XA01388P-C/00/EN/03.20
71468114
2020-02-10

Safety Instructions
Deltapilot S FMB70

4-20 mA HART, PROFIBUS PA, FOUNDATION Fieldbus

Ga/Gb Ex ia IIC T6...T4

Document: XA01388P-C
Safety instructions for electrical apparatus for explosion-hazardous areas → 3

Endress+Hauser
People for Process Automation

Deltapilot S FMB70

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
- BA00332P/00
- BA00274P/00

PROFIBUS PA
- BA00356P/00
- BA00296P/00

FOUNDATION Fieldbus
- BA00372P/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:
ЕАЭС RU C-DE.AA87.B.00321/20

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

FMB70	–	**********	+	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: Deltapilot S

Device type

FMB70

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
FMB70	1	ATEX II 1/2 G Ex ia IIC T6...T4 Ga/Gb

Position 2 (Output, Operating)		
Selected option		**Description**
FMB70	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**
FMB70	M	Overvoltage protection

Position 12 (Additional Option 2)		
Selected option		**Description**
FMB70	G	Separate housing, cable length see additional spec. + housing mounting bracket, wall/pipe, 316L
	M	Overvoltage protection

Optional specifications

ID Lx (Additional Approval)		
Selected option		**Description**
FMB70	L8	EAC marking

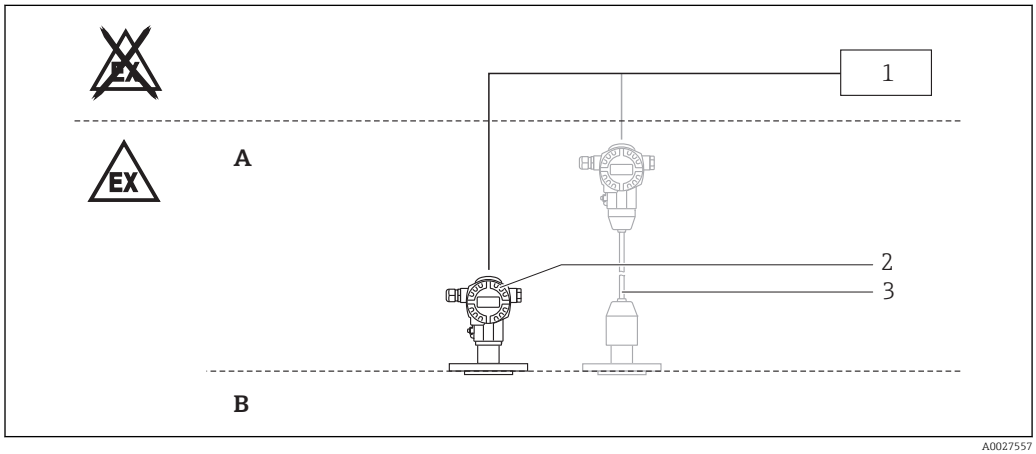
Safety instructions: General

- 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

- 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, Electronic
B Zone 0, Process
1 Certified associated apparatus
2 FMB70
3 Option: Separate housing

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

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 in Zone 0 if connecting to an intrinsically safe circuit of Category Ex ib.

Overvoltage protection

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.
- Overvoltage protection is not required depending on the design of this device.

Temperature tables

Type of protection	Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): housing
Ga/Gb Ex ia IIC T6...T4	T6	≤ 80 °C	−40 °C ≤ T_a ≤ +40 °C
	T4	≤ 100 °C	−40 °C ≤ T_a ≤ +70 °C

- The process temperatures refer to the temperature at the separation membrane.
- Do not exceed the max. ambient temperature at the housing.

Connection data

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

Power supply
U_i ≤ 30 V_{DC} I_i ≤ 300 mA P_i ≤ 1 W C_i ≤ 11.8 nF L_i ≤ 225 µH [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 ≤ 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

www.addresses.endress.com

Endress+Hauser

People for Process Automation