

Safety Instructions

Liquiphant FTL64

Control Drawing IS

Class I, II, III, Div. 1, Groups A-G

Class I, Div. 1, Groups A-D

Class I, Zone 0, AEx/Ex ia IIC Ga



Liquiphant FTL64

Table of contents

About this document 4

Associated documentation 4

Certificates and declarations 4

Manufacturer address 4

Extended order code 4

Safety instructions: General 9

Safety instructions: Specific conditions of use 9

Safety instructions: Installation 10

Intrinsic safety 13

Process seals 13

Explosion protection with heat insulation 13

Temperature tables 14

Connection data 22

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:
BA02037F

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

FTL64	–	*****	+	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.

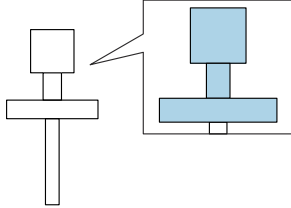
Device type

FTL64

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FTL64	CB	CSA C/US IS Cl. I, II, III, Div. 1, Gr. A-G; Cl. I, Zone 0, AEx/Ex ia IIC T6 Ga
	CH	CSA C/US IS Cl. I, Div. 1, Gr. A-D; Cl. I, Zone 0, AEx/Ex ia IIC T6 Ga

Position 3, 4 (Output)		
Selected option		Description
FTL64	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button

Position 6 (Housing, Material)		
Selected option		Description
FTL64	A ¹⁾	Single compartment; plastic
	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	D ¹⁾	Single compartment; 316L, hygiene
	M	Dual compartment L-shape; Alu, coated
 Shown in the temperature tables exemplary as follows: 		

1) Only in connection with Position 1, 2 = CH

Position 7 (Electrical Connection)		
Selected option		Description
FTL64	A ¹⁾	Gland M20, plastic, IP66/68 NEMA Type 4X/6P
	B ²⁾	Gland M20, brass nickel plated, IP66/68 NEMA Type 4X/6P
	C ³⁾	Gland M20, 316L, IP66/68 NEMA Type 4X/6P
	D ¹⁾	Gland M20, 316L, hygiene, IP66/68/69 NEMA Type 4X/6P
	F	Thread M20, IP66/68 NEMA Type 4X/6P
	H ⁴⁾	Thread NPT1/2, IP66/68 NEMA Type 4X/6P
	I ⁵⁾	Thread NPT3/4, IP66/68 NEMA Type 4X/6P
	J ¹⁾	Gland M20, plastic blue, IP66/68 NEMA Type 4X/6P
	M ⁶⁾	Plug M12, IP66/67 NEMA Type 4X

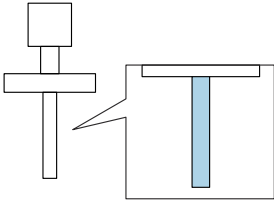
- 1) Only in connection with Position 1, 2 = CH
- 2) Only in connection with Position 6 = B, M
- 3) Only in connection with Position 6 = B, C, D
- 4) Only in connection with Position 6 = A, D
- 5) Only in connection with Position 6 = B, C, M
- 6) Only in connection with Position 1, 2 = CH, Position 6 = B, C, D

Position 8 (Application)		
Selected option		Description
FTL64	D	Process max 280 °C (536 °F), max 100 bar
	E	Process max 230 °C (446 °F), max 100 bar
	R	Process max 230 °C (446 °F), max 40 bar (PFA)
	9	Special version: Process max 300 °C (572 °F), max 100 bar

Position 9 (Surface Refinement)		
Selected option		Description
FTL64	A	Standard Ra <3.2 µm (126 µin)
	R	Coating PFA (conductive)

Position 10 (Type of Probe)		
Selected option		Description
FTL64	1	Compact version
	2	Extension tube

 Shown in the temperature tables exemplary as follows:



Optional specifications

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		Description
FTL64	JL ¹⁾	Ambient temperature -50 °C (-58 °F)

- 1) Only in connection with Position 3, 4 = A7, A8, Position 6 = B, C, M, Position 7 = B, C, F, I

ID Mx (Sensor Design)		
Selected option		Description
FTL64	MA ¹⁾	Sensor remote, cable TPR, 2 m (80 in) + mounting bracket, wall/pipe, 316L
	MB ¹⁾	Sensor remote, cable TPR, 5 m (200 in) + mounting bracket, wall/pipe, 316L
	MC ¹⁾	Sensor remote, cable TPR, 10 m (400 in) + mounting bracket, wall/pipe, 316L
	MD ¹⁾	Sensor remote, cable TPR, 20 m (800 in) + mounting bracket, wall/pipe, 316L
	ME ¹⁾	Sensor remote, cable TPR, 30 m (1 200 in) + mounting bracket, wall/pipe, 316L
	MR	Temperature separator
	MS	Pressure tight feed through (Second line of defence)

- 1) Only in connection with Position 1, 2 = CH

ID Nx, Ox (Accessory Mounted)		
Selected option		Description
FTL64	NF ¹⁾	Bluetooth VU121, Labeling: VA13-02
	NG ²⁾	Prepared for Heartbeat Verification + Monitoring + Bluetooth VU121, Labeling: VA13-01
	NJ	Cover with sight glass, glass
	NK ³⁾	Cover with sight glass, plastic

- 1) Only in connection with Position 3, 4 = A7, Position 6 = A, B, M
 2) Only in connection with Position 3, 4 = A8, Position 6 = A, B, M
 3) Only in connection with Position 1, 2 = CH

ID Px, Rx (Accessory Enclosed)		
Selected option		Description
FTL64	PA ¹⁾	Weather protection cover, 316L
	PB ²⁾	Weather protection cover, plastic
	R6 ³⁾	Test magnet

- 1) Only in connection with Position 6 = M
 2) Only in connection with Position 6 = B, C
 3) Only in connection with Position 3, 4 = A8

Safety instructions: General

- 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.
- 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.
- 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: 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 limitations: →  14, "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.

Basic specification, Position 6 = A

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

Basic specification, Position 6 = B, M

Avoid sparks caused by impact and friction.

Optional specification, ID Px, Rx = PA

Connect the weather protection cover to the local potential equalization.

Optional specification, ID Px, Rx = PB

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

Optional specification, ID Px, Rx = R6

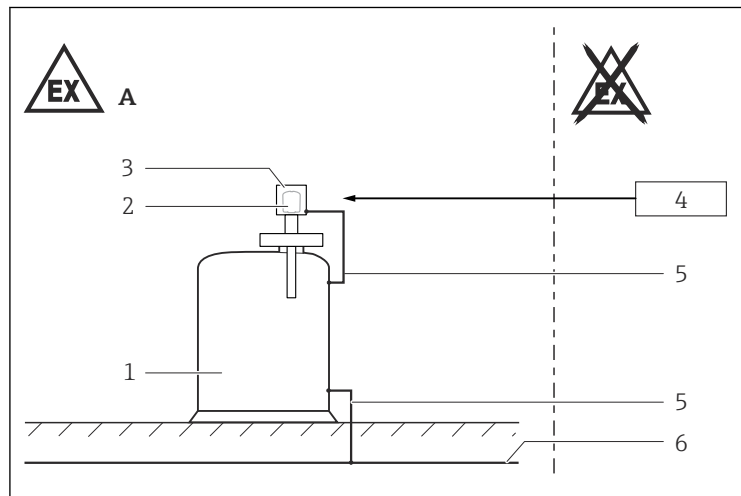
Suitable for use in explosion hazardous areas.

For hazardous location Group A, B / Group IIC

Basic specification, Position 9 = R

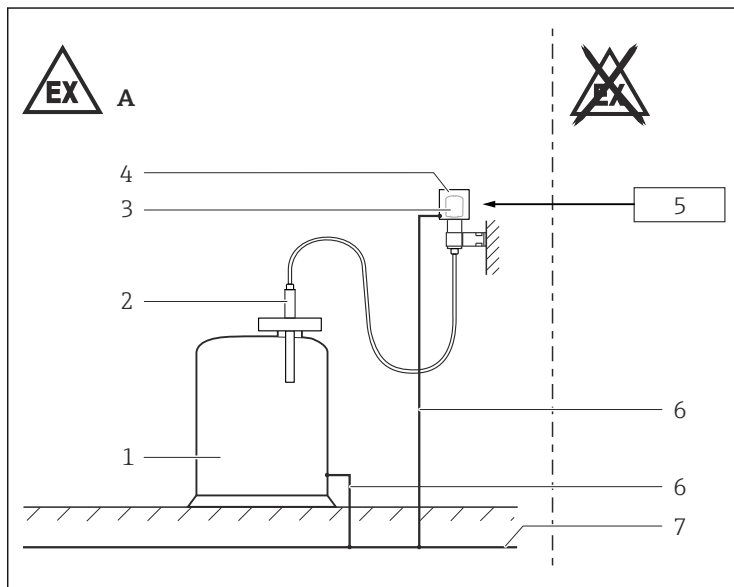
- Due to the surface resistance 1 GΩ ([R] PFA-conductive), this coating is suitable without restrictions.
- The high-temperature part of the device (fork/pipe/process connection/temperature spacer) is designed in type of protection XP/Ex db and has an IS/Ex ia connection to the electronics insert. The installation on the terminals of the device must always be carried out in type of protection IS/Ex i.

Safety instructions: Installation



- 1 Zone 0 or Zone 1; Class I, II, III, Div. 1, Groups A-G
- 1 Tank; Zone 0 or Zone 1; Class I, II, III, Div. 1, Groups A-G
- 2 Electronic insert
- 3 Enclosure
- 4 Associated intrinsically safe power supply units
- 5 Potential equalization line
- 6 Local potential equalization

Optional specification, ID Mx = MA - ME



A0055812

- A Zone 0 or Zone 1; Class I, Div. 1, Groups A-D
 1 Tank; Zone 0 or Zone 1; Class I, Div. 1, Groups A-D
 2 Sensor enclosure
 3 Electronic insert
 4 Electronics enclosure
 5 Associated intrinsically safe power supply units
 6 Potential equalization line
 7 Local potential equalization

- Continuous service temperature of the connecting cable / cable gland / cable entry: $\geq T_a + 20 \text{ K}$.
- 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.
- The device can be equipped with the Bluetooth® module: refer to the Operating Instructions and specifications in the "Bluetooth® module" chapter.

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).

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.

Bluetooth® module

- Observe the general notes of the Special Documentation SD02389F.
- After installing the Bluetooth® module: Pay attention to the correct installation of the device.

Basic specification, Position 3, 4 = A7

If the device is equipped with the Bluetooth® module, no battery is required or allowed.

Basic specification, Position 3, 4 = A8

- If the device is equipped with the Bluetooth® module, a battery is required.
- Removal or replacement of the battery is only permitted in non-hazardous areas.

Only use one of the following battery types:

Manufacturer	Battery type
Tadiran	SL-360/S
XENO ENERGY	ER14505 / XL-060F

Intrinsic safety

Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III; Class I, Zone 0, AEx/Ex ia IIC Ga

Entity installation

- Use an intrinsic safety barrier or other associated equipment that is approved for the country in use and satisfies the following conditions:
 $U_o \leq U_i$, $I_o \leq I_i$, $C_o \geq C_i + C_{\text{cable}}$, $L_o \geq L_i + L_{\text{cable}}$ and $P_o \leq P_i$.
- For transmitter parameters: See "Connection data" section.
- When the device is connected to certified intrinsically safe circuits of Category Ex ib for Equipment Groups IIC and IIB, the type of protection changes to Ex ib IIC and Ex ib IIB.
- Control room equipment may not use or generate over 250 V_{rms}.
- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Always follow the installation instructions provided by the intrinsic safety barrier manufacturer when installing this equipment.
- WARNINGS: Substitution of components may impair intrinsic safety.
- The intrinsically safe input power circuit of the device is isolated from ground. The dielectric strength is at least 500 V_{rms}.

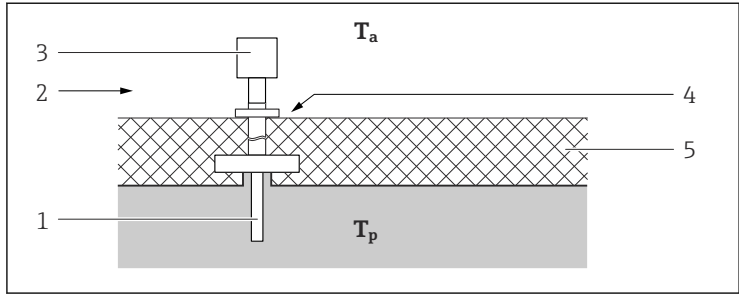
Process seals

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

Explosion protection with heat insulation

Basic specification, Position 8 = D, E, R, 9

- While observing the "temperature derating", the device is suitable for process temperatures up to 300 °C.
- When operating, ensure that you rule out contact between hot component surfaces and potentially explosive atmospheres beyond the limits of the corresponding temperature class. Suitable measures: e.g. thermal insulation at container and/or pipes.
- The temperature of 85 °C specified at the reference point may not be exceeded.
- To protect the electronics, observe the specified ambient temperature at the electronics enclosure.



A0025541



- T_a Ambient temperature
 T_p Process temperature
 1 Sensor
 2 Temperature class, e.g. T6
 3 Enclosure
 4 Reference point: max. +85 °C
 5 E.g. thermal insulation

Temperature tables

General notes

Class I, Div. 1 / Zone 0, Zone 1



Optional specification, ID Px, Rx = PB

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

Class II, III, Div. 1



Optional specification, ID Px, Rx = PB

When using the weather protection cover: Reduce the values T_a by 16 K.

Description notes



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

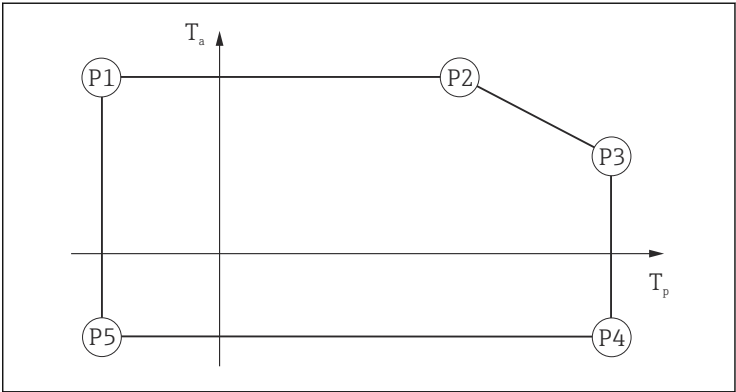
Class I, Div. 1 / Zone 0, Zone 1

1st column: Position 8 = A, B, ...

2nd 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



A0033052

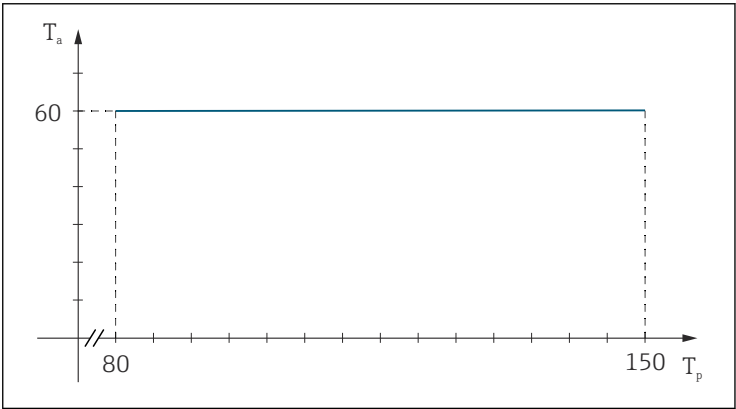
Class II, III, Div. 1

1st column: Position 8 = A, B, ...

2nd column: Process temperature range in °C

3rd column: Ambient temperature range in °C

4th column: Maximum surface temperature in °C

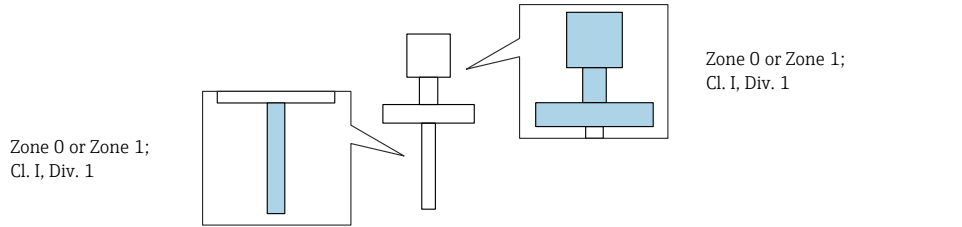


A0039764

T_a Ambient temperature in °C

T_p Process temperature in °C

Class I, Div. 1 / Zone 0, Zone 1



Position 3, 4 = A7

E, R		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	-60	70 67 ¹⁾	80	70 67 ¹⁾	80	70 67 ¹⁾	80	0 ²⁾ -20 ³⁾ -40 -50 ⁴⁾	-60	0 ²⁾ -20 ³⁾ -40 -50 ⁴⁾
	T5	-60	70 67 ¹⁾	95	70 67 ¹⁾	95	70 67 ¹⁾	95		-60	
	T4	-60	70 67 ¹⁾	130	70 67 ¹⁾	130	70 67 ¹⁾	130		-60	
	T3	-60	70 60 ¹⁾	195	70 60 ¹⁾	195	70 60 ¹⁾	195		-60	
	T2	-60	70 60 ¹⁾	210	70 60 ¹⁾	230	68 58 ¹⁾	230		-60	

- 1)
- Only in connection with Position 6 = D
- 2)
- Only in connection with Position 6 = A
- 3)
- Only in connection with Position 7 = D
- 4)
- Only in connection with Optional specification, ID Jx, Kx = JL

D, 9		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	-60	70 67 ¹⁾	80	70 67 ¹⁾	80	70 67 ¹⁾	80	0 ²⁾ -20 ³⁾ -40 ⁴⁾ -50 ⁴⁾	-60	0 ²⁾ -20 ³⁾ -40 ⁴⁾ -50 ⁴⁾
	T5	-60	70 67 ¹⁾	95	70 67 ¹⁾	95	70 67 ¹⁾	95		-60	
	T4	-60	70 69 ¹⁾	130	70 69 ¹⁾	130	70 69 ¹⁾	130		-60	
	T3	-60	70 65 ¹⁾	195	70 65 ¹⁾	195	70 65 ¹⁾	195		-60	
	T2	-60	70 60 ¹⁾	270	70 60 ¹⁾	280 290 ⁵⁾	68 59 ¹⁾	280 290 ⁵⁾		-60	
	T1	-60	70 60 ¹⁾	270	70 60 ¹⁾	280 300 ⁵⁾	68 59 ¹⁾	280 300 ⁵⁾		-60	

- 1) Only in connection with Position 6 = D
- 2) Only in connection with Position 6 = A
- 3) Only in connection with Position 7 = D
- 4) Only in connection with Optional specification, ID Jx, Kx = JL
- 5) Only in connection with Position 8 = 9

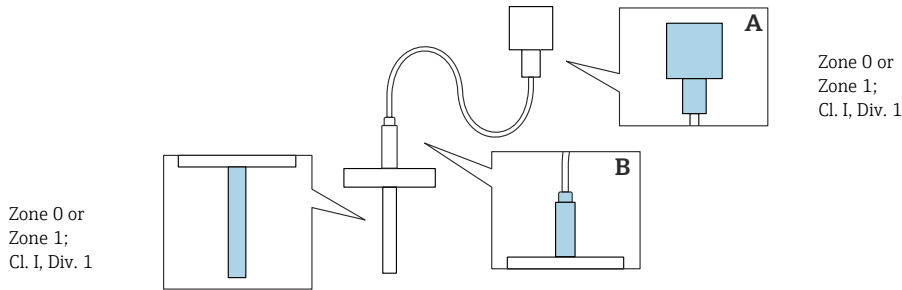
Position 3, 4 = A8

E, R		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 ¹⁾	-60	70 67 ²⁾	80	70 67 ²⁾	80	70 67 ²⁾	80	0 ³⁾ -20 ⁴⁾ -40 -50 ⁵⁾	-60	0 ³⁾ -20 ⁴⁾ -40 -50 ⁵⁾
	T5 ¹⁾	-60	70 67 ²⁾	95	70 67 ²⁾	95	70 67 ²⁾	95		-60	
	T4	-60	70 66 ²⁾	130	70 66 ²⁾	130	70 66 ²⁾	130		-60	
	T3	-60	70 63 ²⁾	195	70 63 ²⁾	195	70 63 ²⁾	195		-60	
	T2	-60	70 67 ²⁾ 61 ¹⁾	230	70 67 ²⁾ 61 ¹⁾	230	70 67 ²⁾ 61 ¹⁾	230		-60	

- 1) In connection with Position 3, 4 = A8 and Optional specification, ID Nx, Ox = NG: The temperature classes change to T4
- 2) Only in connection with Position 6 = D
- 3) Only in connection with Position 6 = A
- 4) Only in connection with Position 7 = D
- 5) Only in connection with Optional specification, ID Jx, Kx = JL

D, 9		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 ¹⁾	-60	70	80	70	80	70	80	0 ²⁾ -20 ³⁾ -40 -50 ⁴⁾	-60	0 ²⁾ -20 ³⁾ -40 -50 ⁴⁾
	T5 ¹⁾	-60	70	95	70	95	70	95		-60	
	T4	-60	70 67 ⁵⁾	130	70 67 ⁵⁾	130	70 67 ⁵⁾	130		-60	
	T3	-60	70 65 ⁵⁾	195	70 65 ⁵⁾	195	70 65 ⁵⁾	195		-60	
	T2	-60	70 62 ⁵⁾	280 290 ⁶⁾	70 62 ⁵⁾	280 290 ⁶⁾	70 62 ⁵⁾	280 290 ⁶⁾		-60	
	T1	-60	70 68 ⁴⁾ 62 ⁵⁾	280 300 ⁶⁾	70 68 ⁴⁾ 62 ⁵⁾	280 300 ⁶⁾	70 68 ⁴⁾ 62 ⁵⁾	280 300 ⁶⁾		-60	

- 1) In connection with Position 3, 4 = A8 and Optional specification, ID Nx, Ox = NG: The temperature classes change to T4
- 2) Only in connection with Position 6 = A
- 3) Only in connection with Position 7 = D
- 4) Only in connection with Optional specification, ID Jx, Kx = JL
- 5) Only in connection with Position 6 = D
- 6) Only in connection with Position 8 = 9



Position 3, 4 = A7

With Optional specification, ID Mx = MA - ME

E, R		P1			P2			P3			P4		P5	
		T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a	T _p	T _a
	T6	-60	70 68 ³⁾	70	80	70 68 ³⁾	70	80	70 68 ³⁾	70	80	0 ⁴⁾ -20 ⁵⁾ -40 -50 ⁶⁾	-60	0 ⁴⁾ -20 ⁵⁾ -40 -50 ⁶⁾
	T5	-60	70	90	95	70	90	95	70	90	95		-60	
	T4	-60	70	90	130	70	90	130	70	90	130		-60	
	T3	-60	70	90	195	70	90	195	70	90	195		-60	
	T2	-60	70	90	230	70	90	230	70	90	230		-60	

- 1) Electronics enclosure (A)
- 2) Sensor enclosure (B)
- 3) Only in connection with Position 6 = D
- 4) Only in connection with Position 6 = A
- 5) Only in connection with Position 7 = D
- 6) Only in connection with Optional specification, ID Jx, Kx = JL

With Optional specification, $ID\ Mx = MA - ME$

D, 9		P1			P2			P3			P4		P5	
		T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a	T _p	T _a
	T6	-60	70 68 ³⁾	70	80	70 68 ³⁾	70	80	70 68 ³⁾	70	80	0 ⁴⁾ -20 ⁵⁾	-60	0 ⁴⁾ -20 ⁵⁾
	T5	-60	70	90	95	70	90	95	70	90	95	-40 -50 ⁶⁾	-60	-40 -50 ⁶⁾
	T4	-60	70	90	130	70	90	130	70	90	130		-60	
	T3	-60	70	90	195	70	90	195	70	90	195		-60	
	T2	-60	70	90	280 290 ⁷⁾	70	90	280 290 ⁷⁾	70	90	280 290 ⁷⁾		-60	
	T1	-60	70	90	280 300 ⁷⁾	70	90	280 300 ⁷⁾	70	90	280 300 ⁷⁾		-60	

- 1) Electronics enclosure (A)
- 2) Sensor enclosure (B)
- 3) Only in connection with Position 6 = D
- 4) Only in connection with Position 6 = A
- 5) Only in connection with Position 7 = D
- 6) Only in connection with Optional specification, ID Jx, Kx = JL
- 7) Only in connection with Position 8 = 9

Position 3, 4 = A8

With Optional specification, ID Mx = MA - ME

E, R		P1			P2			P3			P4		P5	
		T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a	T _p	T _a
	T6 ³⁾	-60	70	70	80	70	70	80	70	70	80	0 ⁴⁾ -20 ⁵⁾	-60	0 ⁴⁾ -20 ⁵⁾
	T5 ³⁾	-60	70	90	95	70	90	95	70	90	95	-40 -50 ⁶⁾	-60	-40 -50 ⁶⁾
	T4	-60	70	90	130	70	90	130	70	90	130		-60	
	T3	-60	70	90	195	70	90	195	70	90	195		-60	
	T2	-60	70	90	230	70	90	230	70	90	230		-60	

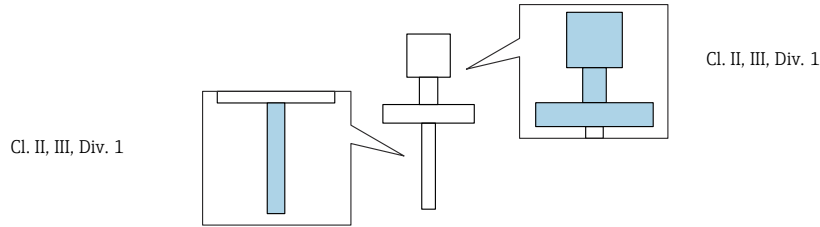
- 1) Electronics enclosure (A)
- 2) Sensor enclosure (B)
- 3) Only in connection with Optional specification, ID Nx, Ox = NG: Temperature classes only valid for T4...T1
- 4) Only in connection with Position 6 = A
- 5) Only in connection with Position 7 = D
- 6) Only in connection with Optional specification, ID Jx, Kx = JL

With Optional specification, ID Mx = MA - ME

D, 9		P1			P2			P3			P4		P5	
		T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a ¹⁾	T _a ²⁾	T _p	T _a	T _p	T _a
	T6 ³⁾	-60	70	70	80	70	70	80	70	70	80	0 ⁴⁾ -20 ⁵⁾	-60	0 ⁴⁾ -20 ⁵⁾
	T5 ³⁾	-60	70	90	95	70	90	95	70	90	95	-40 -50 ⁶⁾	-60	-40 -50 ⁶⁾
	T4	-60	70	90	130	70	90	130	70	90	130		-60	
	T3	-60	70	90	195	70	90	195	70	90	195		-60	
	T2	-60	70	90	280 290 ⁷⁾	70	90	280 290 ⁷⁾	70	90	280 290 ⁷⁾		-60	
	T1	-60	70	90	280 300 ⁷⁾	70	90	280 300 ⁷⁾	70	90	280 300 ⁷⁾		-50	

- 1) Electronics enclosure (A)
- 2) Sensor enclosure (B)
- 3) Only in connection with Optional specification, ID Nx, Ox = NG: Temperature classes only valid for T4...T1
- 4) Only in connection with Position 6 = A
- 5) Only in connection with Position 7 = D
- 6) Only in connection with Optional specification, ID Jx, Kx = JL
- 7) Only in connection with Position 8 = 9

Class II, III, Div. 1



E, R			
	$-60 \leq T_p \leq +230$	$-40 \leq T_a \leq +60$ $-50 \leq T_a \leq +60$ ¹⁾	T235 (T = T _p +5 K)

1) Only in connection with Optional specification, ID Jx, Kx = JL

D, 9			
	$-60 \leq T_p \leq +280$ $-60 \leq T_p \leq +300$ ¹⁾	$-40 \leq T_a \leq +60$ $-50 \leq T_a \leq +60$ ²⁾	T285 (T = T _p +5 K) T305 (T = T _p +5 K) ¹⁾

- 1) Only in connection with Position 8 = 9
2) Only in connection with Optional specification, ID Jx, Kx = JL

Connection data

Optional specification, ID Nx, Ox = NF, NG
When using the Bluetooth® module: No changes to the connection values.
Associated intrinsically safe power supply unit with max. electrical specifications below the characteristic values of the electronic inserts

Basic specification, Position 3, 4	Power supply circuit
A7	U _i = 14.6 V I _i = 100 mA P _i = 633 mW L _i = 0 C _i = 3 nF
A8	U _i = 16 V I _i = 52 mA P _i = 170 mW L _i = 0 C _i = 30 nF



71692073

www.addresses.endress.com
