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Safety Instructions
Deltabar FMD71, FMD72

4-20 mA HART

ATEX, IECEx: Ex db [ia] IIC T6...T4 Ga/Gb
Ex db [ia] IIC T6...T3 Ga/Gb

Endress+Hauser
People for Process Automation

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Table of contents

About this document

The document number of these Safety Instructions (XA) must match the information on the nameplate.

Associated documentation

All documentation is available on the Internet:
www.endress.com/Deviceviewer
(enter the serial number from the nameplate).

If not yet available, a translation into EU languages can be ordered.

To commission the device, please observe the Operating Instructions pertaining to the device:

BA01044P

Supplementary documentation

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:
www.endress.com/Downloads

Certificates and declarations

EU Declaration of Conformity

Declaration Number:
EU_01227

The EU Declaration of Conformity is available on the Internet:
www.endress.com/Downloads

EU type-examination certificate

Certificate number:
FM 12 ATEX 0039 X

List of applied standards: See EU Declaration of Conformity.

IEC Declaration of Conformity

Certificate number:
IECEx FMG 12.0016 X

Affixing the certificate number certifies conformity with the following standards (depending on the device version):

- IEC 60079-0 : 2017
- IEC 60079-1 : 2014
- IEC 60079-11 : 2023
- IEC 60079-26 : 2021

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

FMD7x	–	**********	+	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

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

FMD71, FMD72

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
FMD71	BC	ATEX II 1/2 G Ex db [ia] IIC T6...T4 Ga/Gb ATEX II 1/2 G Ex db [ia] IIC T6...T3 Ga/Gb
	IB	IECEx Ex db [ia] IIC T6...T4 Ga/Gb IECEx Ex db [ia] IIC T6...T3 Ga/Gb
FMD72	BC	ATEX II 1/2 G Ex db [ia] IIC T6...T4 Ga/Gb
	IB	IECEx Ex db [ia] IIC T6...T4 Ga/Gb

Position 5 (Housing Transmitter)		
Selected option		**Description**
FMD7x	A	Aluminium T14
	B	Stainless steel T14

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 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.
- 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.

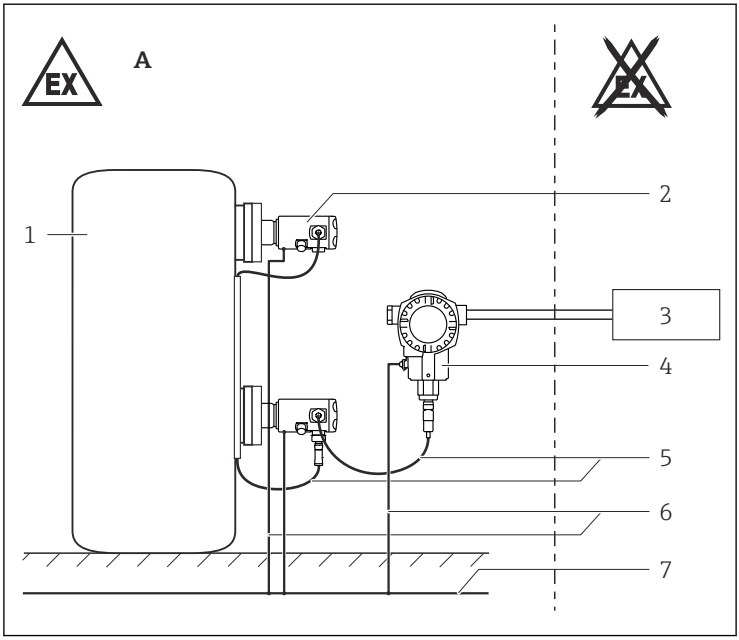
Safety instructions: Specific conditions of use

- For light metal flanges or flange faces (e.g. titanium, zirconium), avoid sparks caused by impact and friction.
- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- 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.
- For repair: Contact the manufacturer for dimensional information on the flameproof joints.
- The sensors can be installed in the boundary wall between Zone 0 and the less hazardous area Zone 1. In this configuration, the process connection is installed in Zone 0, while the sensor enclosure is installed in Zone 1.

Potential Electrostatic Charging Hazard
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: Installation



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A Zone 1
1 Tank; Zone 0
2 Sensor module
3 Certified associated apparatus
4 Transmitter enclosure (Ex d)
5 Ex ia circuits
6 Potential equalization line
7 Potential equalization

- In potentially explosive atmospheres: Do not open the connection compartment cover and the electronics compartment cover when energized.
- The connection cables to the sensor modules are intrinsically safe circuits (Ex ia). Observe the pertinent guidelines when intrinsically safe plants are installed.
- Sensor modules may only be connected to the transmitter and interconnected to each other. Any further connections are not allowed.

- Transmitter enclosure and sensor modules must have the same ground potential (e.g. transmitter enclosure and sensor modules all mounted to the same metal structure).
  If potential equalisation can not be achieved by the installation, the devices must be interconnected with a suitable bonding conductor using the external ground connections.
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing clamp on the cover.
- Seal unused entry glands with supplied metal blind plug. Alternative use only suitable, separate approved Ex db blanking elements.
- The plastic sealing plug is used only as transport protection.
- 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.

Temperature tables

Device type FMD71

Compact version

Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): enclosure
T6	≤ 80 °C	−40 °C ≤ T_a ≤ +40 °C
T4	≤ 125 °C	−40 °C ≤ T_a ≤ +70 °C

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

High-temperature version

Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): enclosure
T6	≤ 80 °C	−40 °C ≤ T_a ≤ +40 °C
T4	≤ 135 °C	−40 °C ≤ T_a ≤ +70 °C
T3	≤ 150 °C	−40 °C ≤ T_a ≤ +70 °C

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

Device type FMD72

Temperature class	Process temperature T_p (process)	Ambient temperature T_a (ambient): enclosure
T6	≤ 80 °C	−40 °C ≤ T_a ≤ +40 °C
T4	≤ 125 °C	−40 °C ≤ T_a ≤ +70 °C

- The process temperatures refer to the temperature at the separation membrane.
- Higher temperatures are permitted depending on the type of diaphragm seal.
- Do not exceed the max. ambient temperature at the enclosure.

Connection data

Electrical data
U ≤ 45 V_{DC} P ≤ 1.1 W

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