

# Safety Instructions

## Minicap FTC262

Ex iaD 20 tD A21 IP66 T<sub>200</sub> 108°C T91°C





# Minicap FTC262

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**About this document**

This document has been translated into several languages. Legally determined is solely the English source text.

**Associated documentation**

This document is an integral part of the following Operating Instructions:

TI00287F/00, KA00155F/00

**Supplementary documentation**

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:

- In the download area of the Endress+Hauser website:  
[www.endress.com](http://www.endress.com) -> Downloads -> Brochures and Catalogs -> Text Search: CP00021Z
- On the CD for devices with CD-based documentation

**Manufacturer's certificates****NEPSI Declaration of Conformity**

Certificate number:  
GYJ21.1252

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

- GB 12476.1-2013
- GB 12476.4-2010
- GB 12476.5-2013

**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

FTC262	–	*****	+	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: Minicap



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*

FTC262

*Basic specifications*

Position 1 (Approval)		
Selected option	Description	
FTC262	2	NEPSI Ex iaD 20 tD A21 IP66 T <sub>200</sub> 108°C T91°C

Position 4 (Switch Output)		
Selected option	Description	
FTC262	2	3-wire PNP 10.8-45VDC
	4	Relay 20-253VAC/20-55VDC

Position 5 (Housing, Cable Entry)		
Selected option	Description	
FTC262	H	F34 Alu IP66; thread NPT1/2, NEMA Type 4 Encl.
	I	F34 Alu IP66; thread G1/2, NEMA Type 4 Encl.
	J	F34 Alu IP66; gland M20, NEMA Type 4 Encl.

Position 6 (Additional Option)		
Selected option	Description	
FTC262	1	Basic version
	3	Glass inspection window, aluminium

*Optional specifications*

No options specific to hazardous locations are available.

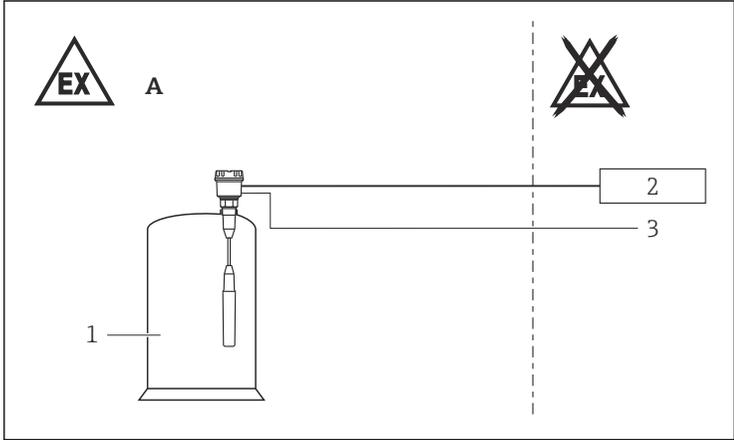
**Safety  
instructions:  
General**

- 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 15577-2018: "Safety regulations for dust explosive prevention and protection". (Only if installed in dust hazardous area.)
- Comply with the installation and safety instructions in the Operating Instructions.
- 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)

**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 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.

**Safety instructions:**  
**Installation**



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- A Zone 21
- 1 Tank; Hazardous area Zone 20
- 2 Power supply or switching unit
- 3 Potential equalization

- The intrinsically safe signal circuit is grounded: For this reason potentials must be equalised along the route of the cable (inside and outside of the explosion hazardous area).
- After mounting and connecting the sensor, check that a degree of protection of at least IP66 has been achieved (screw lid tight, mount cable glands correctly).

**Temperature tables**

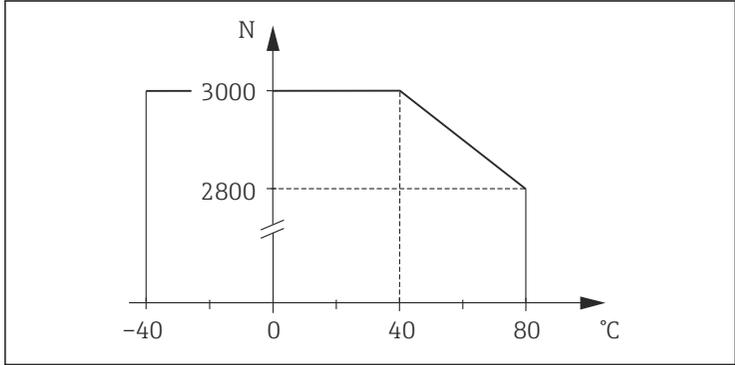
Thermal performance limits	
Temperature of the sensor (Zone 20)	Permissible process temperature -40 to +80 °C
	Maximum surface temperature
	at an ambient temperature of 40 °C 68 °C at an ambient temperature of 80 °C 108 °C
Temperature of the electronics enclosure (Zone 21)	Permissible ambient temperature -40 to +60 °C
	Maximum surface temperature
	at an ambient temperature of 40 °C 71 °C at an ambient temperature of 60 °C 91 °C

Degree of ingress protection	
Sensor (Zone 20)	IP66
Electronics enclosure (Zone 21)	IP66

## Connection data

Electrical performance limits		
<i>Basic specification, Position 4 = 4</i> (AC/DC relay version)	Maximum operating voltage	20 to 253 V <sub>AC</sub> , 50/60 Hz or 20 to 55 V <sub>DC</sub>
	Current consumption	max. 2 W
	Relay circuit	253 V <sub>AC</sub> / 4 A / 1 000 VA or 253 V <sub>DC</sub> / 0.2 A / 50 W or 30 V <sub>DC</sub> / 4 A / 120 W
	Fuse	500 mA
<i>Basic specification, Position 4 = 2</i> (DC PNP version)	Maximum operating voltage	10.8 to 45 V <sub>DC</sub>
	Current consumption	max. 1.5 W
	Switch output (PNP)	
	Current	max. 200 mA
	Switching capacity	9 W

Mechanical performance limits		
On rope	Maximum pull-down forces	
	at room temperature and at -40 °C	3 000 N
	at +80 °C	2 800 N



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### Cable entry: Connection compartment

#### Ex tb

Cable gland: *Basic specification, Position 5 = J*

*preferably*

Thread	Clamping range	Material	Sealing insert	O-ring
M20x1,5	ø 8 to 10.5 mm <sup>1)</sup> (ø 6.5 to 13 mm) <sup>2)</sup>	Ms, nickel-plated	Silicone	EPDM (ø 17x2)

- 1) Standard
- 2) Separate clamping inserts available

*alternatively*

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: 3.5 Nm
  - Maximum: 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.
- 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.
- To maintain the ingress protection of the enclosure: Install the enclosure cover, cable glands and blind plugs correctly.



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