

# Safety Instructions

## Solicap M FTI55, FTI56

Ex ia IIIC T\*\* Da

Ex ia IIIC T\*\* Da/Db

Ex ia IIIC T\*\* Da/Dc





# Solicap M FTI55, FTI56

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**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).

To commission the device, please observe the Operating Instructions pertaining to the device:

BA00300F

**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****Certificate of Conformity**

Certificate number:  
CML 23JPN2447

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

- JNIO SH-TR-46-1:2020
- JNIO SH-TR-46-6:2015

**Certificate holder**

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

FTI5x	–	*****	+	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: Solicap M



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*

FTI55

*Basic specifications*

Position 1 (Approval)		
Selected option		Description
FTI55	S	JPN Ex ia IIIC T** Da <sup>1)</sup> JPN Ex ia IIIC T** Da/Db <sup>1)</sup> JPN Ex ia IIIC T** Da/Dc <sup>1)</sup>

1) For detailed information see chapter "Temperature tables", →  11

Position 2 (Inactive Length L3)		
Selected option		Description
FTI55	A	Not selected
	B	Not selected + active build-up protection 125mm/5inch, 316L
	1, 5	..... mm/in, 316L

Position 3 (Active Probe Length L1)		
Selected option		Description
FTI55	A, B, H, K, E, P	..... mm/in, steel
	C, D, M, N	..... mm/in, 316L

Position 4 (Insulation Rod)		
Selected option		Description
FTI55	2, 3	75mm/3in L2, partial insulated PPS, max. 180°C/350°F (Ex max. 150°C/300°F)

Position 8 (Electronics, Output)		
Selected option		Description
FTI55	5	FEI55; 8/16mA, 11-35VDC
	7	FEI57S; 2-wire PFM
	8	FEI58; NAMUR+test button (H-L signal)

Position 9 (Housing)		
Selected option		Description
FTI55	1	F15 316L hygiene IP66/67 NEMA4X
	3	F17 Alu IP66/67 NEMA4X
	4	F13 Alu IP66 NEMA4X + gas-tight probe seal
	5	T13 Alu IP66 NEMA4X + gas-tight probe seal + separate conn. compartment
	6	F27 316L IP66/67 NEMA6P + gas-tight probe seal

Position 11 (Type of probe)		
Selected option		Description
FTI55	1	Compact
	2, 3, 4, 5	..... mm/in L4 cable > separate enclosure

### Optional specifications

No options specific to hazardous locations are available.



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

FTI56

### Basic specifications

Position 1 (Approval)		
Selected option		Description
FTI56	S	JPN Ex ia IIIC T** Da <sup>1)</sup>
		JPN Ex ia IIIC T** Da/Db <sup>1)</sup>
		JPN Ex ia IIIC T** Da/Dc <sup>1)</sup>

1) For detailed information see chapter "Temperature tables", → 11

Position 2 (Inactive Length L3)		
Selected option		Description
FTI56	A	Not selected
	1, 5	..... mm/in, 316L

Position 3 (Active Probe Length L1; Tension Weight)		
Selected option		Description
FTI56	A, B, H, K	..... mm/in, ..... mm/" rope 316; 316L
	C, D, M, N	..... mm/in, ..... mm/" rope steel zinc coated; steel

Position 4 (Insulation Rope)		
Selected option		Description
FTI56	2	500mm L2, partial insulated, PTFE, max. 180°C/350°F (Ex max. 150°C/300°F)

Position 8 (Electronics, Output)		
Selected option		Description
FTI56	5	FEI55; 8/16mA, 11-35VDC
	7	FEI57S; 2-wire PFM
	8	FEI58; NAMUR+test button (H-L signal)

Position 9 (Housing)		
Selected option		Description
FTI56	1	F15 316L hygiene IP66/67 NEMA4X
	3	F17 Alu IP66/67 NEMA4X
	4	F13 Alu IP66 NEMA4X + gas-tight probe seal
	5	T13 Alu IP66 NEMA4X + gas-tight probe seal + separate conn. compartment
	6	F27 316L IP66/67 NEMA6P + gas-tight probe seal



Position 11 (Type of probe)		
Selected option		Description
FTI56	1	Compact
	2, 3, 4, 5	..... mm/in L4 cable > separate enclosure

### 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
- 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)

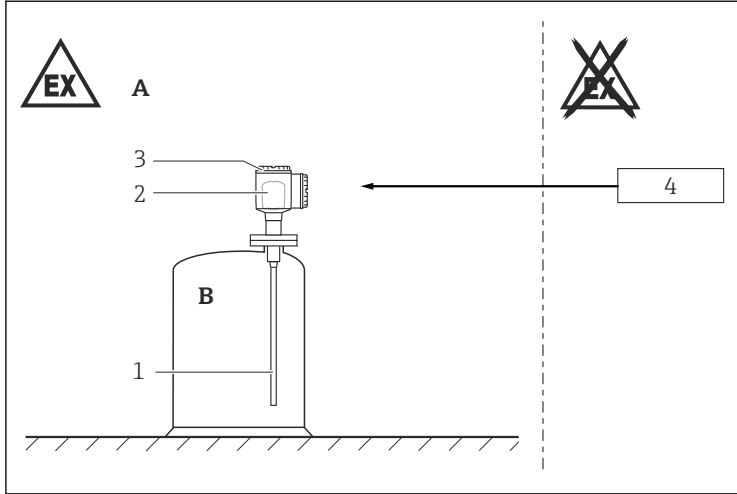
### Safety instructions: Specific conditions of use

Permitted ambient temperature range at the electronics enclosure, permitted process temperature:  
 $-50\text{ °C} \leq T_a \leq +70\text{ °C}$

- Observe the information in the temperature tables.
- In the event of additional or alternative special varnishing on the enclosure or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

*Basic specification, Position 9 = 4, 5 and covers with glass window*  
 Restriction to  $-40\text{ °C} \leq T_a \leq +70\text{ °C}$ .

**Safety  
instructions:  
Installation**



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- A Supply circuit "Intrinsically safe Ex ia": Zone 20, Zone 21, Zone 22  
 B Zone 20  
 1 Rope or rod probes  
 2 Electronic insert  
 3 Enclosure  
 4 Supply circuit "Intrinsically safe Ex ia": Certified associated apparatus

- Do not open in a potentially explosive dust atmosphere.
- Observe the maximum process conditions according to the manufacturer's Operating Instructions.
- At high medium temperatures, note flange pressure load capacity as a factor of temperature.
- To maintain the ingress protection of the enclosure:
  - Screw the cover tight.
  - Mount the cable entry correctly.
- After aligning (rotating) the enclosure, retighten the fixing screw (see Operating Instructions).
- Connect the device using suitable cable and wire entries of protection type "Intrinsic safety (Ex i)".
- Install the device so that an ingress protection of at least IP65 is achieved.
- Lay connecting cable and secure.
- Seal unused entry glands with approved sealing plugs that correspond to the type of protection.
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- Mechanically fix probes which are more than 3 m (e.g. using guy ropes).

*Basic specification, Position 9 = 1*

Before operation:

- Screw in the cover all the way.
- Tighten the securing clamp on the cover.



*Basic specification, Position 9 = 3, 4, 5, 6*

Tighten the cover with torque 12 Nm.

### Intrinsic safety

Observe the pertinent guidelines when interconnecting intrinsically safe circuits.

### Potential equalization

Install potential equalization between the certified associated apparatus (non-hazardous area, ) and the device (explosion-hazardous area, ) .

### Safety instructions: Zone 20

- In the event of potentially explosive dust/air mixtures, only operate the device under atmospheric conditions.
  - Temperature: -20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with normal oxygen content, usually 21 % (V/V)
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.

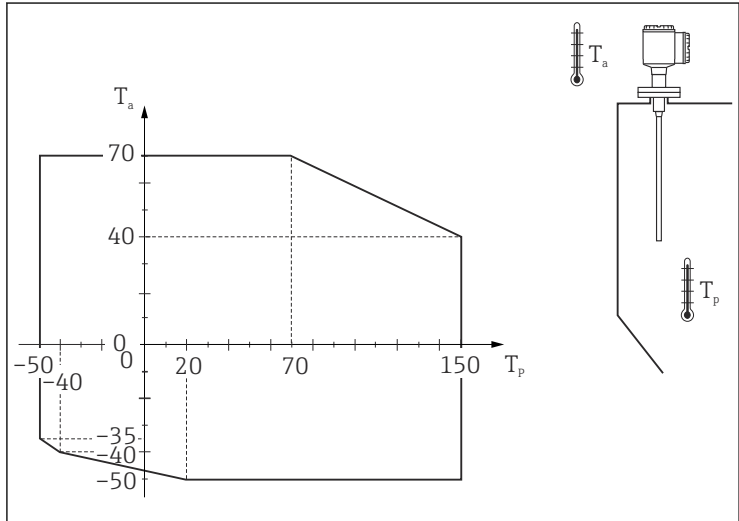
### Temperature tables

	Probe and electronics enclosure in Zone 20
	Connection to certified intrinsically safe power circuits
Max. surface temperature at an ambient temperature of 70 °C	80 °C  Deposited material with a layer of 200 mm T <sub>200</sub> 130 °C

	Probe in Zone 20	Electronics enclosure in Zone 21, Zone 22	
		Connection to certified intrinsically safe power circuits	Connection to non-intrinsically safe power circuits
Max. surface temperature at an ambient temperature of 70 °C	70 °C	80 °C	90 °C
The compact version can also be used for process temperatures between +70 to +150 °C if it can also be ensured that the ambient temperature at the electronics enclosure does not exceed the values as indicated in the temperature graphic.	150 °C	40 °C	40 °C

**Compact version**

Rod and rope version, partially insulated

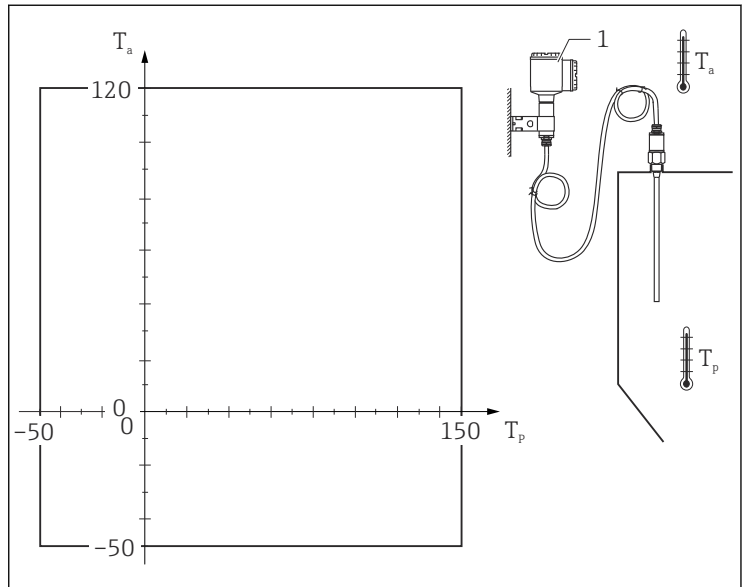


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$T_a$  Ambient temperature in °C

$T_p$  Process temperature in °C

## Version with separate enclosure



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$T_a$  Ambient temperature in °C

$T_p$  Process temperature in °C

1 Temperature at the separate enclosure:  $-40\text{ °C} \leq T_a \leq +70\text{ °C}$

## Connection data

Basic specification, Position 8	Electrical data
5	$U_i \leq 35\text{ V}$ $I_i \leq 100\text{ mA}$ $P_i \leq 1\text{ W}$ $C_i \leq 2.4\text{ nF}$ $L_i \leq 0$
7	$U_i \leq 16.1\text{ V}$ $I_i \leq 100\text{ mA}$ $P_i \leq 1\text{ W}$ $C_i \leq 2.4\text{ nF}$ $L_i \leq 0$
8	$U_i \leq 18\text{ V}$ $I_i \leq 52\text{ mA}$ $P_i \leq 170\text{ mW}$ $C_i/L_i \leq 0$







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