Safety Instructions
Cerabar M
PMC51, PMP51, PMP55
4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Ex ia IIC T6...T4/T3 Ga/Gb
Ex ia IIIC T75 °C T_{500} 100 °C Da/Db (HART)
Ex ia IIIC T75 °C T_{500} 105 °C Da/Db (PA, FF)

IECEx KEM 09.0016

Document: XA00473P-B
Safety instructions for electrical apparatus for explosion-hazardous areas according to IEC standards

Endress+Hauser
People for Process Automation

Cerabar M
PMC51, PMP51, PMP55

english

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Associated Documentation

This document is an integral part of the following Operating Instructions:
BA00382P/00

The Operating Instructions which are supplied and correspond to the device type apply.

Supplementary Documentation

Explosion-protection brochure:
CP00021Z/11

Designation

Explanation of the labelling and type of protection can be found in the explosion protection brochure.

Designation according to IECEx
Equipment protection level (EPL) **Ga/Gb**

Designation of type of protection/ level of protection

Ex ia IIC T6...T4 Ga/Gb
Ex ia IIC T6...T3 Ga/Gb

Designation according to IECEx
Equipment protection level (EPL) **Da/Db**

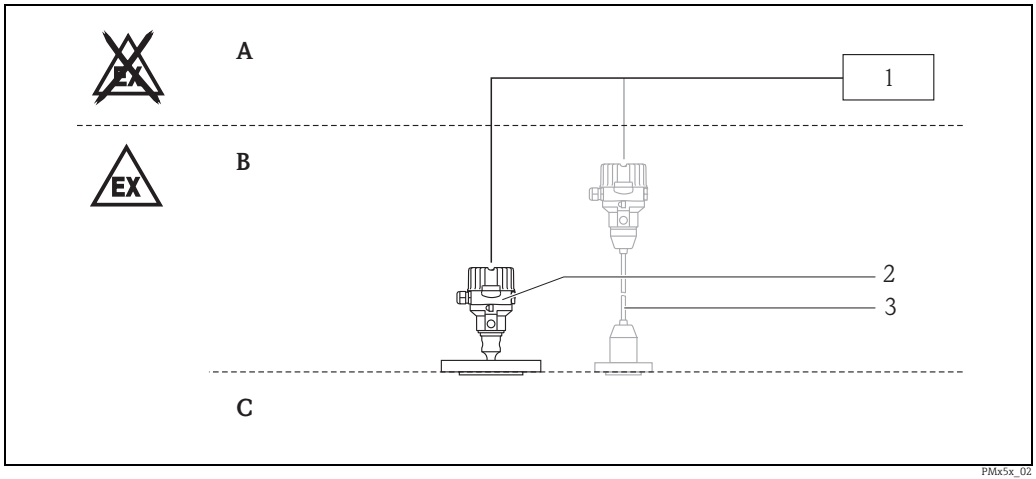
Designation of type of protection/ level of protection

HART: **Ex ia IIIC T75 °C T_{500} 100 °C Da/Db**
PA, FF: **Ex ia IIIC T75 °C T_{500} 105 °C Da/Db**

Applied standards

IEC 60079-0 :2011
IEC 60079-11 :2011
IEC 60079-26 :2006

Safety instructions: Installation



1

A *Power supply*
B *Zone 1 or Zone 21, Electronic*
C *Zone 0 or Zone 20, Process*

1 Certified associated apparatus
2 PMC51, PMP51 or PMP55
3 Option: Separate housing

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations.
- Only install the devices in media for which the wetted materials have sufficient durability.
- The device is designed for operation in Zone 21 or Zone 1 (housing) as well as Zone 20 or Zone 0 (process connection). Its suitability in the event of potentially explosive gas-air and dust-air mixtures occurring simultaneously requires further assessment.
- When the device is connected to an intrinsically safe circuit Ex ib, the level 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 level 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 potential and has a dielectric strength of at least 500 V_{rms} with respect to it.
- Avoid impact or friction sparks for light metal flanges or flange faces (e.g. titanium, zirconium).

Safety instructions: Zone 0

- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
  −20 °C ≤ T ≤ +60 °C
  0.8 bar ≤ p ≤ 1.1 bar
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, according to EN 1127-1, the transmitters may be operated under other atmospheric conditions in accordance with the manufacturer's specifications.
- Associated apparatus with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.

For PMC51, the following also applies:
- On installations requiring overvoltage protection to comply with national regulations or standards (e.g. EN 60079-14), this device shall be installed using an overvoltage protector (e.g. HAW560Z and HAW562Z from Endress+Hauser).

Safety instructions: Zone 20/21

- Seal the cable entry or piping tight (see housing ingress protection in the table above).
- Only use cable glands with IECEx Ex e or dust Ex approval or metallic glands with min. IP65 ingress protection. Lay connecting cable strong.

Temperature tables

Electronic insert	Type of protection/ level of protection	Temperature class	Process temperature	Ambient temperature (Housing)
4-20 mA HART	Ex ia IIC T6...T4/T3 Ga/Gb	T6	≤ 80 °C	−40 °C ≤ Ta ≤ +40 °C
		T4	≤ 125 °C	−40 °C ≤ Ta ≤ +70 °C
		T3 (at PMC51, PMP51 acc. nameplate)	≤ 150 °C	−40 °C ≤ Ta ≤ +70 °C
PROFIBUS PA, FOUNDATION Fieldbus	Ex ia IIC T6...T4/T3 Ga/Gb	T6	≤ 80 °C	−40 °C ≤ Ta ≤ +40 °C
		T4	≤ 125 °C	−40 °C ≤ Ta ≤ +70 °C
		T3 (at PMC51, PMP51 acc. nameplate)	≤ 150 °C	−40 °C ≤ Ta ≤ +70 °C

The process temperatures refer to the temperature at the separation membrane of PMC51 and PMP51. For PMP55, higher temperatures are permitted depending on the type of diaphragm seal (do not exceed the max. ambient temperature at the housing).

Electronic insert	Type of protection/ level of protection	Ingress protection of housing	Max. surface temperature at Ta max.	Ambient temperature (Housing)
4-20 mA HART	Ex ia IIIC T75 °C T_{500} 100 °C Da/Db	IP66/67	without immersion: +75 °C; under 500 mm immersion: +100 °C (measured at Ta = 70 °C)	−40 °C ≤ Ta ≤ +70 °C
PROFIBUS PA, FOUNDATION Fieldbus	Ex ia IIIC T75 °C T_{500} 105 °C Da/Db	IP66/67	without immersion: +75 °C; under 500 mm immersion: +105 °C (measured at Ta = 70 °C)	−40 °C ≤ Ta ≤ +70 °C

Connection data

Electronic insert	Electrical data
4-20 mA HART	Ui ≤ 30 V DC, Ii ≤ 300 mA, Pi ≤ 1 W Ci ≤ 10 nF, Li = 0
PROFIBUS PA, FOUNDATION Fieldbus	Ui ≤ 17.5 V DC, Ii ≤ 500 mA, Pi ≤ 5.5 W Ci ≤ 5 nF, Li ≤ 10 µH (FISCO field device) or Ui ≤ 24 V DC, Ii ≤ 250 mA, Pi ≤ 1.2 W Ci ≤ 5 nF, Li ≤ 10 µH

www.addresses.endress.com

Endress+Hauser

People for Process Automation