

Safety Instructions

Soliphant T FTM20, FTM21

Ex ta/tb IIIC T135°C Da/Db



Soliphant T FTM20, FTM21

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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:

KA00227F/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 -> 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:
GYJ22.1882X

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

- GB/T 3836.1-2021
- GB/T 3836.31-2021

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

| | | | | |
|--------------------------|---|-----------------------------------|---|--------------------------------------|
| FTM20, FTM21 | - | ***** | + | 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: Soliphant T



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

FTM20, FTM21

Basic specifications

| Position 1 (Approval) | | |
|-----------------------|---|----------------------------------|
| Selected option | | Description |
| FTM2x | N | NEPSI Ex ta/tb IIIC T135°C Da/Db |

| Position 3 (Electronics, Output) | | |
|----------------------------------|---|------------------------------------|
| Selected option | | Description |
| FTM2x | 2 | FEM22; 3-wire PNP 10-45VDC |
| | 4 | FEM24; relay DPDT, 19-253VAC/55VDC |

| Position 4 (Housing, Cable Entry) | | |
|-----------------------------------|---|---------------------------------------|
| Selected option | | Description |
| FTM2x | 5 | F18 Alu IP66/67 NEMA4X; M20 gland |
| | 6 | F18 Alu IP66/67 NEMA4X; NPT3/4 thread |
| | 7 | F18 Alu IP66/67 NEMA4X; G1/2 thread |

Optional specifications

No options specific to hazardous locations are available.

Safety instructions: General

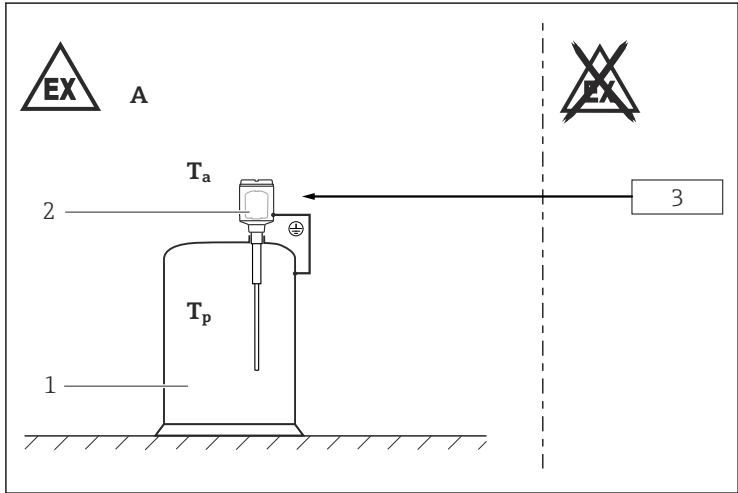
- The device is intended to be used in explosive atmospheres as defined in the scope of IEC 60079-0 or equivalent national standards. If no potentially explosive atmospheres are present or if additional protective measures have been taken: The device may be operated according to the manufacturer's specifications.
- 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/T 3836.13-2021: "Explosive atmospheres, Part 13: Equipment repair, overhaul, reclamation and modification".
 - 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.)
- 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)
- Refer to the temperature tables for the relationship between the permitted ambient temperature for the sensor and/or transmitter, depending on the range of application and the temperature class.
- 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

Permitted ambient temperature range at the electronics enclosure:
→  9, "Temperature tables".

- 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 (≤ 0.5 m) generating strong electrostatic charges.

Safety instructions: Installation



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 1

T_a Ambient temperature

T_p Process temperature

A Zone 21

1 Tank; Zone 20

2 Electronic insert

3 Supply voltage

- The electronics enclosure of the device is suitable for use in Zone 21, while the sensor can be used in Zone 20.
- During installation and operation: Ensure that the ground terminal at the transmitter enclosure is reliably connected to ground.
- Max. heat-up of device surface in Zone 20 under fault conditions: ≤ 5 K (measured with deposited material with a layer >200 mm in thickness).
- Max. heat-up of enclosure surface in Zone 21 under fault conditions and dust layer: ≤ 10 K.
- Support extension tube of the device if a dynamic load is expected.

- Only use certified cable entries suitable for the application. Observe national regulations and standards. Accordingly, the connection terminal does not include any ignition sources.
- 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.
- When operating the transmitter enclosure at an ambient temperature under $-20\text{ }^{\circ}\text{C}$, use appropriate cables and cable entries permitted for this application.
- When connecting through a conduit entry approved for this purpose, mount the associated sealing unit directly at the enclosure.
- Use a process connection seal that meets the materials compatibility and temperature requirements.
- After mounting and connecting the sensor, check that a degree of protection of at least IP65 has been achieved (screw lid tight, mount cable glands correctly).
- Before operation:
 - Screw in the cover all the way.
 - Tighten the securing clamp on the cover.
- Only use cable glands and blind plugs with Ex approval and an ingress protection of IP6X.
- Do not open in an explosive atmosphere.

Accessory high pressure sliding sleeve

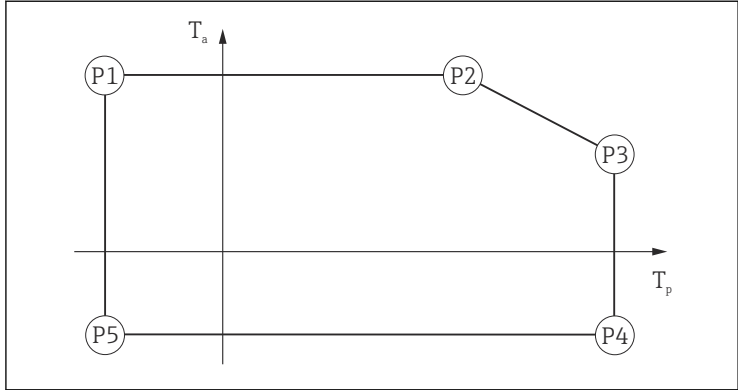
The high pressure sliding sleeve can be used for a continuous setting of the switch point and is suited for zone separation if mounted properly (see Operating Instructions).

Temperature tables

Description notes

Column P1 to P5: Position (temperature value) on the axes of the derating

- T_a : Ambient temperature in $^{\circ}\text{C}$
- T_p : Process temperature in $^{\circ}\text{C}$



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| P1 | | P2 | | P3 | | P4 | | P5 | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| T_p | T_a | T_p | T_a | T_p | T_a | T_p | T_a | T_p | T_a |
| -40 | 70 | 105 | 70 | 125 | 40 | 125 | -40 | -40 | -40 |

Surface temperature

$T = 135\text{ °C}$

Connection data

Cable entry

Ex tb

Cable gland: *Basic specification, Position 4 = 5*

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

- 1) Standard
- 2) Separate clamping inserts available

- 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.

Terminals

| <i>Basic specification, Position 3</i> | Supply voltage | Relay circuit |
|--|--|--|
| 2 | 10 to 45 V _{DC} | - |
| 4 | 19 to 253 V _{AC} or 19 to 55 V _{DC} | 253 V _{AC} / 6 A 1500 VA / cos φ = 1 750 VA / cos φ > 0.7 |



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