

# Safety Instructions

## **Gammapilot FMG50**

4-20 mA HART

Ex tb IIIC T85°C Db

Document: XA02017F-A  
Safety instructions for electrical apparatus for explosion-  
hazardous areas →  3



# Gammapilot FMG50

4-20 mA HART

## Table of contents

Associated documentation .....	4
Supplementary documentation .....	4
Manufacturer's certificates .....	4
Manufacturer address .....	4
Extended order code .....	4
Safety instructions: General .....	7
Safety instructions: Special conditions .....	7
Safety instructions: Installation .....	8
Temperature tables .....	9
Connection data .....	9

<b>Associated documentation</b>	<p>This document is an integral part of the following Operating Instructions: BA01966F/00</p>
<b>Supplementary documentation</b>	<p>Explosion-protection brochure: CP00021Z/11 The Explosion-protection brochure is available:</p> <ul style="list-style-type: none"><li>■ In the download area of the Endress+Hauser website: <a href="http://www.endress.com">www.endress.com</a> -&gt; Downloads -&gt; Media Type: Documentation -&gt; Documentation Type: Brochures and catalogs -&gt; Text Search: CP00021Z</li><li>■ On the CD for devices with CD-based documentation</li></ul>
<b>Manufacturer's certificates</b>	<p><b>Certificate of Conformity</b></p> <p>Certificate number: CML 20JPN1125X</p> <p>Affixing the certificate number certifies conformity with the following standards (depending on the device version):</p> <ul style="list-style-type: none"><li>■ JNIOSH-TR-46-1:2015</li><li>■ JNIOSH-TR-46-9:2018</li></ul>
<b>Manufacturer address</b>	<p>Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.</p>
<b>Extended order code</b>	<p>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.</p>

## Structure of the extended order code

FMG50	–	*****	+	A*B*C*D*E*F*G*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = 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: Gammapilot



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*

FMG50

*Basic specifications*

Position 1, 2 (Approval)		
Selected option	Description	
FMG50	JS	JPN Ex tb IIIC T85°C Db

Position 6 (Housing, Material)		
Selected option	Description	
FMG50	J	Dual compartment; Alu, coated
	K	Dual compartment; 316L

Position 7 (Electrical Connection)		
Selected option	Description	
FMG50	B	Gland M20, brass nickel plated
	C	Gland M20, 316L
	F	Thread M20
	G	Thread G1/2
	H	Thread NPT1/2

Position 8 (Application)		
Selected option	Description	
FMG50	A	Ambient temperature -40...60°C/ -40...140°F (PVT)
	B	Ambient temperature -20...80°C/ -4...176°F (PVT HT)
	C	Ambient temperature -40...80°C/ -40...176°F (NaI)

Position 9 (Sensor Length, Material)		
Selected option	Description	
FMG50	A, B, C	..... mm; NaI crystal
	G, H, I, J, K, L, M, N	..... mm; PVT

*Optional specifications*

No options specific to hazardous locations are available.

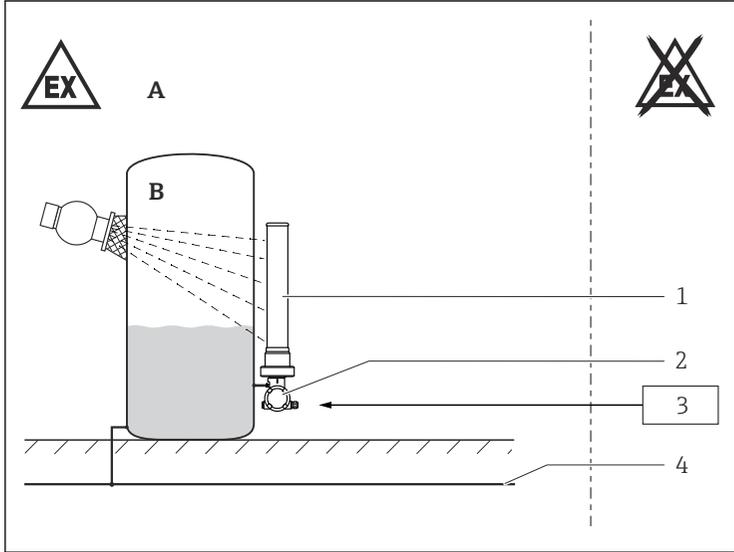
**Safety  
instructions:  
General**

- 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.
- 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.
  - Do not install in the vicinity of processes generating strong electrostatic charges.

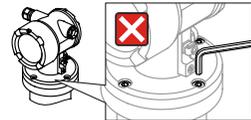
## Safety instructions: Installation



A0041167

- A Zone 21, Zone 22  
 B Zone 20, Zone 21, Zone 22  
 1 Detector pipe  
 2 Housing  
 3 Power supply  
 4 Local potential equalization

- After aligning (rotating) the housing, retighten the fixing screw.
- The safety screws at the pipe housing must not be loosened:



A0041226

- Do not open in a potentially explosive dust atmosphere.
- 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)" (ingress protection of at least IP65). Lay connecting cable and secure.
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing clamp on the cover.
- Continuous service temperature of the connecting cable:  $\geq T_a + 20 \text{ K}$ .

## Potential equalization

Integrate the device into the local potential equalization.

## Temperature tables

*Basic specification, Position 8 (Application) = A*

Ingress protection of housing	Max. surface temperature with dust accumulation	Ambient temperature $T_a$ (ambient)
IP66/68	+85 °C	-40 °C ≤ $T_a$ ≤ +60 °C

*Basic specification, Position 8 (Application) = B*

Ingress protection of housing	Max. surface temperature with dust accumulation	Ambient temperature $T_a$ (ambient)
IP66/68	+85 °C	-20 °C ≤ $T_a$ ≤ +80 °C

*Basic specification, Position 8 (Application) = C*

Ingress protection of housing	Max. surface temperature with dust accumulation	Ambient temperature $T_a$ (ambient)
IP66/68	+85 °C	-40 °C ≤ $T_a$ ≤ +80 °C

## Connection data

Power supply
$U \leq 35 V_{DC}$ $P \leq 1 W$

## Cable entry parameters

### Ex tb IIIC

Cable gland: *Basic specification, Position 7 (Electrical Connection) = B*

*mandatory for Position 6 (Housing; Material) = J*

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	$\varnothing 8$ to 10.5 mm <sup>1)</sup> $(\varnothing 6.5$ to 13 mm) <sup>2)</sup>	Ms, nickel-plated	Silicone	EPDM ( $\varnothing 17 \times 2$ )

- 1) Standard
- 2) Separate clamping inserts available

Cable gland: *Basic specification, Position 7 (Electrical Connection) = C<sup>1)</sup>*

*preferably for Position 6 (Housing; Material) = J and  
possible for Position 6 (Housing; Material) = K*

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	ø 7 to 12 mm	1.4404	NBR	EPDM (ø 17x2)



- The tightening torque refers to cable glands installed by the manufacturer:
  - Recommended torque to connect the cable gland into the housing: 3.75 Nm
  - Recommended torque to tighten the cable into the cable gland: 3.5 Nm
  - Maximum torque to tighten the cable into the cable gland: 10 Nm
  - This value may be different depending on the type of cable. However, the maximum value must not be exceeded.
- Only suitable for fixed installation. The operator must pay attention to a suitable strain relief of the cable.
- To maintain the ingress protection of the housing: Install the housing cover, cable glands and blind plugs correctly.

1) The cable glands are suitable for a low risk of mechanical danger (4 Joule) and must be mounted in a protected position if larger impact energy levels are expected.





71503754

[www.addresses.endress.com](http://www.addresses.endress.com)

---