

Safety Instructions

Deltabar M PMD55

4-20 mA HART, PROFIBUS PA,
FOUNDATION Fieldbus

II 1/2 G Ex ia IIC Ga/Gb
II 1/2 D Ex ia IIIC Da/Db



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Associated documentation

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

HART

BA00382P/00

PROFIBUS PA

BA00383P/00

FOUNDATION Fieldbus

BA00384P/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 -> Brochures and Catalogs -> Text Search: CP00021Z
- On the CD for devices with CD-based documentation

Manufacturer's certificates**UK Declaration of Conformity**

Declaration Number:

UK_00217

The UK Declaration of Conformity is available:

In the download area of the Endress+Hauser website:

www.endress.com -> Downloads -> Declaration ->

Type: UKCA Declaration -> Product Code: ...

UKCA type-examination certificate

Certificate number:

CML 21UKEX2440X

List of applied standards: See UK Declaration of Conformity.

Manufacturer address

Endress+Hauser SE+Co. KG

Hauptstraße 1

79689 Maulburg, Germany

Address of the manufacturing plant: See nameplate.

Other standards

Among other things, the following standards shall be observed in their current version for proper installation:

- IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"
- EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"

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

PMD55	–	*****	+	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: Deltabar 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
PMD55

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
PMD55	U1	UK Ex II 1/2 G Ex ia IIC T6...T4 Ga/Gb UK Ex II 1/2 D Ex ia IIIC T ₂₀₀ 85°C Da/Db

Position 3 (Output)		
Selected option		Description
PMD55	2	4-20 mA HART
	3	PROFIBUS PA
	4	FOUNDATION Fieldbus

Optional specifications
No options specific to hazardous locations are available.

Safety instructions:
General

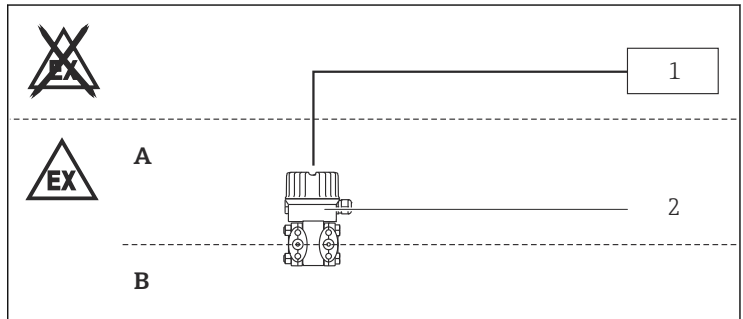
- The device is intended to be used in explosive atmospheres as defined in the scope of EN IEC 60079-0 or equivalent national standards. If no potentially explosive atmospheres are present or if additional protective measures have been taken: The device may be operated according to the manufacturer's specifications.
- 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
- Comply with the installation and safety instructions in the Operating Instructions.

- 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. enclosure, 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 enclosure or other metal parts:
 - Observe the danger of electrostatic charging and discharge.
 - Do not rub surfaces with a dry cloth.

**Safety
instructions:
Installation**



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- A *Electronic; Zone 1 or Zone 21*
 B *Process; Zone 0 or Zone 20*
 1 *Certified associated apparatus*
 2 *PMD55*

The device is designed for operation in Zone 1 or Zone 21 (enclosure) 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_{rms}.

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

- Seal the cable entry or piping tight (see protection type of enclosure 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

Ex ia IIC T6...T4 Ga/Gb

- 
- 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.

Temperature class	Process temperature T _p (process)	Ambient temperature range
T6	≤ 80 °C	-40 °C ≤ T _a ≤ +40 °C
T4	≤ 120 °C	-40 °C ≤ T _a ≤ +70 °C

Ex ia IIIC T₂₀₀ 85°C Da/Db



- The specified surface temperature takes into account all direct heat influences from process heat and self-heating at the enclosure.
- 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.

Maximum surface temperature	Process temperature range	Ambient temperature range
T85 °C	-40 °C ≤ T _p ≤ +85 °C	-40 °C ≤ T _a ≤ +50 °C

Specific conditions of use:

The surface temperature is

- for equipment protection level (EPL) Da: T₂₀₀ 85 °C (with 200 mm dust deposit)
- and equipment protection level (EPL) Db: T_L 85 °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 = 2

Power supply
U _I ≤ 30 V _{DC} I _I ≤ 300 mA P _I ≤ 1 W C _I ≤ 10 nF L _I = 0


Basic specification, Position 3 = 3, 4

Power supply	
FISCO	Entity
U _I ≤ 17.5 V _{DC} I _I ≤ 500 mA P _I ≤ 5.5 W C _I ≤ 5 nF L _I ≤ 10 μH	U _I ≤ 24 V _{DC} I _I ≤ 250 mA P _I ≤ 1.2 W C _I ≤ 5 nF L _I ≤ 10 μH

Cable entry: Connection compartment

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	ø 8 to 10.5 mm ¹⁾ ø 6.5 to 13 mm ²⁾	Ms, nickel-plated	Silicone	EPDM (ø 17x2)

- 1) Standard
- 2) Separate clamping inserts available

-  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.
- To maintain the ingress protection of the enclosure: Install the enclosure cover, cable glands and blind plugs correctly.



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