

Safety Instructions

Liquiphant FTL41

Control Drawing
Class I, Div. 2, Groups A-D



Liquiphant FTL41

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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 (enter the serial number from the nameplate). To commission the device, please observe the Operating Instructions pertaining to the device: BA01893F
Certificates and declarations	CSA C/US certificate Certificate number: CSA19CA80022351
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 FTL41 – ***** + A*B*C*D*E*F*G*.. (Device type) (Basic specifications) (Optional specifications) * = Placeholder At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders. <i>Basic specifications</i> 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: Liquiphant



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.

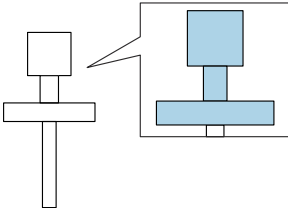
Device type

FTL41

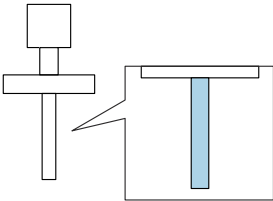
Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FTL41	CC	CSA C/US Cl. I, Div. 2, Gr. A-D

Position 3, 4 (Output)		
Selected option		Description
FTL41	A2	FEL42, 3-wire PNP 10 to 55 V _{DC}
	A4	FEL44, relay DPDT 19 to 253 V _{AC} /19 to 55 V _{DC} contact 253 V/6 A
	A8	FEL48, 2-wire NAMUR

Position 6 (Housing, Material)		
Selected option		Description
FTL41	B	Single compartment; Alu, coated
 Shown in the temperature tables exemplary as follows: 		

Position 7 (Electrical Connection)		
Selected option		Description
FTL41	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P

Position 10 (Type of Probe)		
Selected option		Description
FTL41	1	Compact version
	2	Extension tube
	3	Short tube version
 Shown in the temperature tables exemplary as follows: 		

Position 11, 12 (Sensor Length, Material)		
Selected option		Description
FTL41	AJ	Compact version; 316L
	BJ	Short tube version; 316L
	CJ	 mm L Ra <3.2 µm (126 µin); 316L
	DJ	 in L Ra <3.2 µm (126 µin); 316L

Optional specifications

ID Px, Rx (Accessory Enclosed)		
Selected option		Description
FTL41	PB	Weather protection cover, plastic

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

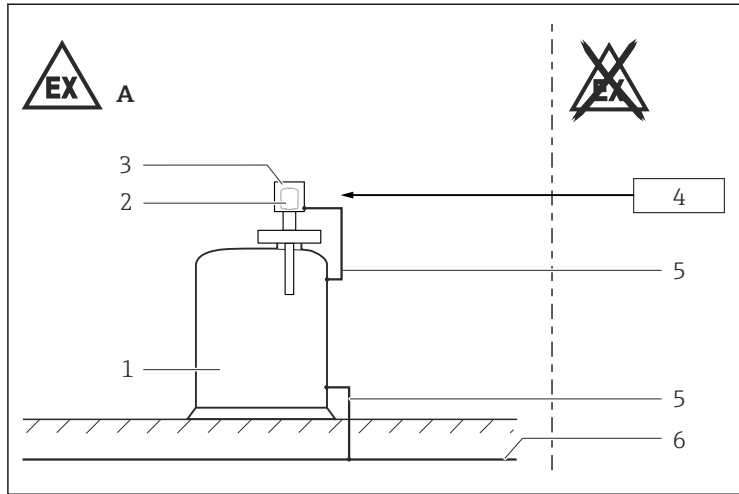
Safety instructions:
Specific conditions of use

- Limitations of the maximum ambient temperature at the electronics enclosure may be required dependent on device configuration, process temperatures and temperature classification.
- Details of temperature limitations: →  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.

Optional specification, ID Px, Rx = PB

Avoid electrostatic charging of the weather protection cover (e.g. friction, cleaning, maintenance, strong medium flow).

Safety instructions: Installation



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- A Class I, Div. 2, Groups A-D
- 1 Tank; Class I, Div. 2, Groups A-D
- 2 Electronic insert
- 3 Enclosure
- 4 Supply unit
- 5 Potential equalization line
- 6 Local potential equalization

- Before operation:
 - Screw in the cover all the way.
 - Tighten the securing clamp on the cover.
- In potentially explosive atmospheres:
 - Do not disconnect the electrical connection of the power supply circuit when energized.
 - Do not open the connection compartment cover and the electronics compartment cover.
- Continuous service temperature of the connecting cable / cable gland / cable entry:
 - Basic specification, Position 3, 4 = A2: $\geq T_a + 35\text{ K}$
 - Basic specification, Position 3, 4 = A4: $\geq T_a + 40\text{ K}$
 - Basic specification, Position 3, 4 = A8: $\geq T_a + 20\text{ K}$
- Perform the following to achieve the degree of protection IP66/68:
 - Screw the cover tight.
 - Mount the cable entry correctly.
- 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.
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- Support extension tube of the device if a dynamic load is expected.

Class I, Div. 2, Groups A-D

- The device is a nonincendive (NI) electrical equipment per UL121201 and CSA C22.2 No. 213.
- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Use wiring methods appropriate for the location.
- Associated apparatus not required.
- For the maximum supply voltage: See "Connection data" section.
- WARNINGS: Substitution of components may impair suitability for hazardous locations. Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.

Process seals

The device is rated as a Single Seal device and does not require the use of an external secondary process seal.

Temperature tables

General notes



Optional specification, ID Px, Rx = PB

When using the weather protection cover: Reduce the values T_a of P1, P2, P3 by 16 K.

Description notes



Unless otherwise indicated, the positions always refer to the basic specification.

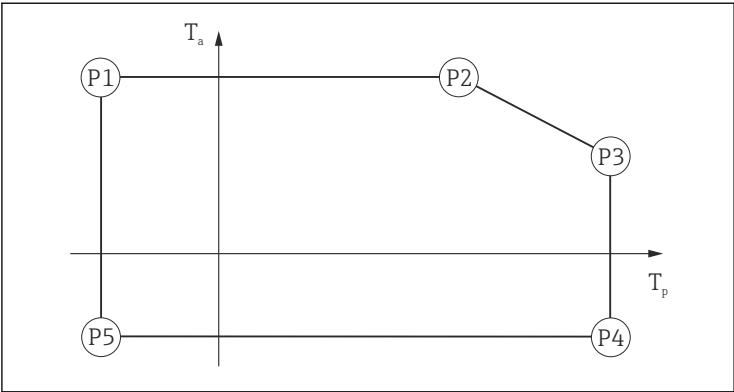
1st column: Position 3, 4 = .., A4, A8

2nd column: Maximum load current

3rd column: Temperature classes T6 (85 °C) to T1 (450 °C)

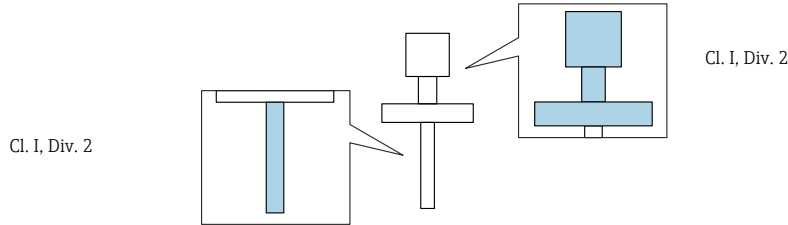
Column P1 to P5: Position (temperature value) on the axes of the derating

- T_a : Ambient temperature in °C
- T_p : Process temperature in °C



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Class I, Div. 2



A2	350 mA		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
		T6	-40	70	70	70	80	70	80	-40	-40	-40
		T5	-40	70	70	70	95	70	95	-40	-40	-40
		T4	-40	70	70	70	130	55	130	-40	-40	-40
		T3	-40	70	70	70	150	45	150	-40	-40	-40

A4	2 A		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
		T6	-40	52	53	52	80	40	80	-40	-40	-40
		T5	-40	67	68	67	95	55	95	-40	-40	-40
		T4	-40	70	78	70	130	47	130	-40	-40	-40
		T3	-40	70	78	70	150	38	150	-40	-40	-40

A8			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
		T6	-40	70	70	70	80	70	80	-40	-40	-40
		T5	-40	70	70	70	95	70	95	-40	-40	-40
		T4	-40	70	70	70	130	70	130	-40	-40	-40
		T3	-40	70	70	70	150	70	150	-40	-40	-40

Connection data

Basic specification, Position 3, 4	Power supply circuit	Output
A2	U = 10 to 55 V _{DC} ; P _{max} < 0.5 W	I _{max} = 350 mA
A4	U = 19 to 253 V _{AC} , 50/60 Hz or 19 to 55 V _{DC} ; P _{max} < 25 VA or < 1.3 W	2 potential free change-over contacts; 2 A
A8	U = 8.2 V _{DC} ±20 %	NAMUR; I _{max} = 3.8 mA



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