

# Safety Instructions

## Micropilot FMR20B

ATEX, IECEx: Ex ia IIC T4...T1 Ga  
Ex ia IIIB T135 °C Da





# Micropilot FMR20B

## Table of contents

About this document .....	4
Associated documentation .....	4
Supplementary documentation .....	4
Certificates and declarations .....	4
Manufacturer address .....	5
Other standards .....	5
Extended order code .....	5
Safety instructions: General .....	7
Safety instructions: Specific conditions of use .....	7
Safety instructions: Installation .....	8
Temperature tables .....	9
Connection data .....	10

**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:

BA02364F

**Supplementary documentation**

Explosion protection brochure: CP00021Z

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

**Certificates and declarations****EU Declaration of Conformity**

Declaration Number:  
EU\_01230

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:  
FM25ATEX0018X

List of applied standards: See EU Declaration of Conformity.

**IEC Declaration of Conformity**

Certificate number:  
IECEX FMG 25.0025X

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

- IEC 60079-0 : 2017
- IEC 60079-11 : 2023

<b>Manufacturer address</b>	Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.
<b>Other standards</b>	Among other things, the following standards shall be observed in their current version for proper installation: <ul style="list-style-type: none"> <li>■ IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"</li> <li>■ EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"</li> </ul>
<b>Extended order code</b>	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

FMR20B	-	*****	+	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: Micropilot



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*

FMR20B

#### *Basic specifications*

Position 1, 2 (Approval)		
Selected option		Description
FMR20B	BA	ATEX II 1 G Ex ia IIC T4...T1 Ga IECEX Ex ia IIC T4...T1 Ga
	BK	ATEX II 1 D Ex ia IIIB T135 °C Da IECEX Ex ia IIIB T135 °C Da

Position 3, 4 (Output)		
Selected option		Description
FMR20B	BA	2-wire, 4-20 mA HART

#### *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.
- Only use the device in media to which the wetted materials have sufficient durability.
- 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.

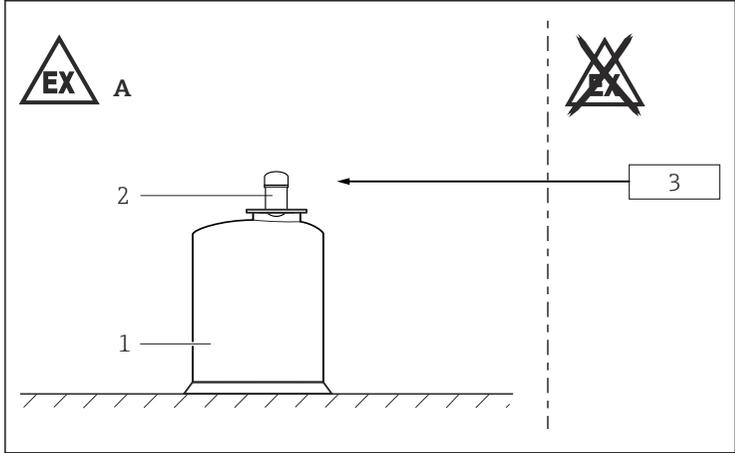
**Safety instructions:**  
**Specific conditions of use**

- 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 ( $\leq 0.5$  m) generating strong electrostatic charges.
- Avoid sparks caused by impact and friction.
- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- The process connection of the device must be installed in such a way that guarantees a sufficiently tight joint (IP66/67).
- It is essential for the device to use a power supply that is galvanically isolated from earth.
- When using an intrinsically safe barrier, the barrier must be connected to the same earth as the device.

**Ex ia IIIB**

The device corresponds to a low risk of mechanical danger.

## Safety instructions: Installation



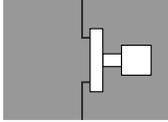
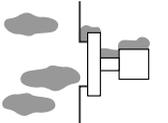
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- A** Zone 0, Zone 20  
**1** Tank; Zone 0, Zone 20  
**2** Micropilot FMR20B  
**3** Associated intrinsically safe power supply units

- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- Observe the maximum process conditions according to the manufacturer's Operating Instructions.
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.

*Permitted ambient conditions***Ex ia IIIB T135 °C Da**

Process Zone 20		Enclosure Zone 20
Continuous dust submersion		Continuous dust submersion
Continuous explosive dust atmosphere and deposits		Continuous explosive dust atmosphere and deposits

**Intrinsic safety**

The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least  $500 V_{rms}$ .

**Temperature tables****Ex ia IIC T4...T1 Ga**

- The specified ambient and process temperature ranges exclusively refer to the explosion protection and must not be exceeded. Operationally permitted ambient temperature ranges can be restricted depending on the version: See Operating Instructions.
- Do not exceed the max. ambient temperature at the enclosure.

**Ambient and process temperature range**

$-40\text{ °C} \leq T_p \leq +70\text{ °C}$

**Ex ia IIIB T135 °C Da**

- The specified surface temperature takes into account all direct heat influences from process heat and self-heating at the enclosure.
- The specified ambient and process temperature ranges exclusively refer to the explosion protection and must not be exceeded. Operationally permitted ambient temperature ranges can be restricted depending on the version: See Operating Instructions.
- Do not exceed the max. ambient temperature at the enclosure.

For detailed information see Technical Information.



Protection type of enclosure: IP66/68

Maximum surface temperature
135 °C

Input parameters			Maximum permitted ambient or process temperature
650 mW	28.9 V	22.5 mA	-40 to 48 °C
594 mW	26.4 V	22.5 mA	-40 to 52 °C
540 mW	24.0 V	22.5 mA	-40 to 55 °C

## Connection data

### Ex ia IIC

Power supply
$U_i \leq 30 V_{DC}$ $I_i \leq 100 \text{ mA}$ $P_i \leq 700 \text{ mW}$ $C_i = 18 \text{ nF}$ $L_i = 0$ Cable capacitance $C_c = 200 \text{ pF/m}$ Cable inductance $L_c = 1 \text{ } \mu\text{H/m}$

### Ex ia IIIB

Power supply
$U_i \leq 30 V_{DC}$ $I_i \leq 100 \text{ mA}$ $P_i \leq 650 \text{ mW}$ $C_i = 18 \text{ nF}$ $L_i = 0$ Cable capacitance $C_c = 200 \text{ pF/m}$ Cable inductance $L_c = 1 \text{ } \mu\text{H/m}$





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

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