

Safety Instructions

Deltabar S

PMD75, FMD77, FMD78

4-20 mA HART, PROFIBUS PA,
FOUNDATION Fieldbus

II 2 G Ex db IIC T6...T4/T1 Gb



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Associated documentation

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

HART

- BA00270P/00
- BA00274P/00

PROFIBUS PA

- BA00294P/00
- BA00296P/00

FOUNDATION Fieldbus

- BA00301P/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 -> 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_00083

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 21UKEX1438

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

PMD75, FMD7x	-	*****	+	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: Deltabar 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

PMD75, FMD77, FMD78

Basic specifications

Position 1 (Approval)		
Selected option		Description
PMD75	5	ATEX II 2 G Ex db IIC T6...T4 Gb
FMD7x	5	ATEX II 2 G Ex db IIC T6...T1 Gb

Position 2 (Output, Operating)		
Selected option		Description
PMD75	A, B, C	4-20 mA HART
FMD7x	D, E, F	4-20 mA HART, L ₁ = 0
	M, N, O	PROFIBUS PA
	P, Q, R	FOUNDATION Fieldbus

Position 3 (Housing, Cover Sealing, Cable Entry)		
Selected option		Description
PMD75	A, G, 1, 7	T14 IP66/67 NEMA6P; M20
FMD7x	B, 2	T14 IP66/67 NEMA6P; G1/2
	C, H, 3, 8	T14 IP66/67 NEMA6P; NPT1/2
	J	T15 IP66/67 NEMA6P; M20
	K	T15 IP66/67 NEMA6P; G1/2
	L	T15 IP66/67 NEMA6P; NPT1/2

Optional specifications

ID Jx (Test, Certificate)		
Selected option		Description
PMD75	JN	Ambient temperature transmitter -50 °C/-58 °F
FMD7x	JT	Ambient temperature transmitter -54 °C/-65 °F

ID Lx (Additional Approval)		
Selected option		Description
PMD75	LU	UK marking
FMD7x		

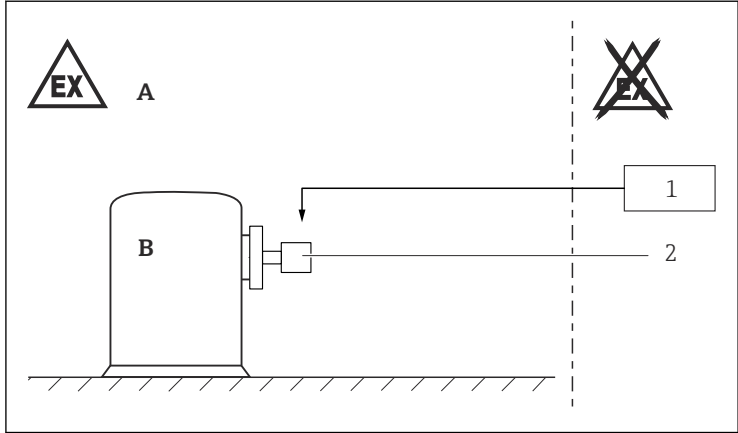
Safety instructions:
General

- 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. 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



A0041997

- A Zone 1, Electronic
 B Zone 1, Process
 1 Power supply
 2 PMD75, FMD77, FMD78

- After aligning (rotating) the enclosure, retighten the fixing screw.
- In potentially explosive atmospheres: Do not open the connection compartment cover and the electronics compartment cover when energized.
- Before operation:
 - Screw in the cover all the way.
 - Tighten the securing clamp on the cover.
- Connect the device:
 - Using suitable cable and wire entries of protection type "Flameproof Enclosure (Ex db)".
 - Using piping systems of protection type "Flameproof Enclosure (Ex db)".
- When connecting through a conduit entry approved for this purpose, mount the associated sealing unit directly at the enclosure.
- For ambient temperatures higher than +70 °C, use suitable heat resisting cables or wires.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation.
- Only use certified cable entries or sealing plugs. The metal sealing plugs supplied meet this requirement.
- Only use genuine spare parts from Endress+Hauser which are specified for the device.

Basic specification, Position 3 = B, 2, K

Flameproof equipment with G threaded entry holes is not intended for new installations but only for replacement of equipment in existing installations. Application of this equipment shall comply with the local installation requirements.

Safety instructions: Ex d joints

If required or if in doubt: ask manufacturer for specifications.

Temperature tables

*Device type PMD75**II 2 G Ex db IIC T6...T4 Gb*

Option: Process Connection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient)
all	T6	$-40\text{ °C} \leq T_p \leq +75\text{ °C}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$
	T4	$-40\text{ °C} \leq T_p \leq +100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$



The process temperatures refer to the temperature at the separation membrane.

*Device type FMD77, FMD78**II 2 G Ex db IIC T6...T1 Gb*

Option: Process Connection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient)
FMD77: all	T6	$-40\text{ °C} \leq T_p \leq +75\text{ °C}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$
FMD78: ¹⁾	T4	$-40\text{ °C} \leq T_p \leq +125\text{ °C}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$

Option: Process Connection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient)
FMD7x: 1)	T3	$-40\text{ °C} \leq T_p \leq +185\text{ °C}^{2)}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$
	T2	$-40\text{ °C} \leq T_p \leq +285\text{ °C}^{2)}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$
	T1	$-40\text{ °C} \leq T_p \leq +400\text{ °C}^{2)}$	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$

- 1) Depending on the selected design
 2) Depending on the selected version; see Operating Instructions



- 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.

Device type FMD77

Deratings between process temperature and ambient temperature at the enclosure depending on the way of installation as well as functional aspects: See Operating Instructions.

Device type FMD78

The external heat influence depends only on the mounting position of the transmitter itself. Therefore a sufficient capillary length to mount the enclosure at a position with an allowed ambient temperature must be ordered.

Optional specification, ID Jx = JN

Lower limit of the ambient temperature for explosion protection changes to -50 °C .

Optional specification, ID Jx = JT

Lower limit of the ambient temperature for explosion protection changes to -54 °C .

Connection data

Basic specification, Position 2 = A, B, C, D, E, F

Power supply
$U \leq 45\text{ V}_{DC}$ $P \leq 3\text{ W}$

Basic specification, Position 2 = M, N, O, P, Q, R

Power supply
U ≤ 32 V _{DC} P ≤ 3 W



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