

# Safety Instructions

## Gammapilot FMG50

4-20 mA HART

1Ex d IIC T6...T1 Gb X

Ex tb IIIC T85°C Db X





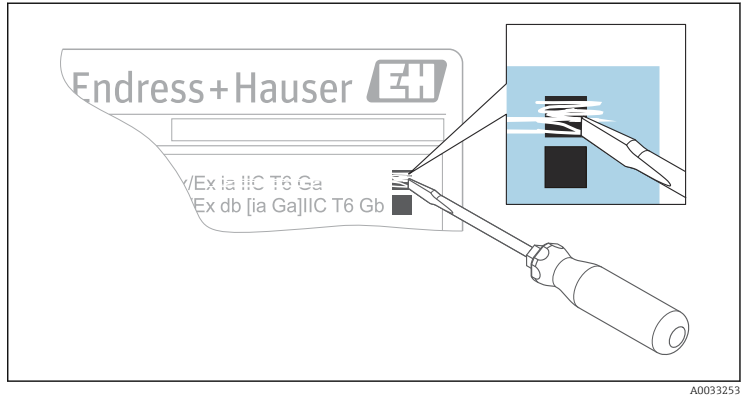
# Gammapilot FMG50

4-20 mA HART

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|   |   |
|---|---|
| <b>Associated documentation</b>             | This document is an integral part of the following Operating Instructions:<br>BA01966F/00   |
| <b>Supplementary documentation</b>          | Explosion-protection brochure: CP00021Z/11<br>The Explosion-protection brochure is available: <ul style="list-style-type: none"><li>■ In the download area of the Endress+Hauser website:<br/><a href="http://www.endress.com">www.endress.com</a> -&gt; Downloads -&gt; Brochures and Catalogs -&gt; Text Search: CP00021Z</li><li>■ On the CD for devices with CD-based documentation</li></ul>   |
| <b>General notes:<br/>Combined approval</b> | The device is suitable for installation with explosion protection "Flameproof enclosure Ex d" or "Equipment dust ignition protection by enclosure Ex t". <ul style="list-style-type: none"><li>■ Before initial commissioning, specify the type of protection.</li><li>■ It is not permitted to change the type of protection after initial commissioning as this can jeopardize the explosion protection.</li></ul> For aluminum housings:<br>Void out the explosion protection that is not used on the nameplate.<br>For stainless steel housings:<br>Using a striking tool, mark the explosion protection used, or void out the explosion protection that is not used. |



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**i** Depending on the type of protection used: Observe the safety instructions for installation with explosion protection "Flameproof enclosure Ex d" or "Equipment dust ignition protection by enclosure Ex t".

The device is designed for operation in explosive gas or explosive dust atmosphere. In the event of potentially explosive gas-air and dust-air mixtures occurring simultaneously: Suitability requires further assessment.

## Manufacturer's certificates

### Certificate of Conformity TP TC 012/2011

Inspection authority:  
LLC NANIO CCVE (ООО «НАИО ЦСВЭ»)

Certificate number:  
EAЭC RU C-DE.AA87.B.00675/21

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 60079-1-2011
- GOST IEC 60079-31-2013

## 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

|                      |   |                               |   |                                  |
|----------------------|---|-------------------------------|---|----------------------------------|
| 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                    | G3 | EAC 1Ex d IIC T6...T1 Gb X<br>EAC Ex tb IIIC T85°C Db X |

| 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                              | F | Thread M20    |
|                                    | 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,<br>J, K, L,<br>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.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.

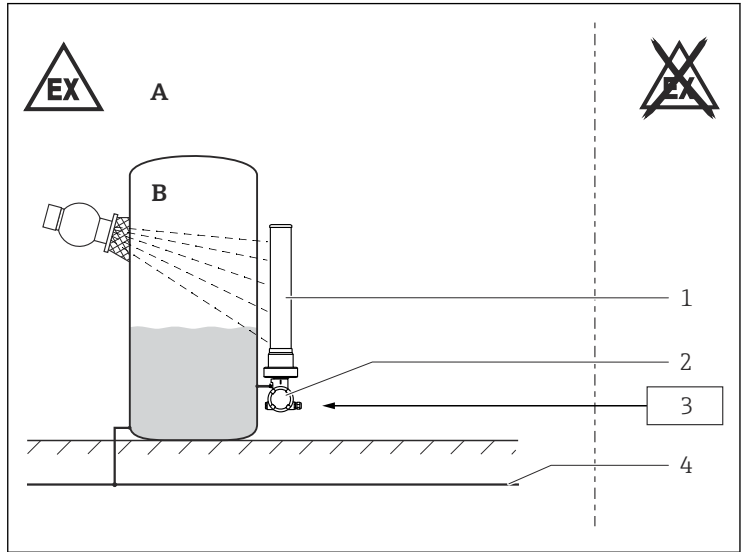
**Safety  
instructions:  
Special conditions**

- To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
- In the event of additional or alternative special varnishing on the housing or other metal parts or for adhesive plates:
  - Observe the danger of electrostatic charging and discharge.
  - Do not install in the vicinity of processes generating strong electrostatic charges.



1Ex d IIC T6...T1 Gb X

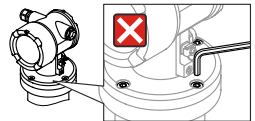
Safety instructions:  
Installation



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- A Zone 1, Zone 2
- B Zone 0, Zone 1, Zone 2
- 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:



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- In potentially explosive atmospheres: Do not open the connection compartment cover and the electronics compartment cover when energized.
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing clamp on the cover.
- Connect the device:
  - Using suitable cable and wire entries of protection type "Flameproof Enclosure (Ex d)".
  - Using piping systems of protection type "Flameproof Enclosure (Ex d)".
- When connecting through a conduit entry approved for this purpose, mount the associated sealing unit directly at the housing.
- Continuous service temperature of the connecting cable:  $\geq T_a + 20 \text{ K}$ .
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation.
- Only use certified cable entries or sealing plugs. The metal sealing plugs supplied meet this requirement.
- Only use genuine spare parts from Endress+Hauser which are specified for the device.

### Potential equalization

Integrate the device into the local potential equalization.

### Safety instructions: Ex d joints

- If required or if in doubt: ask manufacturer for specifications.
- Flameproof joints are not intended to be repaired.

### Temperature tables

*Basic specification, Position B = A*

| Temperature class | Ambient temperature $T_a$ (ambient)           |
|-------------------|---|
| T6...T1           | $-40 \text{ °C} \leq T_a \leq +60 \text{ °C}$ |

*Basic specification, Position B = B*

| Temperature class | Ambient temperature $T_a$ (ambient)           |
|-------------------|---|
| T6                | $-20 \text{ °C} \leq T_a \leq +70 \text{ °C}$ |
| T5...T1           | $-20 \text{ °C} \leq T_a \leq +75 \text{ °C}$ |

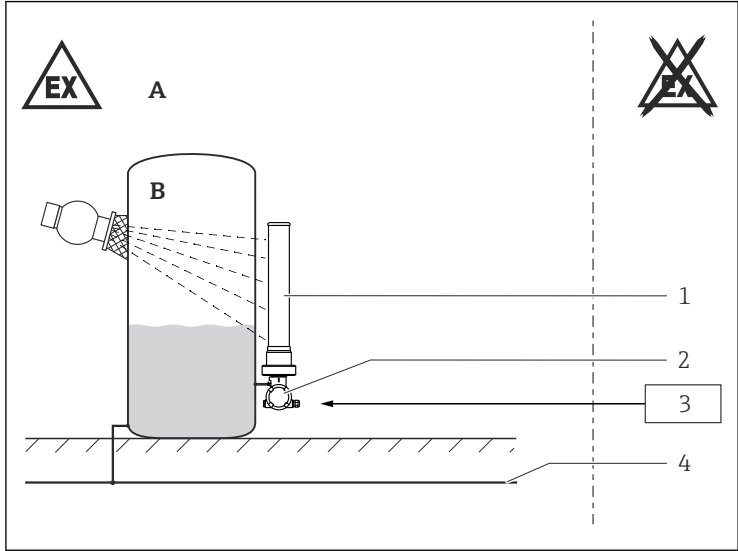
*Basic specification, Position 8 = C*

| Temperature class | Ambient temperature $T_a$ (ambient)         |
|-------------------|---|
| T6                | $-40\text{ °C} \leq T_a \leq +70\text{ °C}$ |
| T5...T1           | $-40\text{ °C} \leq T_a \leq +75\text{ °C}$ |

**Connection data**

| Power supply                                     |
|--|
| $U \leq 35\text{ V}_{DC}$<br>$P \leq 1\text{ W}$ |

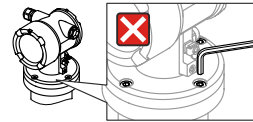
## Ex tb IIIC T85°C Db X

Safety  
instructions:  
Installation

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- 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:



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- Do not open in a potentially explosive dust atmosphere.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection. The plastic transport sealing plug does not meet this requirement and must therefore be replaced during installation.
- 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 = A*

| Ingress protection of housing | Max. surface temperature with dust accumulation | Ambient temperature $T_a$ (ambient)           |
|-------------------------------|---|---|
| IP66/68                       | +85 °C  | $-40 \text{ °C} \leq T_a \leq +60 \text{ °C}$ |

*Basic specification, Position 8 = B*

| Ingress protection of housing | Max. surface temperature with dust accumulation | Ambient temperature $T_a$ (ambient)           |
|-------------------------------|---|---|
| IP66/68                       | +85 °C  | $-20 \text{ °C} \leq T_a \leq +80 \text{ °C}$ |

*Basic specification, Position 8 = C*

| Ingress protection of housing | Max. surface temperature with dust accumulation | Ambient temperature $T_a$ (ambient)           |
|-------------------------------|---|---|
| IP66/68                       | +85 °C  | $-40 \text{ °C} \leq T_a \leq +80 \text{ °C}$ |

## Connection data

| Power supply  |
|---|
| $U \leq 35 \text{ V}_{\text{DC}}$<br>$P \leq 1 \text{ W}$ |







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

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