-27

Safety Instructions
Cerabar S PMC71, PMP71, PMP75

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

EAC: Ga/Gb Ex ia IIC T6...T4
Ga/Gb Ex ia IIC T6...T3
Ex ia IIIC T85°C Da/Db

Document: XA01592P-C
Safety instructions for electrical apparatus for explosion-hazardous areas → 3

Endress+Hauser
People for Process Automation

Cerabar S PMC71, PMP71, PMP75

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Table of contents

Associated documentation

This document is an integral part of the following Operating Instructions:

HART
- BA00271P/00
- BA00274P/00

PROFIBUS PA
- BA00295P/00
- BA00296P/00

FOUNDATION Fieldbus
- BA00302P/00
- BA00303P/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 TP TC 012/2011

Inspection authority:
LLC NANIO CCVE (ООО «НАНИО ЦСВЭ»)

Certificate number:
TC RU C-DE.AA87.B.01064

Affixing the certificate number certifies conformity with the following standards (depending on the device version):
- GOST 31610.0-2014 (IEC 60079-0:2011)
- GOST 31610.11-2014 (IEC 60079-11:2011)
- GOST 31610.26-2012/IEC 60079-26:2006

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

PMC71, PMP7x	–	**********	+	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 S

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

PMC71

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
PMC71	3	ATEX II 1/2 G Ex ia IIC T6...T4/T3 Ga/Gb ATEX II 1/2 D Ex ia IIIC T85°C Da/Db

Position 2 (Output, Operating)		
Selected option		**Description**
PMC71	A, B, C	4-20 mA HART
	D, E, F	4-20 mA HART, L_i = 0
	M, N, O	PROFIBUS PA
	P, Q, R	FOUNDATION Fieldbus

Position 10 (Additional Option 1)		
Selected option		**Description**
PMC71	M	Overvoltage protection
	T	High temperature version max 150°C/300°F

Position 11 (Additional Option 2)		
Selected option		**Description**
PMC71	M	Overvoltage protection
	T	High temperature version max 150°C/300°F

Optional specifications

ID Lx (Additional Approval)		
Selected option		**Description**
PMC71	L8	EAC marking

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

PMP71, PMP75

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
PMP7x	3	ATEX II 1/2 G Ex ia IIC T6...T4 Ga/Gb ATEX II 1/2 D Ex ia IIIC T85°C Da/Db

Position 2 (Output, Operating)		
Selected option		**Description**
PMP7x	A, B, C	4-20 mA HART
	D, E, F	4-20 mA HART, $L_i = 0$
	M, N, O	PROFIBUS PA
	P, Q, R	FOUNDATION Fieldbus

Position 11 (Additional Option 1)		
Selected option		**Description**
PMP7x	M	Overvoltage protection

Position 12 (Additional Option 2)		
Selected option		**Description**
PMP7x	M	Overvoltage protection

Optional specifications

ID Jx (Test, Certificate)		
Selected option		**Description**
PMP7x	JN	Ambient temperature transmitter –50 °C/-58 °F

ID Lx (Additional Approval)		
Selected option		**Description**
PMP7x	L8	EAC marking

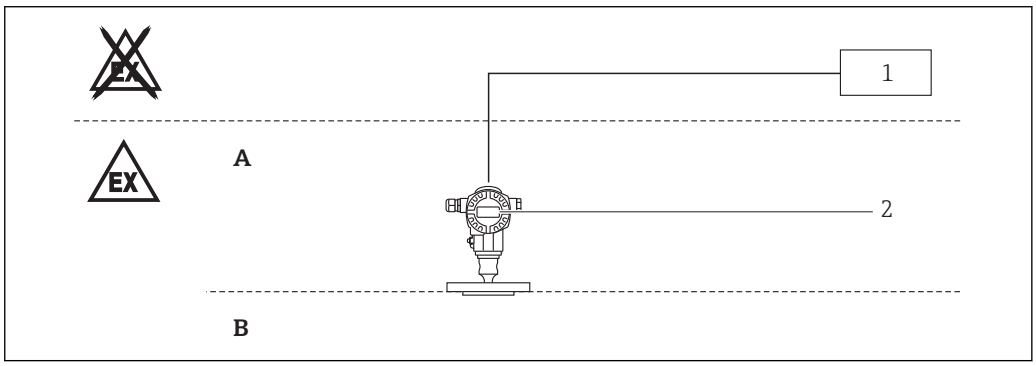
Safety instructions: General

- 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

- 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



1

A Zone 1, Zone 21, Electronic
B Zone 0, Zone 20, Process
1 Certified associated apparatus
2 PMC71, PMP71, PMP75

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

- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V_{rms}.
- 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.

Overvoltage protection

Device type PMC71, Basic specification, Position 10 + 11 (Additional Option 1 + 2) = M
Device type PMP71, PMP75, Basic specification, Position 11 + 12 (Additional Option 1 + 2) = M
The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 290 V_{rms}.

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 PMC71, 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_p (process)	Ambient temperature T_a (ambient): housing
EAC: Ga/Gb Ex ia IIC T6...T4 Ga/Gb Ex ia IIC T6...T3	T6	≤ 80 °C	−40 °C ≤ T_a ≤ +40 °C
	T4	≤ 120 °C [1]	−40 °C ≤ T_a ≤ +70 °C
	T3	≤ 150 °C [2]	−40 °C ≤ T_a ≤ +70 °C

1) Only Device type PMC71, PMP71
2) Only Device type PMC71 with Basic specification, Position 10 + 11 (Additional Option 1 + 2) = T

Device type PMC71, PMP71
- The process temperatures refer to the temperature at the separation membrane.
- Do not exceed the max. ambient temperature at the housing.

Device type PMP75
- 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_a (ambient): housing
EAC: Ex ia IIIC T85°C Da/Db	IP66/67	+85 °C [1]	−40 °C ≤ T_a ≤ +70 °C

1) Maximum thickness of the dust layer: 5 mm

Optional specification, ID Jx (Test, Certificate) = JN
Lower limit of the ambient temperature for explosion protection changes to −50 °C.

Connection data

Basic specification, Position 2 (Output, Operating) = A, B, C, D, E, F

Power supply
$U_i \leq 30\ V_{DC}$ $I_i \leq 300$ mA $P_i \leq 1$ W $C_i \leq 11.8$ nF $L_i \leq 225\ \mu H$ [1] or $L_i = 0$ [2]

1) Basic specification, Position 2 (Output, Operating) = A, B, C
2) Basic specification, Position 2 (Output, Operating) = D, E, F

Basic specification, Position 2 (Output, Operating) = M, N, O, P, Q, R

Power supply	
FISCO	Entity
$U_i \leq 17.5\ V_{DC}$ $I_i \leq 500$ mA $P_i \leq 5.5$ W $C_i \leq 5$ nF $L_i \leq 10\ \mu H$	$U_i \leq 24\ V_{DC}$ $I_i \leq 250$ mA $P_i \leq 1.2$ W $C_i \leq 5$ nF $L_i \leq 10\ \mu H$

www.addresses.endress.com

Endress+Hauser

People for Process Automation