

# Safety Instructions

## Gammapilot FMG50

ATEX, IECEx: Ex db IIC T6 Gb  
Ex tb IIIC T85°C Db





# Gammapilot FMG50

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**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](http://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:

BA01966F

**Supplementary documentation**

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:  
[www.endress.com/Downloads](http://www.endress.com/Downloads)

**General notes:  
Combined approval**

The device is suitable for installation with explosion protection "Flameproof enclosure Ex db" or "Equipment dust ignition protection by enclosure Ex t".

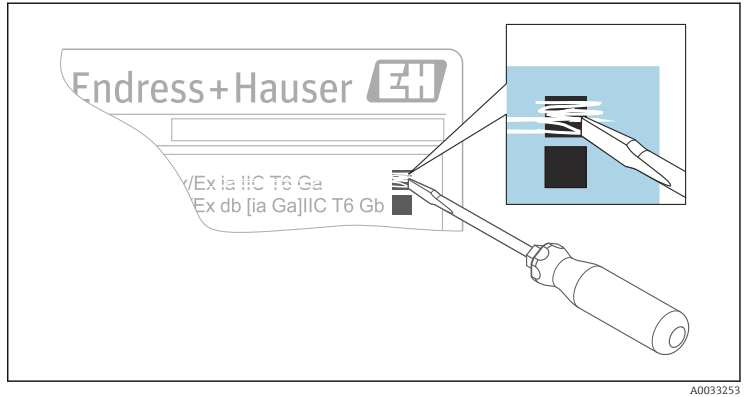
- Before initial commissioning, specify the type of protection.
- It is not permitted to change the type of protection after initial commissioning as this can jeopardize the explosion protection.

For aluminum enclosures:

Void out the explosion protection that is not used on the nameplate.

For stainless steel enclosures:

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 db" 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.

## Certificates and declarations

### EU Declaration of Conformity

Declaration Number:

EU\_01186

The EU Declaration of Conformity is available on the Internet:

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

### EU type-examination certificate

Certificate number:

EPS 18 ATEX 1 194 X

List of applied standards: See EU Declaration of Conformity.

### IEC Declaration of Conformity

Certificate number:

IECEX EPS 18.0098X

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

- IEC 60079-0 : 2017
- IEC 60079-1 : 2014
- IEC 60079-31 : 2022

**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**

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	B3	ATEX II 2 G Ex db IIC T6...T1 Gb ATEX II 2 D Ex tb IIIC T85°C Db IECEX Ex db IIC T6...T1 Gb IECEX Ex tb IIIC T85°C Db

Position 3, 4 (Output)		
Selected option		Description
FMG50	BA	2-wire, 4-20 mA HART
	DA	2-wire, PROFIBUS PA
	FA	2-wire, PROFINET, 10Mbit/s (APL)

Position 5 (Display, Operation)		
Selected option		Description
FMG50	A	W/o; via communication
	C	Segment display w/o buttons
	D	Segment display w/o buttons + Bluetooth
	E	Graphic display
	F	Graphic display + Bluetooth
	N	Prepared for display FHX50B + Thread NPT1/2
	O	Prepared for display FHX50B + Thread M20

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 (Nal)

### 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.

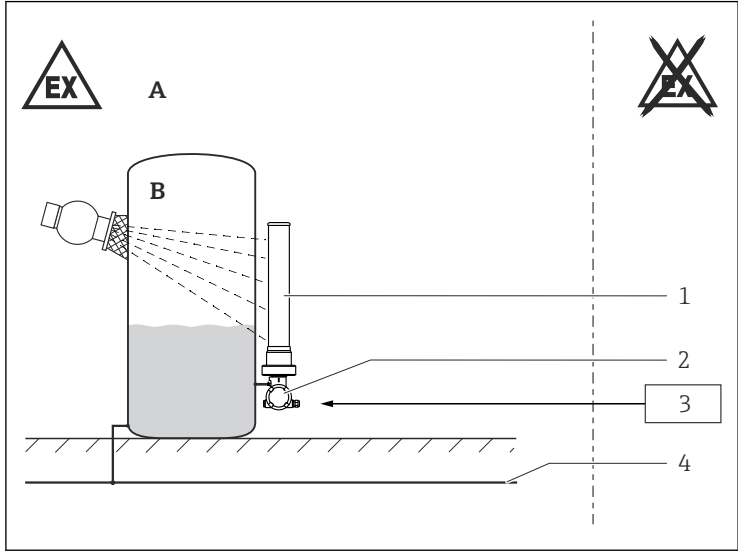


- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. enclosure, sensor element, special varnishing, attached additional plates, ...)
  - Of isolated capacities (e.g. isolated metallic plates)
- Alterations 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:  
Specific  
conditions of use**

- To avoid electrostatic charging: Do not rub surfaces with a dry cloth.
- In the event of additional or alternative special varnishing on the enclosure 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.

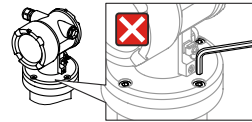
## Ex db IIC T6...T1 Gb

Safety  
instructions:  
Installation

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- A Zone 1, Zone 2  
 B Zone 0, Zone 1, Zone 2  
 1 Detector pipe  
 2 Enclosure  
 3 Power supply  
 4 Local potential equalization

- After aligning (rotating) the enclosure, retighten the fixing screw.
- The safety screws at the pipe enclosure 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 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.
- 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.

*Basic specification, Position 5 = N*

Observe the requirements according to IEC/EN 60079-14 for conduit systems and the wiring- and installation instructions of the suitable Safety Instructions (XA). In addition, observe national regulations and standards for conduit systems.

### 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 3, 4 = BA

with Basic specification, Position 8	Temperature class	Ambient temperature $T_a$ (ambient)
= A	T6...T1	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
= B	T6	$-20\text{ °C} \leq T_a \leq +70\text{ °C}$
	T5...T1	$-20\text{ °C} \leq T_a \leq +75\text{ °C}$
= C	T6	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T5...T1	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$

### Basic specification, Position 3, 4 = DA

with Basic specification, Position 8	Temperature class	Ambient temperature $T_a$ (ambient)
= A	T6...T1	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
= B	T6	$-20\text{ °C} \leq T_a \leq +70\text{ °C}$
	T5...T1	$-20\text{ °C} \leq T_a \leq +75\text{ °C}$
= C	T6	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T5...T1	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$

### Basic specification, Position 3, 4 = FA

with Basic specification, Position 8	Temperature class	Ambient temperature $T_a$ (ambient)
= A	T6...T1	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$
= B	T6	$-20\text{ °C} \leq T_a \leq +75\text{ °C}$
	T5...T1	$-20\text{ °C} \leq T_a \leq +80\text{ °C}$
= C	T6	$-40\text{ °C} \leq T_a \leq +75\text{ °C}$
	T5...T1	$-40\text{ °C} \leq T_a \leq +80\text{ °C}$

## Connection data

### Basic specification, Position 3, 4 = BA

Power supply
$U \leq 35\text{ V}_{DC}$ $P \leq 1\text{ W}$

*Basic specification, Position 3, 4 = DA*

Power supply
U ≤ 32 V <sub>DC</sub> P ≤ 0.7 W

*Basic specification, Position 3, 4 = FA*

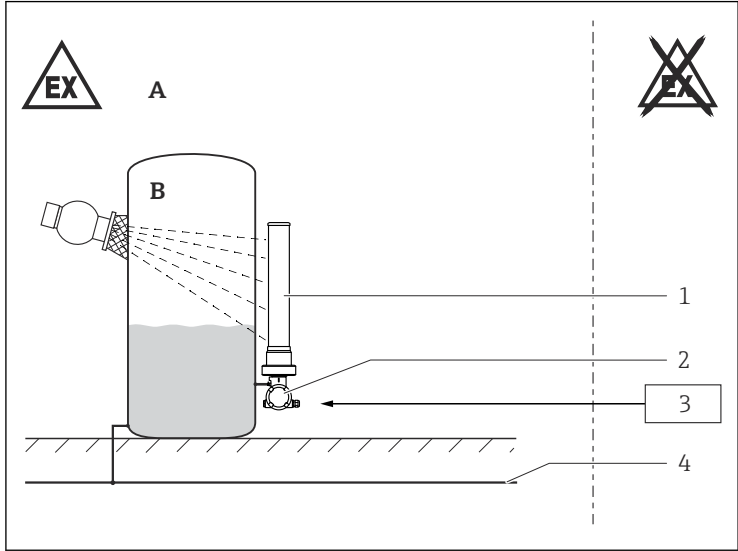
Power supply
U ≤ 15 V <sub>DC</sub> P ≤ 0.7 W

In connection with: *Basic specification, Position 5 = N, O*  
Installation according to the specifications of FHX50B.



Only the type of protection suitable for the device shall be connected!

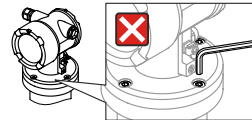
## Ex tb IIIC T85°C Db

Safety  
instructions:  
Installation

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

- After aligning (rotating) the enclosure, retighten the fixing screw.
- The safety screws at the pipe enclosure 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 protection type of enclosure 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:  $\geq T_a + 20 \text{ K}$ .

*Basic specification, Position 5 = N*

Observe the requirements according to IEC/EN 60079-14 for conduit systems and the wiring- and installation instructions of the suitable Safety Instructions (XA). In addition, observe national regulations and standards for conduit systems.

### Potential equalization

Integrate the device into the local potential equalization.

### Temperature tables

with Basic specification, Position 8	Max. surface temperature with dust accumulation	Ambient temperature $T_a$ (ambient)
= A	T85 °C	$-40 \text{ °C} \leq T_a \leq +60 \text{ °C}$
= B	T85 °C	$-20 \text{ °C} \leq T_a \leq +80 \text{ °C}$
= C	T85 °C	$-40 \text{ °C} \leq T_a \leq +80 \text{ °C}$

Specific conditions of use:

The surface temperature for equipment protection level (EPL) Db is:  $T_L 85 \text{ °C}$  (with dust accumulation  $T_L$ )



$T_L$  marking:

The assigned surface temperature without dust layer is the same.

### Connection data

*Basic specification, Position 3, 4 = BA*

Power supply
$U \leq 35 \text{ V}_{DC}$ $P \leq 1 \text{ W}$

*Basic specification, Position 3, 4 = DA*

Power supply
$U \leq 32 \text{ V}_{DC}$ $P \leq 0.7 \text{ W}$

*Basic specification, Position 3, 4 = FA*

Power supply
$U \leq 15 V_{DC}$ $P \leq 0.7 W$

In connection with: *Basic specification, Position 5 = N, O*  
Installation according to the specifications of FHX50B.



Only the type of protection suitable for the device shall be connected!











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