

Safety Instructions

Deltapilot M FMB50, FMB51

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Ga/Gb Ex ia IIC T6...T4

Ex ia IIIC T75°C Da

Ex ia IIIC T75°C Db



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

Deltapilot M FMB50, FMB51

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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: Deltapilot 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

FMB50, FMB51

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FMB5x	G1	EAC Ga/Gb Ex ia IIC T6...T4 EAC Ex ia IIIC T75°C Da and Ex ia IIIC T75°C Db

Position 3 (Output)		
Selected option		Description
FMB5x	2	4-20 mA HART
	3	PROFIBUS PA
	4	FOUNDATION Fieldbus

Optional specifications

No options specific to hazardous locations are available.

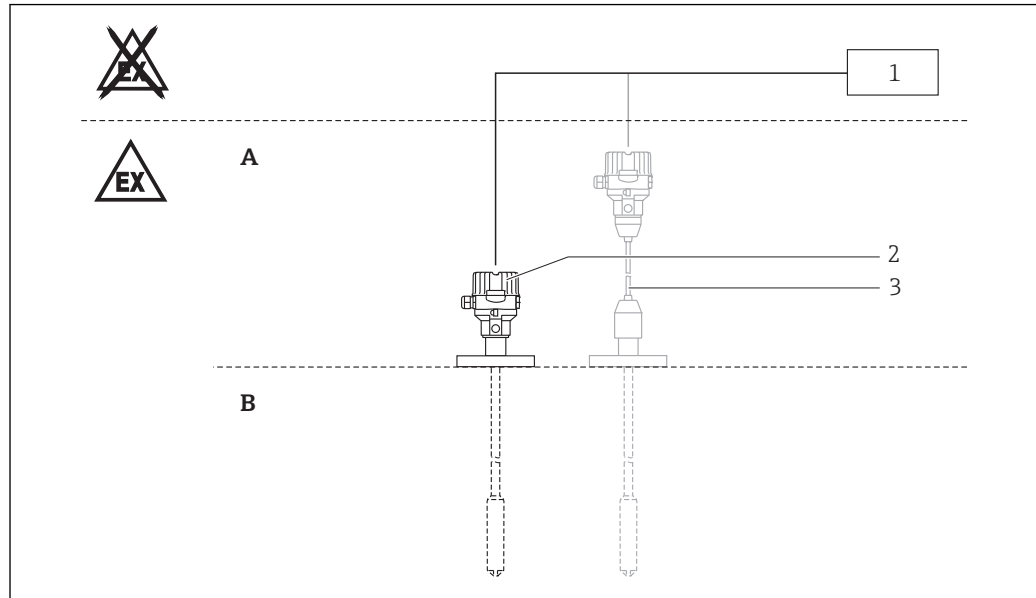
Safety instructions: General

- 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 FMB50, FMB51
 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_{rms}.

Device type FMB51

Mechanically fix probes which are more than 3 m (e.g. using guy ropes).

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.

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*Device type FMB50*

Type of protection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): housing
Ga/Gb Ex ia IIC T6...T4	T6	$\leq 80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +40\text{ °C}$
	T4	$\leq 100\text{ °C}$	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$

Device type FMB51

Type of protection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): housing
Ga/Gb Ex ia IIC T6...T4	T6	$\leq 80\text{ °C}$	$-40\text{ °C} \leq T_a \leq +40\text{ °C}$
	T4	$\leq 85\text{ °C}$	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$



Do not exceed the max. ambient temperature at the housing.

Device type FMB50

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

Device type FMB51

The process temperatures refer to the temperature at the rod.

Type of protection	Ingress protection of housing	Max. surface temperature at max. ambient temperature	Ambient temperature T_a (ambient): housing
Ex ia IIIC T75°C Da Ex ia IIIC T75°C Db	IP66/67	$+75\text{ °C}^{1)}$	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$

1) Measured at max. ambient temperature of $+70\text{ °C}$

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

Power supply
$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 300\text{ mA}$ $P_i \leq 1\text{ W}$ $C_i \leq 10\text{ nF}$ $L_i = 0$

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

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



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