# Safety Instructions Liquiphant FTL62

4-20 mA HART

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







# Liquiphant FTL62

4-20 mA HART

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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: BA02214F
Certificates and declarations	CSA C/US certificate
	Certificate number: CSA19CA80022351
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
	FTL62 – ********* + A*B*C*D*E*F*G*
	(Device (Basic (Optional type) specifications) specifications)
	<ul> <li>* = Placeholder At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.</li> </ul>
	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: 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

FTL62

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FTL62	CC	CSA C/US Cl. I, Div. 2, Gr. A-D

Position 3, 4 (Output)		
Selected option		Description
FTL62	BA	FEL60H, 2-wire 420 mA HART+test button

Position 5 (Display, Operation)		
Selected option		Description
FTL62	А	W/o; switch
	Е	Graphic display with touch control
	F	Graphic display with touch control+Bluetooth

Position 6 (Housing, Material)		
Selected option		Description
FTL62	В	Single compartment; Alu, coated
	М	Dual compartment L-shape; Alu, coated
	Ν	Dual compartment L-shape; 316L

Position 9 (Surface Refinement)		
Selected option		Description
FTL62	Ν	Coating ECTFE
	Р	Coating PFA (Edlon)
	Q	Coating PFA (RubyRed)
	R	Coating PFA (conductive)
	Т	Coating Enamel

#### Optional specifications

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		Description
FTL62	JL	Ambient temperature -50°C/-58°F

ID Mx (Sensor Design)		
Selected option		Description
FTL62	MR	Temperature separator
	MS	Pressure tight feed through (Second line of defence)

ID Px, Rx (Accessory Enclosed)		
Selected opt	ion	Description
FTL62	PA 1)	Weather protection cover, 316L
	PB <sup>2)</sup>	Weather protection cover, plastic

Only in connection with Position 6 = M, N Only in connection with Position 6 = B 1)

2)

Safety instructions: General	<ul> <li>The device is intended to be used in hazardous locations as defined in the Canadian Electrical Code, Part I or the National Electrical Code (NFPA70). 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.</li> <li>Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device: <ul> <li>Be suitably qualified for their role and the tasks they perform</li> <li>Be trained in explosion protection</li> <li>Be familiar with national regulations</li> </ul> </li> <li>Comply with the installation and safety instructions in the Operating Instructions.</li> <li>Install the device according to the manufacturer's instructions and national regulations.</li> <li>Do not operate the device outside the specified electrical, thermal and mechanical parameters.</li> <li>Only use the device in media to which the wetted materials have sufficient durability.</li> <li>Avoid electrostatic charging: <ul> <li>Of plastic surfaces (e.g. enclosure, sensor element, special varnishing, attached additional plates,)</li> <li>Of isolated capacities (e.g. isolated metallic plates)</li> </ul> </li> <li>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.</li> <li>Alterations to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.</li> </ul>
Safety instructions: Specific conditions of use	<ul> <li>Permitted ambient temperature range at the electronics enclosure: -40 °C ≤ T<sub>a</sub> ≤ +70 °C</li> <li>Limitations of the maximum ambient temperature at the electronics enclosure may be required dependent on device configuration, process temperatures and temperature classification.</li> <li>Details of limitations: →  9, "Temperature tables".</li> <li>To avoid electrostatic charging: Do not rub surfaces with a dry cloth.</li> <li>In the event of additional or alternative special varnishing on the enclosure or other metal parts or for adhesive plates:</li> <li>Observe the danger of electrostatic charging and discharge.</li> <li>Do not install in the vicinity of processes (≤ 0.5 m) generating strong electrostatic charges.</li> <li>Avoid sparks caused by impact and friction.</li> <li>Optional specification, ID Px, Rx = PA Connect the weather protection cover to the local potential equalization.</li> </ul>

*Optional specification, ID Px, Rx = PB* Avoid electrostatic charging of the weather protection cover (e.g. friction, cleaning, maintenance, strong medium flow).



#### **1**

- A Class I, Div. 2, Groups A-D
- 1 Tank; Class I, Div. 2, Groups A-D
- 2 Electronic insert
- 3 Enclosure
- 4 Power supply unit
- 5 Potential equalization line
- 6 Local potential equalization
- After aligning (rotating) the enclosure, retighten the fixing screw.
- Before operation:
  - Screw in the cover all the way.
  - Tighten the securing screw 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 when energized.
- Continuous service temperature of the connecting cable / cable gland / cable entry:  $\geq$  T<sub>a</sub> +20 K.
- Observe the maximum process conditions according to the manufacturer's Operating Instructions.

Safety instructions: Installation

	<ul> <li>At high medium temperatures, note flange pressure load capacity as a factor of temperature.</li> <li>Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.</li> <li>Support extension tube of the device if a dynamic load is expected.</li> </ul>
	Potential equalization
	Integrate the device into the local potential equalization.
	<i>Optional specification, ID Px, Rx = PA</i> Connect the weather protection cover to the local potential equalization.
Class I, Div. 2, Groups A-D	<ul> <li>Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.</li> <li>Use wiring and sealing methods appropriate for the location.</li> <li>Associated apparatus not required.</li> <li>For the maximum supply voltage: See "Connection data" section.</li> <li>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.</li> </ul>
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	Optional specification, ID Jx, $Kx = JL$ Lower limit of the ambient temperature for explosion protection changes to $-50$ °C. Optional specification, ID Px, $Rx = PB$
	When using the weather protection cover: Reduce the admissible ambient temperature by 10 K.
	<ul> <li>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.</li> <li>Do not exceed the max. ambient temperature at the enclosure.</li> </ul>

Temperature class	Process temperature range	Ambient temperature range
Т6	$\begin{array}{l} -40 \ ^\circ C \leq T_p \leq +80 \ ^\circ C \\ -40 \ ^\circ C \leq T_p \leq +60 \ ^\circ C \end{array}$	$\begin{array}{c} -40 \ ^\circ C \leq T_a \leq +55 \ ^\circ C \\ -40 \ ^\circ C \leq T_a \leq +60 \ ^\circ C \end{array}$
Т5	$-40 \ ^\circ C \le T_p \le +95 \ ^\circ C$	$-40 \ ^\circ C \le T_a \le +60 \ ^\circ C$
T4	$\begin{array}{c} -40 \ ^\circ C \leq T_p \leq +130 \ ^\circ C \\ -40 \ ^\circ C \leq T_p \leq +120 \ ^\circ C \ ^1) \end{array}$	$-40 \ ^{\circ}C \le T_a \le +50 \ ^{\circ}C$ $-40 \ ^{\circ}C \le T_a \le +55 \ ^{\circ}C$
Т3	$\begin{array}{c} -40 \ ^{\circ}\text{C} \leq \text{T}_{p} \leq +150 \ ^{\circ}\text{C} \\ -40 \ ^{\circ}\text{C} \leq \text{T}_{p} \leq +120 \ ^{\circ}\text{C} \ ^{1)} \end{array}$	$\begin{array}{c} -40 \ ^\circ C \leq T_a \leq +45 \ ^\circ C \\ -40 \ ^\circ C \leq T_a \leq +55 \ ^\circ C \end{array}$

1) Only in connection with Position 9 = N

with Optional specification, ID Mx = MR, MS

Temperature class	Process temperature range	Ambient temperature range
Т6	$-40 \ ^\circ\text{C} \le T_p \le +80 \ ^\circ\text{C}$	$-40 \degree C \le T_a \le +65 \degree C$
T5	$-40 \text{ °C} \le T_p \le +95 \text{ °C}$	$-40 \text{ °C} \le T_a \le +70 \text{ °C}$
T4	$\begin{array}{c} -40 \ ^{\circ}\text{C} \leq T_p \leq +130 \ ^{\circ}\text{C} \\ -40 \ ^{\circ}\text{C} \leq T_p \leq +120 \ ^{\circ}\text{C} \ ^{1)} \end{array}$	$\begin{array}{c} -40\ ^\circ \text{C} \leq \text{T}_a \leq +70\ ^\circ \text{C} \\ -40\ ^\circ \text{C} \leq \text{T}_a \leq +70\ ^\circ \text{C} \end{array}$
Т3	$\begin{array}{c} -40 \ ^{\circ}\text{C} \leq T_p \leq +150 \ ^{\circ}\text{C} \\ -40 \ ^{\circ}\text{C} \leq T_p \leq +120 \ ^{\circ}\text{C} \ ^{1)} \end{array}$	$\begin{array}{c} -40 \ ^\circ C \leq T_a \leq +70 \ ^\circ C \\ -40 \ ^\circ C \leq T_a \leq +70 \ ^\circ C \end{array}$

1) Only in connection with Position 9 = N

#### **Connection data**

Power supply	
$\begin{array}{l} U \leq 35 \ V_{DC} \\ P \leq 1 \ W \end{array}$	



71612687

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