

Safety Instructions

Waterpilot FMX21

NEPSI: Ex ia IIC T4...T6 Gb



Document: XA00456P-C

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



Waterpilot FMX21

Table of contents

Associated documentation	4
Supplementary documentation	4
Manufacturer's certificates	4
Manufacturer address	4
Extended order code	4
Safety instructions: General	5
Safety instructions: Special conditions	5
Safety instructions: Installation	6
Temperature tables	7
Connection data	7

Associated documentation	This document is an integral part of the following Operating Instructions: BA00380P/00										
Supplementary documentation	Explosion-protection brochure: CP00021Z/11 The Explosion-protection brochure is available: <ul style="list-style-type: none"> ■ 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	NEPSI Declaration of Conformity Certificate number: GYJ19.1179 Affixing the certificate number certifies conformity with the following standards (depending on the device version): <ul style="list-style-type: none"> ■ GB3836.1-2010 ■ GB3836.4-2010 										
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 <table border="0" style="margin-left: 40px;"> <tr> <td style="text-align: center;">FMX21</td> <td style="text-align: center;">-</td> <td style="text-align: center;">*****</td> <td style="text-align: center;">+</td> <td style="text-align: center;">A*B*C*D*E*F*G*..</td> </tr> <tr> <td style="text-align: center;"><i>(Device type)</i></td> <td></td> <td style="text-align: center;"><i>(Basic specifications)</i></td> <td></td> <td style="text-align: center;"><i>(Optional specifications)</i></td> </tr> </table> <p>* = Placeholder At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.</p> <p><i>Basic specifications</i></p> <p>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.</p> <p><i>Optional specifications</i></p> <p>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).</p> <p>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.</p>	FMX21	-	*****	+	A*B*C*D*E*F*G*..	<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>
FMX21	-	*****	+	A*B*C*D*E*F*G*..							
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>							

Extended order code: Waterpilot

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

FMX21

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FMX21	NA	NEPSI Ex ia IIC T4...T6 Gb

Position 4 (Probe Tube)		
Selected option		Description
FMX21	1	316L, d=22mm/0.87in
	2	316L, d=42mm/1.66in, flush mount
	5	PPS/Polyolefin>316L, d=29mm/1.15in, application salt-water

Optional specifications

No options specific to hazardous locations are available.

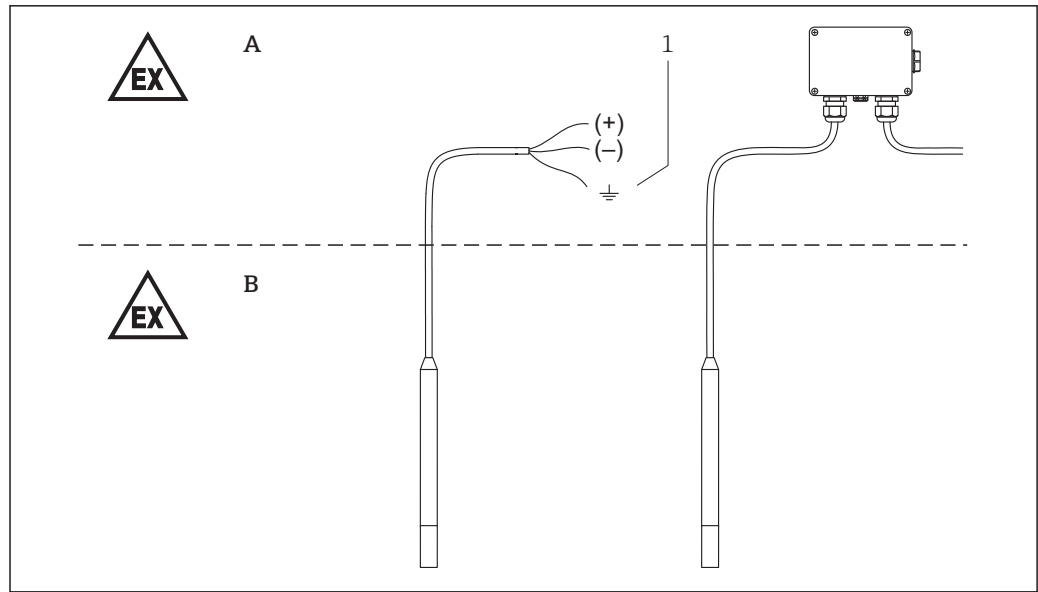
Safety instructions: General

- 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
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
 - GB 50257-2014: "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
 - GB 3836.13-2013: "Explosive atmospheres, Part 13: Equipment repair, overhaul and reclamation".
 - GB/T 3836.15-2017: "Explosive atmospheres, Part 15: Electrical installations design, selection and erection".
 - GB/T 3836.16-2017: "Explosive atmospheres, Part 16: Electrical installations inspection and maintenance".
 - GB/T 3836.18-2017: "Explosive atmospheres, Part 18: Intrinsically safe electrical systems".
- Install the device according to the manufacturer's instructions and national regulations.
- 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 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.
- Avoid sparks caused by impact and friction.
- Anchor equipment if necessary/secure against swinging.
- Do not use in media or environments which may generate electrostatic charges on the plastic surfaces.

Safety instructions: Installation



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1

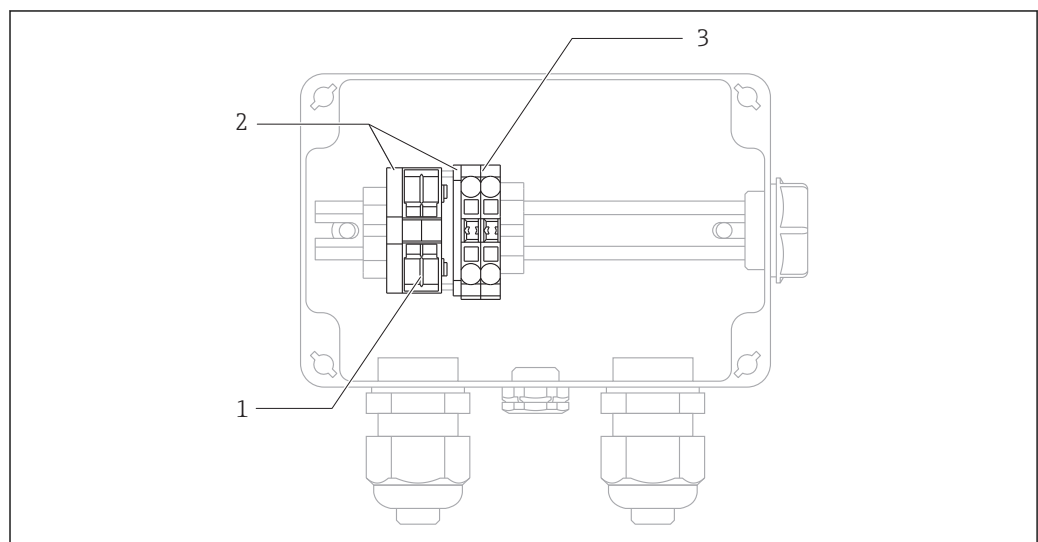
A Zone 1, Zone 2

B Zone 1

1 Only for Basic specification, Position 4 (Probe Tube) = 1, 2

- When the devices are connected to certified intrinsically safe circuits of Category Ex ib, the type of protection changes to Ex ib.
- When interconnecting intrinsically safe circuits, take into account sensor capacitance and lengthdependent cable capacitance and inductance (see "Connection data" chapter).
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V_{rms}.
- When shortening the length of the cable: Ensure that the dielectric strength is maintained for connection wires and earth grounded screen.
- Connect cable screen to earth ground of the installation.

Terminal box



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2

1 Functional earth terminals

2 Isolation plates

3 Signal terminals

- Continuous service temperature of the connecting cable: $\geq +85\text{ °C}$.
- Do not remove or move terminal blocks, isolation plates or fastening elements.
- Do not build in additional components.

Temperature tables

Ambient temperature range	Temperature class	Max. ambient temperature
$-10\text{ °C} \leq T_a \leq +70\text{ °C}$	T4	+70 °C
	T5	+55 °C
	T6	+40 °C

Terminal box

Ambient temperature range	Temperature class
$-40\text{ °C} \leq T_a \leq +80\text{ °C}$	T6

Connection data

Electrical data
$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 133\text{ mA}$ $P_i \leq 1\text{ W}$ Sensor: $C_i \leq 10.3\text{ nF}$, $L_i = 0$ Cable: $C_i \leq 180\text{ pF/m}$, $L_i \leq 1\text{ }\mu\text{H/m}$



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