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Safety Instructions
Prosonic M FMU43

4-20 mA HART

EAC: Ex ta/tb IIIC T84...115°C Da/Db X
Ex ta/tc IIIC T84...104°C Da/Dc X

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Endress+Hauser
People for Process Automation

Prosonic M FMU43

4-20 mA HART

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Associated documentation

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

BA00237F/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:
TC RU C-DE.AA87.B.00875

Affixing the certificate number certifies conformity with the following standards (depending on the device version):
- GOST 31610.0-2014 (IEC 60079-0:2011)
- GOST IEC 60079-31-2010

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

FMU43	–	**********	+	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: Prosonic 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

FMU43

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
FMU43	F	EAC Ex ta/tb IIIC T84...115°C Da/Db X
	H	EAC Ex ta/tc IIIC T84...104°C Da/Dc X

Position 3 (Power Supply; Output)		
Selected option		**Description**
FMU43	G, M, S	4-wire 90-250VAC; 4-20 mA HART
	H, N, T	4-wire 10,5-32VDC; 4-20 mA HART

Position 4 (Operation)		
Selected option		**Description**
FMU43	1	W/o display, via communication
	2	4-line display VU331, Envelope curve display on site
	3	Prepared for FHX40, remote display (accessory)

Position 5 (Housing)		
Selected option		**Description**
FMU43	A	F12 Alu, coated, IP68 NEMA6P

Optional specifications

No options specific to hazardous locations are available.

Safety instructions: General

- 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.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.

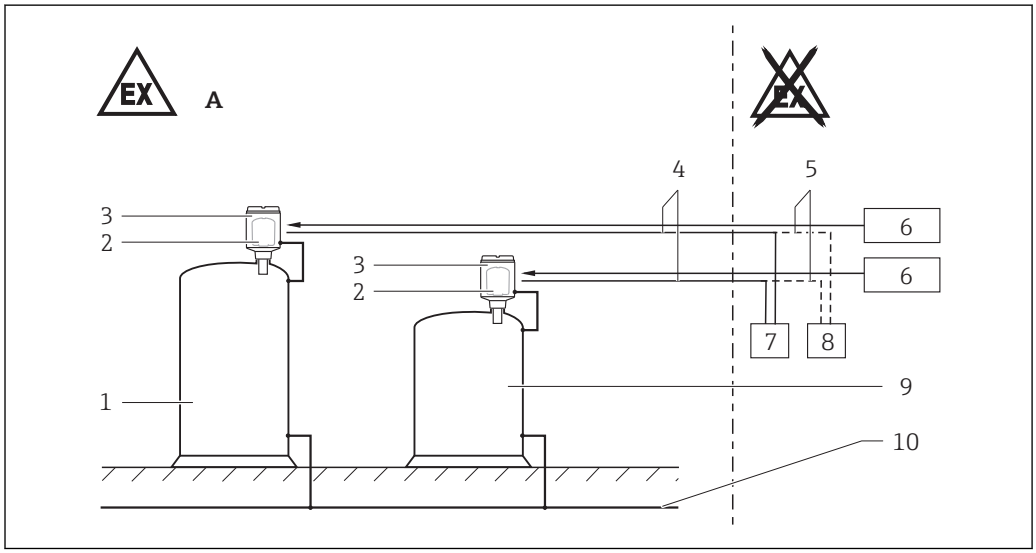
- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)
- Refer to the temperature tables for the relationship between the permitted ambient temperature for the electronics housing, depending on the range of application and the temperature class.

Safety instructions: Special conditions

Permitted ambient temperature range at the electronics housing:
$-40\ °C \leq T_a \leq +80\ °C$

- Observe the information in the temperature tables.
- 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



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A Zone 21 or Zone 22
1 Tank, hazardous area Zone 20
2 Electronic insert
3 Housing
4 4-20 mA HART passive
5 4-20 mA HART active
6 Power supply
7 For passive: associated apparatus
8 For active: associated apparatus
9 Tank, hazardous area Zone 21
10 Local potential equalization

- Only use certified cable entries suitable for the application. Observe national regulations and standards.
- Continuous service temperature of the connecting cable: $\geq T_a + 5$ K.
- Configuring the device: The electronics compartment can be opened when energized.
- When the electronics compartment is opened make sure that no dust may deposit. After configuration screw the cover down to limit stop.
- Do not open the connection compartment cover when energized.
- Connection compartment cover and electronics compartment cover: Torque ≥ 40 Nm.
- Install the device so that an ingress protection of at least IP65 is achieved.
- The maximum voltage U_m of the power circuit or the signal circuit must not be exceeded if an external display (e.g. FHX40) or a service adapter (e.g. Commubox FXA193) is connected to the device.

Zone 21
Only closed electronics compartment cover permitted.

Only Zone 22
- Electronics compartment cover with inspection glass permitted.
- Option:
  - Remote display, e.g. FHX40 (Observe Safety Instructions)
  - Service interface: Commubox with associated ToF cable (Observe Safety Instructions)

Potential equalization

Integrate the device into the local potential equalization.

Temperature tables

Zone 21 - Application

Observe the permitted temperature range.

Max. permitted ambient temperature and medium temperature: sensor (process connection) and electronics housing	Process temperature T_p (process)
–40 to +80 °C	max. 80 °C

Thermal data

An irreversible thermal fuse with a switch-off temperature of 115 °C is implemented in the transmitter.

Maximum temperature	Sensor in Zone 20, Da	Electronics housing in Zone 21, Db	Electronics housing in Zone 22, Dc
Max. ambient temperature	–40 to +80 °C	–40 to +80 °C	–40 to +80 °C
Max. surface temperature at an ambient temperature of 40 °C	+40 °C	+80 °C	+44 °C
Max. surface temperature at an ambient temperature of 80 °C	+80 °C	+115 °C	+84 °C

Connection data

Power supply		
	Basic specification, Position 3 (Power Supply; Output) =	
	G, M, S	*H, N, T*
Supply voltage	90 to 253 V_{AC}, 50/60 Hz	10.5 to 32 V_{DC}
Max. power consumption	4 VA	1 W
U_m	250 V_{AC}	60 V_{DC}

Signal circuit		
	active	passive
	U_{max} = 24.4 V	U_{max} = 30 V

Option

Remote display, e.g. FHX40:
Power supply and signal circuit: certified for II 3 D / Dc

Service/Display-Output
U_{max} = 4.2 V I_{max} = 34 mA P_{max} = 36 mW

Connecting the Commubox service interface with the associated ToF cable

Commubox output + ToF cable
U_{max} = 3.74 V I_{max} = 9.9 mA P_{max} = 9.2 mW

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