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Safety Instructions
Liquiphant FTL62

4-20 mA HART

Ex db IIC T6...T1 Ga/Gb
Ex db IIC T6...T1 Gb

Endress+Hauser
People for Process Automation

Liquiphant FTL62

4-20 mA HART

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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:

BA02214F

Supplementary documentation

Explosion protection brochure: CP00021Z

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

KC Declaration of Conformity

Certificate number:

Production Maulburg, Germany
23-KA4BO-0327X

Production Greenwood, Indiana, USA
23-KA4BO-0325X

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

- IEC 60079-0 : 2017
- IEC 60079-1 : 2014
- IEC 60079-26 : 2021
- Protection Device Safety Certification Notification No. 2021-22

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

FTL62	–	**********	+	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.

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	KC	KC Ex db IIC T6...T1 Ga/Gb KC Ex db IIC T6...T1 Gb

Position 3, 4 (Output)		
Selected option		**Description**
FTL62	BA	FEL60H, 2-wire 4...20 mA HART+test button

Position 6 (Housing, Material)		
Selected option		**Description**
FTL62	B	Single compartment; Alu, coated
	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-shape; 316L

Position 7 (Electrical Connection)		
Selected option		**Description**
FTL62	F	Thread M20, IP66/68 NEMA Type 4X/6P
	G	Thread G1/2 [1], IP66/68 NEMA Type 4X/6P
	H	Thread NPT1/2, IP66/68 NEMA Type 4X/6P

1) Reduction M20x1.5 to G1/2 enclosed

Position 9 (Surface Refinement)		
Selected option		**Description**
FTL62	N	Coating ECTFE
	P	Coating PFA (Edlon)
	Q	Coating PFA (RubyRed)
	R	Coating PFA (conductive)
	T	Coating Enamel

Optional specifications

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		**Description**
FTL62	JL	Ambient temperature -50°C/-58°F
	JN	Ambient temperature -52°C/-62°F
	JT	Ambient temperature -60°C/-76°F

ID Px, Rx (Accessory Enclosed)		
Selected option		**Description**
FTL62	PA [1)]	Weather protection cover, 316L

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

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.
- Devices suitable for zone separation (marked Ga/Gb or Da/Db) are always suitable for installation in the less critical zone (Gb or Db). Due to space limitations the corresponding marking maybe not indicated on the nameplate.
- 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
- 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.
- 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.
- 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: Special conditions

Permitted ambient temperature range at the electronics enclosure:
$-40\ °C \leq T_a \leq +70\ °C$

- Limitations of the maximum ambient temperature at the electronics enclosure may be required dependent on device configuration, process temperatures and temperature classification.
- Details of limitations: → 🖹 11, "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.
- Avoid sparks caused by impact and friction.
- Covers with glass window only permitted for the following ambient temperatures:
  $-50\ °C \leq T_a \leq +70\ °C$

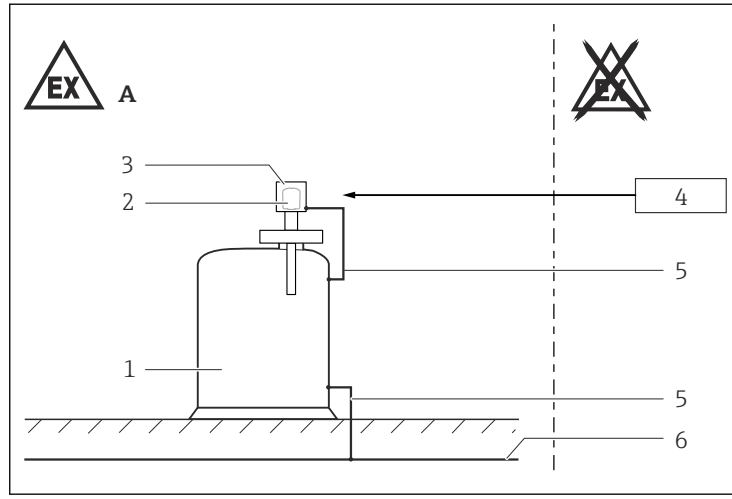
Optional specification, ID Px, Rx = PA
Connect the weather protection cover to the local potential equalization.

Device group IIC/IIB

Basic specification, Position 9 = N, P, Q
- Probes can be used in gases of Group IIC if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow). These probes are marked by the warning sign "Avoid Electrostatic Charge".
- If electrostatic charging cannot be avoided: Probe can be used in gases of Group IIB.

Basic specification, Position 9 = R, T
Due to the surface resistance 1 GΩ ([R] PFA-conductive) or the enamel (glass) surface [T], these coatings are suitable without restrictions.

Safety instructions: Installation



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A Zone 1
1 Tank; Zone 0, Zone 1
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.
- Continuous service temperature of the connecting cable / cable gland / cable entry: $\geq T_a$ +20 K.
- Perform the following to achieve the degree of protection IP66/68:
  - Screw the cover tight.
  - Mount the cable entry correctly.
- Connect the device:
  - Using suitable cable and wire entries of protection type "Flameproof Enclosure (Ex db)".
  - Using piping systems of protection type "Flameproof Enclosure (Ex db)".

- 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.
- Only use genuine spare parts from Endress+Hauser which are specified for the device.
- Only use certified cable entries suitable for the application. Observe national regulations and standards.
- 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.
- The built-in metallic sealing plug is examined and approved for explosion protection type Ex d with the device.
- When operating the transmitter enclosure at an ambient temperature under −20 °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.

Basic specification, Position 7 = G
Flameproof equipment with G threaded entry holes is not intended for new installations but only for replacement of equipment in existing installations. Application of this equipment shall comply with the local installation requirements.

Potential equalization

Integrate the device into the local potential equalization.

Optional specification, ID Px, Rx = PA
Connect the weather protection cover to the local potential equalization.

Safety instructions: Ex d joints

- If required or if in doubt: ask manufacturer for specifications.
- Flameproof joints are not intended to be repaired.

Safety instructions: Zone 0

When using under non-atmospheric pressures and non-atmospheric temperatures: The sensor part of the device approved for Zone 0 does not cause any ignition hazards.

Safety instructions: Zone separation Zone 0, Zone 1

The zone separation wall of the device is made of stainless steel or high corrosion-resistant alloy of thickness ≥ 1 mm.

Temperature tables

- 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.
- Do not exceed the max. ambient temperature at the enclosure.

Optional specification, ID Jx, Kx = JL
Lower limit of the ambient temperature for explosion protection changes to −50 °C.

Optional specification, ID Jx, Kx = JN
Lower limit of the ambient temperature for explosion protection changes to −52 °C.

Optional specification, ID Jx, Kx = JT
Lower limit of the ambient temperature for explosion protection changes to −60 °C.

Temperature class	Process temperature range	Ambient temperature range
T6	−40 °C ≤ T_p ≤ +80 °C −40 °C ≤ T_p ≤ +60 °C	−40 °C ≤ T_a ≤ +65 °C −40 °C ≤ T_a ≤ +70 °C
T5	−40 °C ≤ T_p ≤ +95 °C	−40 °C ≤ T_a ≤ +70 °C
T4	−40 °C ≤ T_p ≤ +130 °C −40 °C ≤ T_p ≤ +120 °C [1)]	−40 °C ≤ T_a ≤ +70 °C −40 °C ≤ T_a ≤ +70 °C
T3...T1	−40 °C ≤ T_p ≤ +150 °C −40 °C ≤ T_p ≤ +120 °C [1)]	−40 °C ≤ T_a ≤ +65 °C −40 °C ≤ T_a ≤ +65 °C

1) Only in connection with Position 9 = N

Connection data

Power supply
U ≤ 35 V_{DC} P ≤ 1 W

www.addresses.endress.com

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