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71623546
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Safety Instructions
Liquiphant FTL51B, FTL63

Control Drawing XP
Class I, II, III, Div. 1, Groups A-G
Class I, Zone 0/1, AEx/Ex db IIC Ga/Gb
Class I, Div. 2, Groups A-D

C US

Endress+Hauser
People for Process Automation

Liquiphant FTL51B, FTL63

Table of contents

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:

BA01894F

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

FTL51B, FTL63	–	**********	+	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

FTL51B, FTL63

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
FTL51B FTL63	CD	CSA C/US XP Cl. I, II, III, Div. 1, Gr. A-G; Cl. I, Zone 0/1, AEx/Ex db IIC T6 Ga/Gb Cl. I, Div. 2, Gr. A-D

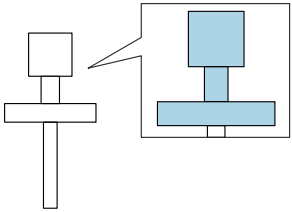
Position 3, 4 (Output)		
Selected option		**Description**
FTL51B FTL63	A1	FEL61, 2-wire 19-253VAC + test button
	A2	FEL62, 3-wire PNP 10-55VDC + test button
	A3	FEL64DC, relay DPDT 9-20VDC contact 253V/2A + test button
	A4	FEL64, relay DPDT 19-253VAC/19-55VDC contact 253V/6A + test button
	A7	FEL67, 2-wire PFM + test button
	A8	FEL68, 2-wire NAMUR + test button
	GA	FEL60D, density/concentration

Position 5 (Display, Operation)		
Selected option		**Description**
FTL51B FTL63	A	W/o; switch
	B [1]	LED module outside visible; switch

1) Only in connection with Position 3, 4 = A2-A4, Position 6 = B, M

Position 6 (Housing, Material)		
Selected option		**Description**
FTL51B FTL63	B	Single compartment; Alu, coated
	C	Single compartment; 316L, cast
	M	Dual compartment L-shape; Alu, coated

Shown in the temperature tables exemplary as follows:



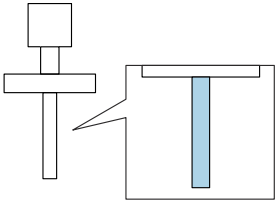
Position 7 (Electrical Connection)		
Selected option		**Description**
FTL51B FTL63	I	Thread NPT3/4, IP66/68 NEMA Type 4X/6P

Position 8 (Application)		
Selected option		**Description**
FTL51B FTL63	A [1]	Process max 150°C/302°F, max 64bar
	B [1]	Process max 150°C/302°F, max 100bar
	C [2]	Process max 80°C/176°F, max 25bar

1) Only in connection with Position 3, 4 = A1-A4, A7, A8
2) Only in connection with Position 3, 4 = GA

Position 10 (Type of Probe)		
Selected option		**Description**
FTL51B FTL63	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**
FTL51B FTL63	AC	Compact version; AlloyC22
	AJ	Compact version; 316L
	BC	Short tube version; AlloyC22
	BJ	Short tube version; 316L
	CC	..... mm L, Ra<3,2um/126uin; AlloyC22
	CJ	..... mm L, Ra<3,2um/126uin; 316L
	DC	..... in L, Ra<3,2um/126uin; AlloyC22
	DJ	..... in L, Ra<3,2um/126uin; 316L

Optional specifications

ID Jx, Kx (Test, Certificate, Declaration)		
Selected option		**Description**
FTL51B FTL63	JL [1)]	Ambient temperature -50°C/-58°F
	JN [1)]	Ambient temperature -52°C/-62°F
	JT [1)]	Ambient temperature -60°C/-76°F

1) Only in connection with Position 3, 4 = A2-A4, A7, A8, Position 5 = A

ID Mx (Sensor Design)		
Selected option		**Description**
FTL51B FTL63	MR	Temperature separator
	MS	Pressure tight feed through (Second line of defence)

ID Nx, Ox (Accessory Mounted)		
Selected option		**Description**
FTL51B FTL63	NF [1]	Bluetooth VU121, Labeling: VA13-02
	NG [2]	Prepared for Heartbeat Verification + Monitoring + Bluetooth VU121, Labeling: VA13-01

1) Only in connection with Position 3, 4 = A1-A4, A7, Position 6 = B, M, Position 5 = A
2) Only in connection with Position 3, 4 = A8, Position 6 = B, M, Position 5 = A

ID Px, Rx (Accessory Enclosed)		
Selected option		**Description**
FTL51B FTL63	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 = A2-A4, 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.

- 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

- The electronics enclosure are permitted to operate in a standard ambient temperature range of −40 to 70 °C.
- Limitations of the maximum ambient temperature at the electronics enclosure may be required dependent on device configuration, process temperatures and temperature classification.
- Minimum process temperature: −50 °C.
- Details of limitations: → 🗎 12, "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 = B, M
- Avoid sparks caused by impact and friction.
- Covers with glass window only permitted for the following ambient temperatures:
  $-50\ °C \leq T_a \leq +70\ °C$

Basic specification, Position 6 = C
Covers with glass window not permitted.

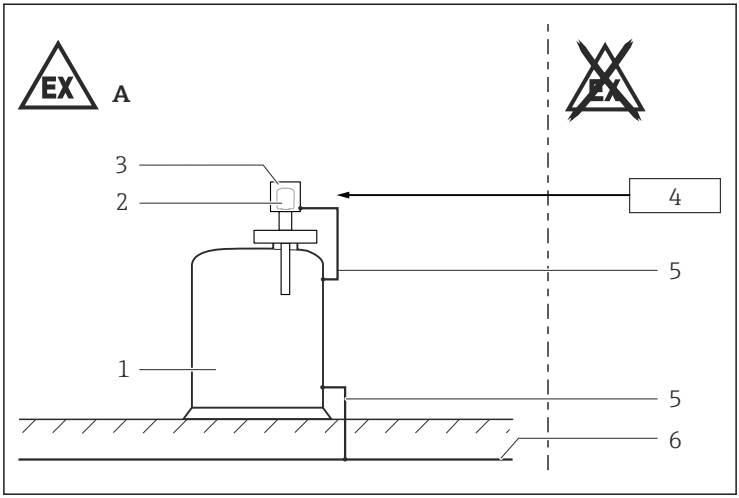
Optional specification, ID Jx, Kx = JL, JN, JT
Not applicable for Class I, Division 2 installation.

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.

Safety instructions: Installation



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A 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 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*: ≥ T_a+35 K
  - *Basic specification, Position 3, 4 = A4*: ≥ T_a+40 K
  - *Basic specification, Position 3, 4 = A8*: ≥ T_a+20 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.

Potential equalization

Integrate the device into the local potential equalization.

Bluetooth® module

- High cover with inspection window is required.
- 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 = 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
Saft	LS14500
Tadiran	SL-360/S
Varta	ER-AA / 7106
XENO ENERGY	ER14505 / XL-060F

Explosionproof / Flameproof

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

- Install per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- For the maximum supply voltage: See "Connection data" section.
- Seal unused entries with approved 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.
- Probe is suitable for installation in a Zone 0 location.
- Use a dust-tight seal at the conduit entry in a Class II and III location.
- WARNINGS: Keep covers tight while circuits are alive or when explosive atmosphere is present. Seal entries within 50 mm (2 in) of enclosure.

Class I, Div. 2, Groups A-D

- 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

Zone 0, Zone 1; Class I, Div. 1/Div. 2

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.

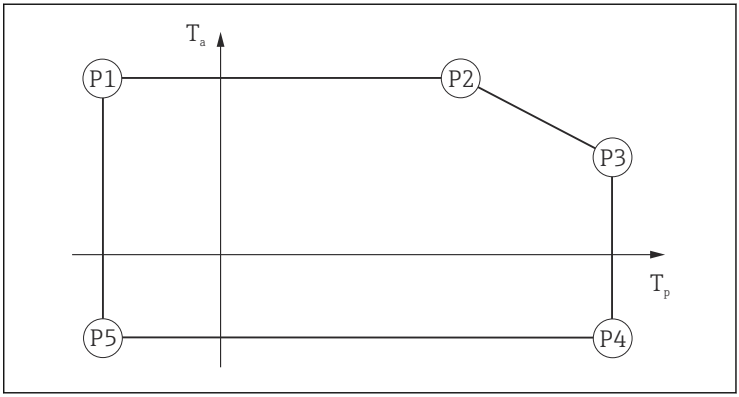
Zone 0, Zone 1; Class I, Div. 1/Div. 2

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

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 II, III, Div. 1

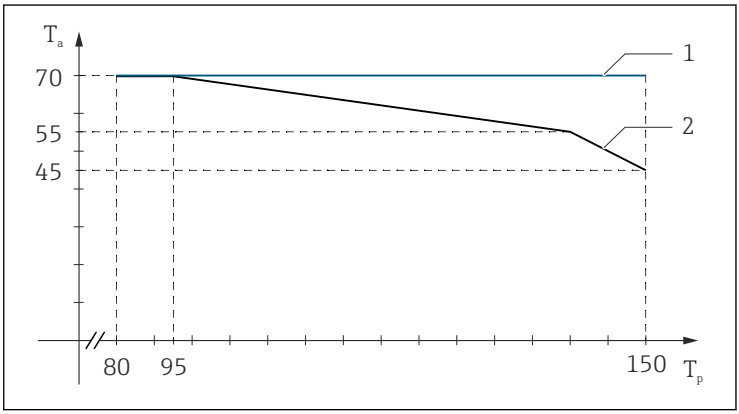
Minimum ambient temperature −40 °C and minimum process temperature −50 °C.

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

2nd column: Maximum load current

3rd column: Maximum permissible temperature in °C

4th column: Maximum surface temperature in °C



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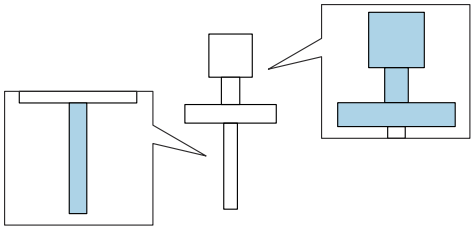
T_a Ambient temperature in °C
T_p Process temperature in °C
1 With Optional Specification, ID Mx = MR, ...
2 Without Optional Specification, ID Mx = MR, ...

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



Position 3, 4 = A1 and Position 6 = B, C

Without Optional specification, ID Mx = MR, MS

A, B			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
	180 mA											
		T6	−50	70	70	70	75	55	75	−40	−50	−40
		T5	−50	70	70	70	90	55	90	−40	−50	−40
		T4	−50	70	70	70	125	40	125	−40	−50	−40
		T3	−50	70	70	70	150	30	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			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
	180 mA											
		T6	−50	70	70	70	75	60	75	−40	−50	−40
		T5	−50	70	70	70	90	65	90	−40	−50	−40
		T4	−50	70	70	70	125	65	125	−40	−50	−40
		T3	−50	70	70	70	150	65	150	−40	−50	−40
	350 mA											
		T4	−50	70	70	70	125	55	125	−40	−50	−40
		T3	−50	70	70	70	150	55 50 [1]	150	−40	−50	−40

1) If insulated

Position 3, 4 = A1 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			**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**
	180 mA											
		T6	−50	70	70	70	75	59	75	−40	−50	−40
		T5	−50	70	70	70	90	70	90	−40	−50	−40
		T4	−50	70	70	70	125	70	125	−40	−50	−40
		T3	−50	70	70	70	150	69	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			**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**
	180 mA											
		T6	−50	70	70	70	75	62	75	−40	−50	−40
		T5	−50	70	70	70	90	70	90	−40	−50	−40
		T4	−50	70	70	70	125	70	125	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40
	350 mA											
		T4	−50	70	70	70	125	55	125	−40	−50	−40
		T3	−50	70	70	70	150	54	150	−40	−50	−40

Position 3, 4 = A2 and Position 6 = B, C

Without Optional specification, ID Mx = MR, MS

A, B			**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
	350 mA											
		T6	−50	70	70	70	75	70	75	−40 −50 [1] −52 [2] −60 [3]	−50	−40 −50 [1] −52 [2] −60 [3]
		T5	−50	70	70	70	90	70	90		−50	
		T4	−50	70	70	70	125	55	125		−50	
		T3	−50	70	70	70	150	45	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

With Optional specification, ID Mx = MR, MS

A, B			**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
	350 mA											
		T6	−50	70	70	70	75	70	75	−40 −50 [1] −52 [2] −60 [3]	−50	−40 −50 [1] −52 [2] −60 [3]
		T5	−50	70	70	70	90	70	90		−50	
		T4	−50	70	70	70	125	70	125		−50	
		T3	−50	70	70	70	150	70	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

Position 3, 4 = A2 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			**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
	350 mA											
		T6	−50	70	70	70	75	70	75	−40 −50 1) −52 2) −60 3)	−50	−40 −50 1) −52 2) −60 3)
		T5	−50	70	70	70	90	70	90		−50	
		T4	−50	70	70	70	125	66	125		−50	
		T3	−50	70	70	70	150	54	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

With Optional specification, ID Mx = MR, MS

A, B			**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
	350 mA											
		T6	−50	70	70	70	75	70	75	−40 −50 1) −52 2) −60 3)	−50	−40 −50 1) −52 2) −60 3)
		T5	−50	70	70	70	90	70	90		−50	
		T4	−50	70	70	70	125	70	125		−50	
		T3	−50	70	70	70	150	70	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

Position 3, 4 = A3, A4 and Position 6 = B, C

Without Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	52	52	52	75	40	75	−40 −50 1) −52 2) −60 3)	−50	−40 −50 1) −52 2) −60 3)
		T5	−50	67	67	67	90	55	90		−50	
		T4	−50	70	70	70	125	47	125		−50	
		T3	−50	70	70	70	150	38	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

With Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	52	52	52	75	50	75	−40 −50 1) −52 2) −60 3)	−50	−40 −50 1) −52 2) −60 3)
		T5	−50	67	67	67	90	65	90		−50	
		T4	−50	70	70	70	125	67	125		−50	
		T3	−50	70	70	70	150	65	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

Position 3, 4 = A3, A4 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	55	55	55	75	50	75	−40 −50 [1] −52 [2] −60 [3]	−50	−40 −50 [1] −52 [2] −60 [3]
		T5	−50	70	70	70	90	65	90		−50	
		T4	−50	70	70	70	125	65	125		−50	
		T3	−50	70	70	70	150	65	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

With Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	55	55	55	75	54	75	−40 −50 [1] −52 [2] −60 [3]	−50	−40 −50 [1] −52 [2] −60 [3]
		T5	−50	70	70	70	90	68	90		−50	
		T4	−50	70	70	70	125	70	125		−50	
		T3	−50	70	70	70	150	70	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

Position 3, 4 = A7, A8 and Position = B, C, M

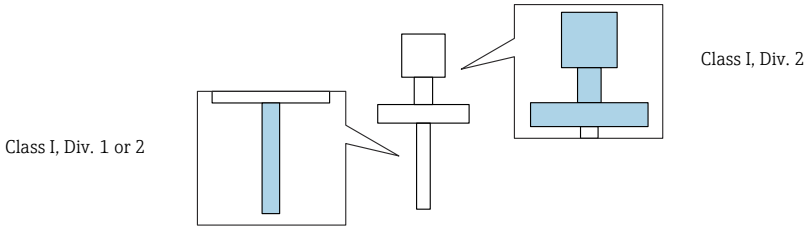
A, B			**P1**		**P2**		**P3**		**P4**		**P5**	
			T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
		T6	−50	70	70	70	75	70	75	−40 −50 [1] −52 [2] −60 [3]	−50	−40 −50 [1] −52 [2] −60 [3]
		T5	−50	70	70	70	90	70	90		−50	
		T4	−50	70	70	70	125	70	125		−50	
		T3	−50	70	70	70	150	70	150		−50	

1) Only in connection with Optional specification, ID Jx, Kx = JL
2) Only in connection with Optional specification, ID Jx, Kx = JN
3) Only in connection with Optional specification, ID Jx, Kx = JT

Position 3, 4 = GA and Position = B, C, M

C			**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	−50	70	70	70	75	70	75	−40	−50	−40

Class I, Div. 2



Position 3, 4 = A1 and Position = B, C

Without Optional specification, ID Mx = MR, MS

A, B			**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
	180 mA											
		T6	−50	60	60	60	80	50	80	−40	−50	−40
		T5	−50	70	70	70	90	70	90	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			**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
	180 mA											
		T6	−50	60	60	60	80	55	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40
	350 mA											
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

Position 3, 4 = A1 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			**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
	180 mA											
		T6	−50	60	60	60	80	59	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			**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
	180 mA											
		T6	−50	60	60	60	80	60	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40
	350 mA											
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

Position 3, 4 = A2 and Position 6 = B, C, M

Without Optional specification, ID Mx = MR, MS

A, B			**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**
	350 mA											
		T6	−50	70	70	70	80	70	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	55	130	−40	−50	−40
		T3	−50	70	70	70	150	45	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			**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**
	350 mA											
		T6	−50	70	70	70	80	70	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

Position 3, 4 = A3, A4 and Position 6 = B, C, M

Without Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	52	52	52	80	40	80	−40	−50	−40
		T5	−50	67	67	67	95	55	95	−40	−50	−40
		T4	−50	70	70	70	130	47	130	−40	−50	−40
		T3	−50	70	70	70	150	38	150	−40	−50	−40

With Optional specification, ID Mx = MR, MS

A, B			**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
	2 A											
		T6	−50	52	52	52	80	50	80	−40	−50	−40
		T5	−50	67	67	67	95	65	95	−40	−50	−40
		T4	−50	70	70	70	130	67	130	−40	−50	−40
		T3	−50	70	70	70	150	65	150	−40	−50	−40

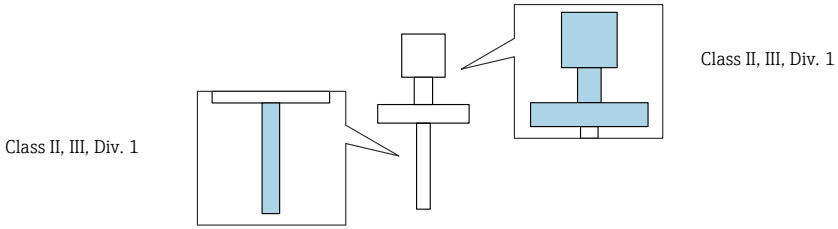
Position 3, 4 = A7, A8 and Position 6 = B, C, M

A, B			**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	−50	70	70	70	80	70	80	−40	−50	−40
		T5	−50	70	70	70	95	70	95	−40	−50	−40
		T4	−50	70	70	70	130	70	130	−40	−50	−40
		T3	−50	70	70	70	150	70	150	−40	−50	−40

Position 3, 4 = GA and Position 6 = B, C, M

C			**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	−50	70	70	70	80	70	80	−40	−50	−40

Class II, III, Div. 1



Position 3, 4 = A1 and Position 6 = B, C

Without Optional specification, ID Mx = MR, MS

A, B			
	180 mA		
		T_a = 55 T_p = 80	T85
		T_a = 50 T_p = 95	T100
		T_a = 45 T_p = 130	T135
		T_a = 35 T_p = 150	T155

With Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 60 T_p = 80 to 95	T85 to 100 (T = T_p +5 K)
		T_a = 55 T_p = 130 to 150	T135 to 155 (T = T_p +5 K)
		T_a = 55 [1)] T_p = 130 [1)]	T135 [1)] (T = T_p +5 K)
		T_a = 50 [1)] T_p = 150 [1)]	T155 [1)] (T = T_p +5 K)

1) If insulated

Position 3, 4 = A1 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			
	180 mA		
		T_a = 59 T_p = 80	T85
		T_a = 69 T_p = 95 to 150	T100 to 155 (T = T_p +5 K)

With Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 62 T_p = 80	T85
		T_a = 70 T_p = 95	T100
		T_a = 54 T_p = 130 to 150	T135 to 155 (T = T_p +5 K)

Position 3, 4 = A2 and Position 6 = B, C

Without Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 70 T_p = 80 to 95	T85 to 100 (T = T_p +5 K)
		T_a = 55 T_p = 130	T135
		T_a = 45 T_p = 150	T155

With Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 70 T_p = 80 to 150	T85 to 155 (T = T_p +5 K)

Position 3, 4 = A2 and Position 6 = M

Without Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 70 T_p = 80 to 95	T85 to 100 (T = T_p +5 K)
		T_a = 66 T_p = 130	T135
		T_a = 54 T_p = 150	T155

With Optional specification, ID Mx = MR, MS

A, B			
	350 mA		
		T_a = 70 T_p = 80 to 150	T85 to 155 (T = T_p +5 K)

Position 3, 4 = A3, A4 and Position 6 = B, C, M

Without Optional specification, ID Mx = MR, MS

A, B			
	2 A		
		T_a = 70 T_p = 80	T85
		T_a = 66 T_p = 90	T95
		T_a = 53 T_p = 120	T125
		T_a = 40 T_p = 150	T155

With Optional specification, ID Mx = MR, MS

A, B			
	2 A		
		T_a = 70 T_p = 80 to 125	T85 to 130 (T = T_p +5 K)
		T_a = 67 T_p = 150	T155

Position 3, 4 = A7, A8 and Position 6 = B, C, M

A, B			
		T_a = 70 T_p = 80 to 150	T85 to 155 (T = T_p +5 K)

Position 3, 4 = GA and Position 6 = B, C, M

C			
		T_a = 70 T_p = 80	T85

Connection data

Optional specification, ID Nx, Ox = NF, NG
When using the Bluetooth® module: No changes to the connection values.

Basic specification, Position 3, 4	**Power supply circuit**	**Output**
A1	U = 19 to 253 V_{AC}, 50/60 Hz; P_{max} < 2 VA	I_{max} = 180 mA I_{max} = 350 mA [1]
A2	U = 10 to 55 V_{DC}; P_{max} < 0.5 W, P_{max} < 1.2 W [2]	I_{max} = 350 mA
A3	U = 9 to 20 V_{DC}; P_{max} < 1 W, P_{max} < 1.7 W [2]	2 potential free change-over contacts; 2 A
A4	U = 19 to 253 V_{AC}, 50/60 Hz or 19 to 55 V_{DC}; P_{max} < 25 VA or < 1.3 W, P_{max} < 31 VA or < 2 W [2]	
A7	U = 9.5 to 12.5 V_{DC}; PFM; I_{max} = 12 mA Connection only to power supply unit FTL325P or FTL375P from Endress+Hauser.	
A8	U = 4 to 8.2 V_{DC}	NAMUR; I_{max} = 3.8 mA
GA	U = 21 to 26 V_{DC}; I_{max} = 16 mA Connection only to power supply unit FML621 from Endress+Hauser.	

1) Only in connection with Position 8 = A, B, Optional Specification ID Mx = MR, MS
2) Only in connection with Position 5 = B

71623546

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