Safety Instructions
Levelflex
FMP50/51/52/53/54/55

4-20 mA HART

Ex ia IIC T1-T6 Ga/Gb
Ex d [ia] IIC T1-T6 Ga/Gb

Document: XA01571F-A
Safety instructions for electrical apparatus for explosion-hazardous areas → 3

Document: XA01571F-A
Temperature tables → 13

Endress+Hauser
People for Process Automation

Levelflex FMP50/51/52/53/54/55

4-20 mA HART

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Associated documentation

This document is an integral part of the following Operating Instructions:

- BA01000F/00 (FMP50)
- BA01001F/00 (FMP51, FMP52, FMP54)
- BA01002F/00 (FMP53)
- BA01003F/00 (FMP55)

Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:
- In the download area of the Endress+Hauser website: www.endress.com -> Download -> Advanced -> Documentation Code: CP00021Z
- On the CD for devices with CD-based documentation

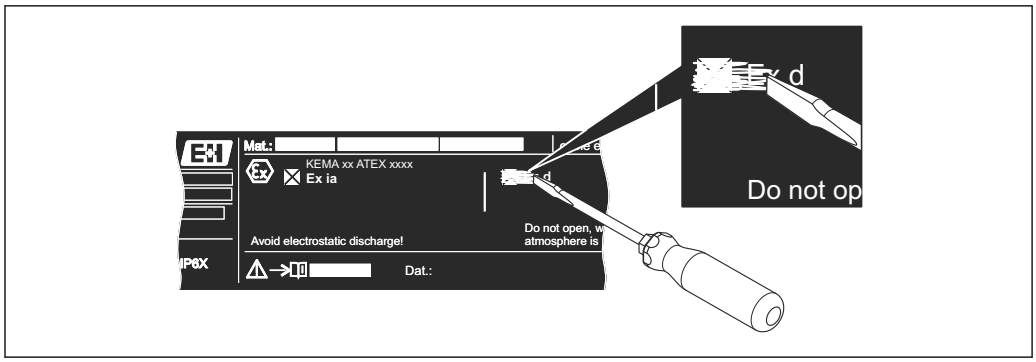
General notes: Combined approval

The device is suitable for installation with explosion protection "Intrinsic safety Ex i" or "Flameproof enclosure Ex d".

- Before initial commissioning, specify the type of protection.
- It is not permitted to change the type of protection after initial commissioning as this can jeopardize the explosion protection.

For aluminum housings:
Void out the explosion protection that is not used on the nameplate.

For stainless steel housings:
Using a striking tool, mark the explosion protection used, or void out the explosion protection that is not used.



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Depending on the type of protection used: Observe the safety instructions for installation with explosion protection "Intrinsic safety Ex i" or "Flameproof enclosure Ex d".

Manufacturer's certificates

NEPSI Declaration of Conformity

Certificate number:
GYJ16.1376X

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

- GB3836.1-2010
- GB3836.2-2010
- GB3836.4-2010
- GB3836.20-2010

Manufacturer address

Address of manufacturer: 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

FMP5x	–	**********	+	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: Levelflex

Device type

FMP50, FMP51, FMP52, FMP53, FMP54, FMP55

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
FMP5x	N4	NEPSI Ex ia IIC T6 Ga/Gb NEPSI Ex d [ia] IIC T6 Ga/Gb

Position 3 (Power Supply, Output)		
Selected option		**Description**
FMP5x	A	2-wire, 4-20 mA HART
	B	2-wire, 4-20 mA HART, switch output (PFS)
	C	2-wire, 4-20 mA HART, 4 to 20 mA

Position 4 (Display, Operation)		
Selected option		**Description**
FMP5x	A	Without, via communication
	C	SD02, 4-line, push buttons + data backup function
	E	SD03, 4-line, illum., touch control + data backup function
	L	Prepared for display FHX50 + M12 connection
	M	Prepared for display FHX50 + custom connection

Position 5 (Housing)		
Selected option		**Description**
FMP51 FMP52 FMP54 FMP55	B	GT18 dual compartment, 316L
FMP5x	C	GT20 dual compartment, Alu coated

Position 9, 10 (Seal)		
Selected option		**Description**
FMP50	A1	Viton, −20…80 °C
FMP51	A4	Viton, −30…150 °C
	B3	EPDM, −40…120 °C
	C3	Kalrez, −20…200 °C
	E1	FVMQ, −50…150 °C
FMP53	AD	FKM, FDA, USP Cl. VI, −10…150 °C
	B5	EPDM, FDA, USP Cl. VI, −20…130 °C
	C4	Kalrez, FDA, USP Cl. VI, −20…150 °C
FMP54	D1	Graphite, −196…280 °C (XT)
	D2	Graphite, −196…450 °C (HT)

Optional specifications

ID Jx (Test, Certificate)		
Selected option		**Description**
FMP51 [1)] FMP54	JN	Ambient temperature transmitter −50 °C

1) Only in connection with Position 9, 10 (Seal) = E1

ID Mx (Probe Design)		
Selected option		**Description**
FMP5x	MB	Sensor remote, 3 m/9 ft cable, detachable + mounting bracket
FMP53	MA	Sensor compact, detachable
FMP50-54	MC	Sensor remote, 6 m/18 ft cable, detachable + mounting bracket
	MD	Sensor remote, 9 m/27 ft cable, detachable + mounting bracket

ID Nx (Accessory Mounted)		
Selected option		**Description**
FMP51 FMP52 FMP55	NC	Gas-tight feed through

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
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
  - GB50257-2014: "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
  - GB3836.13-2013: "Explosive atmospheres, Part 13: Equipment repair, overhaul and reclamation".
  - GB3836.15-2000: "Electrical apparatus for explosive gas atmospheres, Part 15: Electrical installations in hazardous area (other than mines)".
  - GB3836.16-2006: "Electrical apparatus for explosive gas atmospheres, Part 16: Inspection and maintenance of electrical installation (other than mines)".
  - GB3836.18-2010: "Explosive atmospheres, Part 18: Intrinsically safe system".
- 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. housing, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.
- 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.
- When replacing the probe electronics or opening the connection between the remote cable and the probe, a jumper plug must be used or a short-circuit must be established between the probe contact and the potential equalization conductor to avoid electrostatically charging the probe.

Safety instructions: Special conditions

Permitted ambient temperature range at the electronics housing:
$-40\ °C \leq T_a \leq +80\ °C$

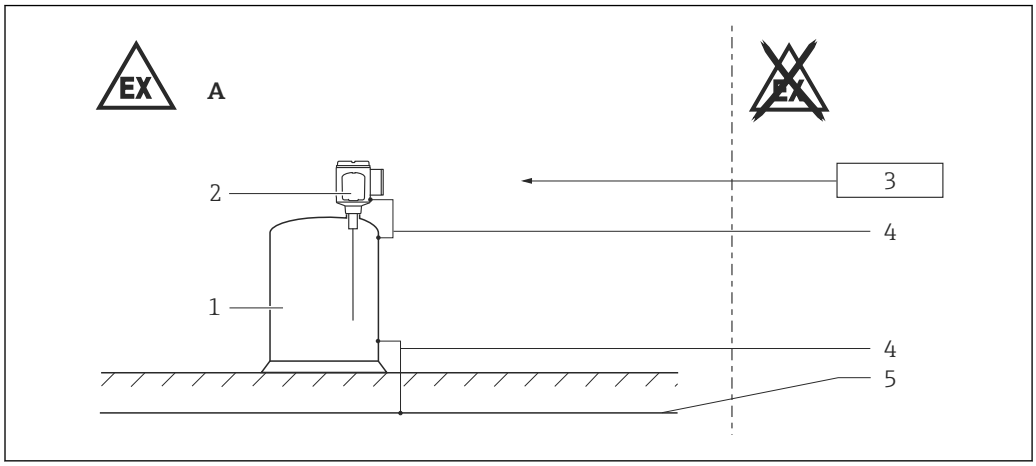
Optional specification, ID Jx (Test, Certificate) = JN
Permitted ambient temperature range at the electronics housing:
$-50\ °C \leq T_a \leq +80\ °C$

- Observe the information in the temperature tables.
- In the case of process connections made of polymeric material or with polymeric coatings, avoid electrostatic charging of the plastic surfaces.
- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.

Device type FMP52, FMP55
A probe coated with non-conductive material can be used if avoiding electrostatic charging (e.g. through friction, cleaning, maintenance, strong medium flow).

Safety instructions: Installation

Explosion protection "Intrinsic safety Ex i"



2

A Zone 1
1 Tank; Zone 0, Zone 1
2 Electronic insert
3 Certified associated apparatus
4 Potential equalization line
5 Potential equalization

- After aligning (rotating) the housing, retighten the fixing screw (see Operating Instructions).
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- Continuous service temperature of the connecting cable: −40 °C to ≥ +85 °C; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,min}$), ($T_{a,max}$ +20 K).

Optional specification, ID Jx (Test, Certificate) = JN
Continuous service temperature of the connecting cable: −50 °C to ≥ +85 °C; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,min}$), ($T_{a,max}$ +20 K).

Intrinsic safety

- The device is only suitable for connection to certified, intrinsically safe equipment with explosion protection Ex ia / Ex ib.
- The intrinsically safe input power circuit of the device is isolated from ground. If the device is only equipped with one input, the dielectric strength of the input is at least 500 V_{rms}. If the device is equipped with more than one input, the dielectric strength of each individual input to ground is at least 500 V_{rms}, and the dielectric strength of the inputs vis-à-vis one another is also at least 500 V_{rms}.
- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- The device can be connected to the Endress+Hauser FXA291 service tool: refer to the Operating Instructions and specifications in the "Overvoltage protection" chapter.
- When the intrinsically safe Ex ia circuits of the device are connected to certified intrinsically safe circuits of Category Ex ib for Equipment Groups IIC or IIB, the type of protection changes to Ex ib [ia] IIC or Ex ib [ia] IIB. Regardless of the power supply, all the internal circuits correspond to Ex ia IIC type of protection (e.g. service interface, external display, sensor).

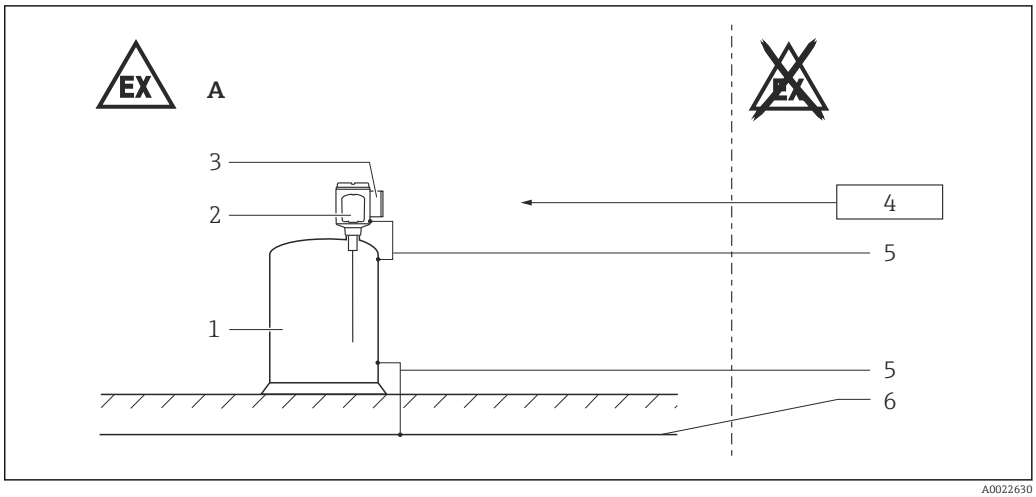
Potential equalization

Integrate the device into the local potential equalization.

Overvoltage protection

- If an overvoltage protection against atmospheric over voltages is required: no other circuits may leave the housing during normal operation without additional measures.
- For installations which require overvoltage protection to comply with national regulations or standards, install the device using overvoltage protection (e.g. HAW56x from Endress+Hauser).
- Observe the safety instructions of the overvoltage protection.

Explosion protection "Flameproof enclosure Ex d"



3

A Zone 1
1 Tank; Zone 0, Zone 1
2 Electronics compartment Ex ia; Electronic insert
3 Connection compartment Ex d
4 Power supply
5 Potential equalization line
6 Potential equalization

- After aligning (rotating) the housing, retighten the fixing screw (see Operating Instructions).
- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- In potentially explosive atmospheres:
  – Do not disconnect the electrical connection of the power supply circuit when energized.
  – Do not open the connection compartment cover.
- Only use certified cable entries suitable for the application. Observe national regulations and standards. Accordingly, the connection terminal does not include any ignition sources.
- When operating the transmitter housing 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 housing.
- 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.
- Before operation:
  – Screw in the cover all the way.
  – Tighten the securing clamp on the cover.
- Continuous service temperature of the connecting cable: −40 °C to ≥ +85 °C; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,min}$), ($T_{a,max}$ +20 K).

Optional specification, ID Jx (Test, Certificate) = JN
Continuous service temperature of the connecting cable: −50 °C to ≥ +85 °C; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,min}$), ($T_{a,max}$ +20 K).

Intrinsic safety

The device can be connected to the Endress+Hauser FXA291 service tool: refer to the Operating Instructions.

Potential equalization

Integrate the device into the local potential equalization.

Safety instructions: Zone 0

Explosion protection "Intrinsic safety Ex i"

- In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.
  - Temperature: −20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with normal oxygen content, usually 21 % (V/V)
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.
- Associated devices with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.
- If there is a risk of dangerous potential differences within Zone 0 (e.g. through the occurrence of atmospheric electricity), implement suitable measures for intrinsically safe circuits in Zone 0.

Explosion protection "Flameproof enclosure Ex d"

- In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.
  - Temperature: −20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with normal oxygen content, usually 21 % (V/V)
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.

Temperature tables

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Connection data

Ex ia

Explosion protection "Intrinsic safety Ex i"

Power supply and signal circuit with protection type: intrinsic safety Ex ia IIC, Ex ia IIB.

Basic specification, Position 3 (Power Supply, Output) = A

Terminal 1 (+), 2 (−)
Power supply: U_i = 30 V I_i = 300 mA P_i = 1 W effective inner inductance L_i = 0 effective inner capacitance C_i = 5 nF

Basic specification, Position 3 (Power Supply, Output) = B

Terminal 1 (+), 2 (−)	**Terminal 3 (+), 4 (−)**
Power supply: U_i = 30 V I_i = 300 mA P_i = 1 W effective inner inductance L_i = 0 effective inner capacitance C_i = 5 nF	Switch output (PFS): U_i = 30 V I_i = 300 mA P_i = 1 W effective inner inductance L_i = 0 effective inner capacitance C_i = 6 nF

Basic specification, Position 3 (Power Supply, Output) = C

Terminal 1 (+), 2 (–)	Terminal 3 (+), 4 (–)
Power supply: U_i = 30 V I_i = 300 mA P_i = 1 W effective inner inductance L_i = 0 effective inner capacitance C_i = 30 nF	Output 4 to 20 mA: U_i = 30 V I_i = 300 mA P_i = 1 W effective inner inductance L_i = 0 effective inner capacitance C_i = 30 nF

Service interface (CDI)

Taking the following values into consideration, the device can be connected to the certified Endress+Hauser FXA291 service tool or a similar interface:

Service interface												
U_i = 7.3 V effective inner inductance L_i = negligible effective inner capacitance C_i = negligible												
U_o = 7.3 V I_o = 100 mA P_o = 160 mW												
L_o (mH) =	5.00	2.00	1.00	0.50	0.20	0.10	0.05	0.02	0.01	0.005	0.002	0.001
C_o (µF) =	0.73	1.20	1.60	2.00	2.60	3.20	4.00	5.50	7.30	10.00	12.70	12.70

Connection compartment Ex d

Explosion protection "Flameproof enclosure Ex d"

Basic specification, Position 3 (Power Supply, Output) = A

Terminal 1 (+), 2 (–)
Power supply: U_N = 35 V_{DC} U_m = 250 V I_{max} = 22 mA

Basic specification, Position 3 (Power Supply, Output) = B

The power consumption of I/O modules with passive PFS output can be limited for certain applications.

- Recommended: Power consumption = 1 W. This is obtained for a supply voltage at the terminals of 27 V_{DC}.
- For higher supply voltages (U_{max}): Insert a serial resistance (R_V) in order to limit the power consumption, see table below.

Table for the PFS serial resitance (R_V):

Power consumption	1.0 W
Total power consumption	1.88 W
Internal resistance R_I	760 Ω

U_{max} [V]	R_V min
35	205 Ω
34	177 Ω
33	150 Ω
32	122 Ω
31	95 Ω
30	67 Ω
29	39 Ω
28	12 Ω
27	0 Ω

For values associated with a higher or lower internal power consumption please contact Endress+Hauser.

Terminal 1 (+), 2 (–)	Terminal 3 (+), 4 (–)
Power supply: U_N = 35 V_{DC} U_m = 250 V I_{max} = 22 mA	Switch output (PFS): U_N = 35 V_{DC} U_m = 250 V

Basic specification, Position 3 (Power Supply, Output) = C

Terminal 1 (+), 2 (–)	Terminal 3 (+), 4 (–)
Power supply: U_N = 30 V_{DC} U_m = 250 V I_{max} = 22 mA	Output 4 to 20 mA: U_N = 30 V_{DC} U_m = 250 V I_{max} = 22 mA

Electronics compartment Ex ia

Service interface (CDI)

Taking the following values into consideration, the device can be connected to the certified Endress+Hauser FXA291 service tool or a similar interface:

Service interface												
U_i = 7.3 V effective inner inductance L_i = negligible effective inner capacitance C_i = negligible												
U_o = 7.3 V I_o = 100 mA P_o = 160 mW												
L_o (mH) =	5.00	2.00	1.00	0.50	0.20	0.10	0.05	0.02	0.01	0.005	0.002	0.001
C_o (µF) =	0.73	1.20	1.60	2.00	2.60	3.20	4.00	5.50	7.30	10.00	12.70	12.70

Levelflex FMP50/51/52/53/54/55

4-20 mA HART

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Zone 0/1, Zone 1: Remote; 2 channels 44

Notes on the structure

Extract from the extended order code

Device type

FMP50, FMP51, FMP52, FMP53, FMP54, FMP55

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
FMP5x	N4	NEPSI Ex ia IIC T6 Ga/Gb NEPSI Ex d [ia] IIC T6 Ga/Gb

Position 3 (Power Supply, Output)		
Selected option		**Description**
FMP5x	A	2-wire, 4-20 mA HART
	B	2-wire, 4-20 mA HART, switch output (PFS)
	C	2-wire, 4-20 mA HART, 4...20 mA

Position 5 (Housing)		
Selected option		**Description**
FMP51 FMP52 FMP54 FMP55	B	GT18 dual compartment, 316L
FMP5x	C	GT20 dual compartment, Alu coated

Position 9, 10 (Seal)		
Selected option		**Description**
FMP50	A1	Viton, −20...80 °C
FMP51	A4	Viton, −30...150 °C
	B3	EPDM, −40...120 °C
	C3	Kalrez, −20...200 °C
	E1	FVMQ, −50...150 °C
FMP53	AD	FKM, FDA, USP Cl. VI, −10...150 °C
	B5	EPDM, FDA, USP Cl. VI, −20...130 °C
	C4	Kalrez, FDA, USP Cl. VI, −20...150 °C
FMP54	D1	Graphite, −196...280 °C (XT)
	D2	Graphite, −196...450 °C (HT)

Optional specifications

ID Jx (Test, Certificate)		
Selected option		**Description**
FMP51 [1)] FMP54	JN	Ambient temperature transmitter −50 °C

1) Only in connection with Position 9, 10 (Seal) = E1

ID Mx (Probe Design)		
Selected option		**Description**
FMP5x	MB	Sensor remote, 3 m/9 ft cable, detachable + mounting bracket
FMP53	MA	Sensor compact, detachable
FMP50-54	MC	Sensor remote, 6 m/18 ft cable, detachable + mounting bracket
	MD	Sensor remote, 9 m/27 ft cable, detachable + mounting bracket

General notes

Observe the permitted temperature range at the probe.

Description notes

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

1st column: Position 3 (Power Supply, Output) = A, B, ..
- (1): 1 channel used
- (2): 2 channels used

2nd column: Temperature classes T6 (85 °C) to T1 (450 °C)

Column P1 to P6: Position (temperature value) on the axes of the derating
- T_a: Ambient temperature in °C
- T_p: Process temperature in °C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, C	T6	-40	60	60	60	85	46	85	-40	-40	-40	-50	-28
	T5	-40	72	72	72	100	61	100	-40	-40	-40	-50	-23
	T4	-40	72	72	72	135	53	135	-40	-40	-40	-50	-23
B	T6	-40	43	43	43	85	31	85	-40	-40	-40	-50	-28
	T5	-40	56	56	56	100	43	100	-40	-40	-40	-50	-23
	T4	-40	56	56	56	135	32	135	-40	-40	-40	-50	-23

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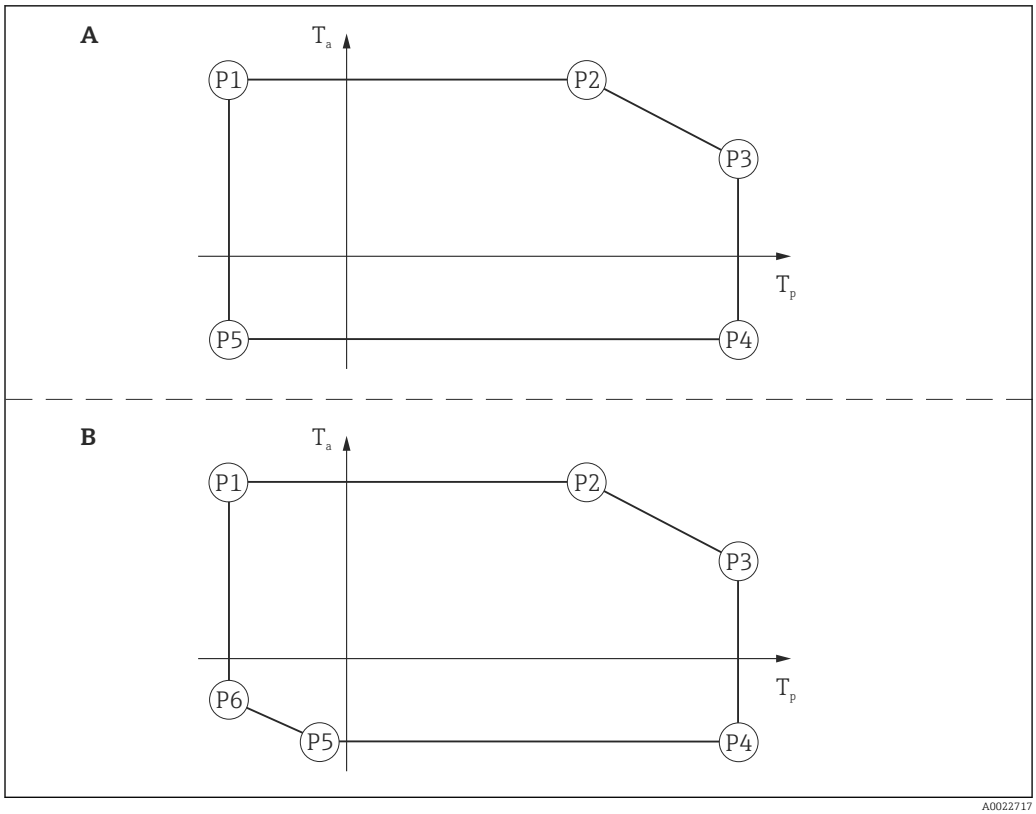
Column P6 is only relevant for version B of the derating.
→ 4, 16

Example diagrams of possible deratings



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Zone 0, Zone 1: Compact; 1 channel

Probe design: compact

Position 3 (Power Supply, Output) = A, B, C: 1 channel used
Probe: Zone 0; Electronics housing: Zone 1

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP5x

Position 5 (Housing) = B, C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a 1)	T_p	T_a 1)	T_p	T_a
A, B, C	T6	–20	60	60	60	60	60	60	–40 –50 2)	–20	–40 –50 2)	–	–

1) FMP50, FMP53: without remote sensor = –20 °C
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Zone 0, Zone 1: Compact; 2 channels

Probe design: compact

Position 3 (Power Supply, Output) = B, C: 2 channels used
Probe: Zone 0; Electronics housing: Zone 1

Explosion protection "Intrinsic safety Ex i"

FMP5x

Position 5 (Housing) = B, C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a [1]	T_p	T_a [1]	T_p	T_a
B	T6	–20	51	51	51	60	49	60	–40 –50 [2]	–20	–40 –50 [2]	–	–
C	T6	–20	53	53	53	60	53	60	–40 –50 [2]	–20	–40 –50 [2]	–	–

1) FMP50, FMP53: without remote sensor = –20 °C
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Flameproof enclosure Ex d"

FMP5x

Position 5 (Housing) = B, C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a [1]	T_p	T_a [1]	T_p	T_a
B, C	T6	–20	60	60	60	60	60	60	–40 –50 [2]	–20	–40 –50 [2]	–	–

1) FMP50, FMP53: without remote sensor = –20 °C
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Zone 1: Compact; 1 channel

Probe design: compact

Position 3 (Power Supply, Output) = A, B, C: 1 channel used
Probe and electronics housing: Zone 1

Page references to the temperature tables of the respective device types: See the following list.

- FMP50 → 19
- FMP51 → 20
- FMP52 → 21
- FMP53 → 22
- FMP54 → 23
- FMP55 → 25

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP50

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–20	60	60	60	80	56	80	–20	–20	–20	–	–

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP51

Position 5 (Housing) = B

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–40 –50 [1)]	60	60	60	85	51	85	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T5	–40 –50 [1)]	75	75	75	100	66	100	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T4	–40 –50 [1)]	80	80	80	135	67	135	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T3	–40 –50 [1)]	80	80	80	200	48	200	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–40 –50 [1)]	60	60	60	85	53	85	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T5	–40 –50 [1)]	75	75	75	100	68	100	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T4	–40 –50 [1)]	80	80	80	135	69	135	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–
	T3	–40 –50 [1)]	80	80	80	200	56	200	–40 –50 [1)]	–40 –50 [1)]	–40 –50 [1)]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP52

Position 5 (Housing) = B

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–50	60	60	60	85	52	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	67	100	–40	–40	–40	–50	–37
	T4	–50	80	80	80	135	68	135	–40	–40	–40	–50	–37
	T3	–50	80	80	80	200	52	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–50	60	60	60	85	54	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	69	100	–40	–40	–40	–50	–37
	T4	–50	80	80	80	135	70	135	–40	–40	–40	–50	–37
	T3	–50	80	80	80	200	58	200	–40	–40	–40	–50	–37

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP53

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–20	60	60	60	85	54	85	–20	–20	–20	–	–
	T5	–20	75	75	75	100	69	100	–20	–20	–20	–	–
	T4	–20	80	80	80	135	69	135	–20	–20	–20	–	–
	T3	–20	80	80	80	150	66	150	–20	–20	–20	–	–

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP54

Position 9, 10 (Seal) = D1

Position 5 (Housing) = B

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–196	60	60	60	85	56	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T5	–196	75	75	75	100	71	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T4	–196	80	80	80	135	73	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T3	–196	80	80	80	200	64	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T2	–196	80	80	80	280	53	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–196	60	60	60	85	57	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T5	–196	75	75	75	100	72	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T4	–196	80	80	80	135	75	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T3	–196	80	80	80	200	68	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T2	–196	80	80	80	280	60	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

FMP54

Position 9, 10 (Seal) = D2

Position 5 (Housing) = B

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	−196	60	60	60	85	57	85	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]
	T5	−196	75	75	75	100	72	100	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]
	T4	−196	80	80	80	135	76	135	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]
	T3	−196	80	80	80	200	71	200	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]
	T2	−196	80	80	80	300	63	300	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]
	T1 [1]	−196	80	80	80	450	52	450	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−26 −37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	−196	60	60	60	85	58	85	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]
	T5	−196	75	75	75	100	73	100	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]
	T4	−196	80	80	80	135	76	135	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]
	T3	−196	80	80	80	200	72	200	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]
	T2	−196	80	80	80	300	65	300	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]
	T1 [1]	−196	80	80	80	450	54	450	−40 −50 [2]	−40 −50 [2]	−40 −50 [2]	−196	−27 −37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Intrinsic safety Ex i", "Flameproof enclosure Ex d"

FMP55

Position 5 (Housing) = B

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–50	60	60	60	85	52	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	67	100	–40	–40	–40	–50	–37
	T4	–50	80	80	80	135	68	135	–40	–40	–40	–50	–37
	T3	–50	80	80	80	200	52	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(1)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
A, B, C	T6	–50	60	60	60	85	54	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	69	100	–40	–40	–40	–50	–37
	T4	–50	80	80	80	135	69	135	–40	–40	–40	–50	–37
	T3	–50	80	80	80	200	56	200	–40	–40	–40	–50	–37

Zone 1: Compact; 2 channels

Probe design: compact

Position 3 (Power Supply, Output) = B, C: 2 channels used
Probe and electronics housing: Zone 1

Page references to the temperature tables of the respective device types: See the following list.

- FMP50 → 26
- FMP51 → 27
- FMP52 → 29
- FMP53 → 31
- FMP54 → 33
- FMP55 → 41

Explosion protection "Intrinsic safety Ex i"

FMP50

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–20	51	51	51	80	49	80	–20	–20	–20	–	–
C	T6	–20	54	54	54	80	52	80	–20	–20	–20	–	–

Explosion protection "Flameproof enclosure Ex d"

FMP50

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B, C	T6	–20	60	60	60	80	56	80	–20	–20	–20	–	–

Explosion protection "Intrinsic safety Ex i"

FMP51

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	−40 −50 [1]	51	51	51	85	43	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	66	66	66	100	58	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	75	75	75	135	60	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	75	75	75	200	45	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
C	T6	−40 −50 [1]	54	54	54	85	46	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	69	69	69	100	61	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	78	78	78	135	64	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	78	78	78	200	48	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	−40 −50 [1]	51	51	51	85	44	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	66	66	66	100	59	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	75	75	75	135	63	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	75	75	75	200	50	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
C	T6	−40 −50 [1]	54	54	54	85	48	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	69	69	69	100	63	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	78	78	78	135	66	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	78	78	78	200	53	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Flameproof enclosure Ex d"

FMP51

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	−40 −50 [1]	60	60	60	85	52	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	75	75	75	100	67	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	75	75	75	135	60	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	75	75	75	200	45	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
C	T6	−40 −50 [1]	60	60	60	85	51	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	75	75	75	100	66	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	78	78	78	135	64	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	78	78	78	200	48	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	−40 −50 [1]	60	60	60	85	54	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	75	75	75	100	69	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	75	75	75	135	63	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	75	75	75	200	50	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
C	T6	−40 −50 [1]	60	60	60	85	53	85	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T5	−40 −50 [1]	75	75	75	100	68	100	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T4	−40 −50 [1]	78	78	78	135	66	135	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–
	T3	−40 −50 [1]	78	78	78	200	53	200	−40 −50 [1]	−40 −50 [1]	−40 −50 [1]	–	–

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Intrinsic safety Ex i"

FMP52

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	51	51	51	85	44	85	–40	–40	–40	–50	–37
	T5	–50	66	66	66	100	59	100	–40	–40	–40	–50	–37
	T4	–50	75	75	75	135	61	135	–40	–40	–40	–50	–37
	T3	–50	75	75	75	200	47	200	–40	–40	–40	–50	–37
C	T6	–50	54	54	54	85	47	85	–40	–40	–40	–50	–37
	T5	–50	69	69	69	100	62	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	65	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	50	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	51	51	51	85	45	85	–40	–40	–40	–50	–38
	T5	–50	66	66	66	100	60	100	–40	–40	–40	–50	–38
	T4	–50	75	75	75	135	64	135	–40	–40	–40	–50	–38
	T3	–50	75	75	75	200	52	200	–40	–40	–40	–50	–38
C	T6	–50	54	54	54	85	48	85	–40	–40	–40	–50	–37
	T5	–50	69	69	69	100	63	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	67	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	55	200	–40	–40	–40	–50	–37

Explosion protection "Flameproof enclosure Ex d"

FMP52

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	60	60	60	85	53	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	68	100	–40	–40	–40	–50	–37
	T4	–50	75	75	75	135	61	135	–40	–40	–40	–50	–37
	T3	–50	75	75	75	200	47	200	–40	–40	–40	–50	–37
C	T6	–50	60	60	60	85	52	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	67	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	65	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	50	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	60	60	60	85	55	85	–40	–40	–40	–50	–38
	T5	–50	75	75	75	100	70	100	–40	–40	–40	–50	–38
	T4	–50	75	75	75	135	64	135	–40	–40	–40	–50	–38
	T3	–50	75	75	75	200	52	200	–40	–40	–40	–50	–38
C	T6	–50	60	60	60	85	54	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	69	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	67	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	55	200	–40	–40	–40	–50	–37

Explosion protection "Intrinsic safety Ex i"

FMP53

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–20	51	51	51	85	44	85	–20	–20	–20	–	–
	T5	–20	66	66	66	100	59	100	–20	–20	–20	–	–
	T4	–20	75	75	75	135	63	135	–20	–20	–20	–	–
	T3	–20	75	75	75	150	59	150	–20	–20	–20	–	–
C	T6	–20	54	54	54	85	48	85	–20	–20	–20	–	–
	T5	–20	69	69	69	100	63	100	–20	–20	–20	–	–
	T4	–20	78	78	78	135	66	135	–20	–20	–20	–	–
	T3	–20	78	78	78	150	63	150	–20	–20	–20	–	–

Explosion protection "Flameproof enclosure Ex d"

FMP53

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–20	60	60	60	85	54	85	–20	–20	–20	–	–
	T5	–20	75	75	75	100	69	100	–20	–20	–20	–	–
	T4	–20	75	75	75	135	63	135	–20	–20	–20	–	–
	T3	–20	75	75	75	150	59	150	–20	–20	–20	–	–
C	T6	–20	60	60	60	85	54	85	–20	–20	–20	–	–
	T5	–20	75	75	75	100	69	100	–20	–20	–20	–	–
	T4	–20	78	78	78	135	66	135	–20	–20	–20	–	–
	T3	–20	78	78	78	150	63	150	–20	–20	–20	–	–

Explosion protection "Intrinsic safety Ex i"

FMP54

Position 9, 10 (Seal) = D1

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	51	51	51	85	47	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T5	–196	66	66	66	100	62	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T4	–196	75	75	75	135	67	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T3	–196	75	75	75	200	58	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T2	–196	75	75	75	280	48	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
C	T6	–196	54	54	54	85	50	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T5	–196	69	69	69	100	65	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T4	–196	78	78	78	135	70	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T3	–196	78	78	78	200	61	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T2	–196	78	78	78	280	51	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	51	51	51	85	48	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T5	–196	66	66	66	100	63	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T4	–196	75	75	75	135	69	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T3	–196	75	75	75	200	63	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T2	–196	75	75	75	280	55	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
C	T6	–196	54	54	54	85	51	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T5	–196	69	69	69	100	66	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T4	–196	78	78	78	135	72	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T3	–196	78	78	78	200	65	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T2	–196	78	78	78	280	57	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

FMP54

Position 9, 10 (Seal) = D2

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	51	51	51	85	49	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T5	–196	66	66	66	100	64	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T4	–196	75	75	75	135	70	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T3	–196	75	75	75	200	66	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T2	–196	75	75	75	300	58	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T1 [1]	–196	75	75	75	450	47	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
C	T6	–196	54	54	54	85	52	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T5	–196	69	69	69	100	67	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T4	–196	78	78	78	135	73	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T3	–196	78	78	78	200	68	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T2	–196	78	78	78	300	61	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T1 [1]	–196	78	78	78	450	49	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	51	51	51	85	49	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T5	–196	66	66	66	100	64	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T4	–196	75	75	75	135	71	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T3	–196	75	75	75	200	66	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T2	–196	75	75	75	300	59	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T1 [1]	–196	75	75	75	450	49	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
C	T6	–196	54	54	54	85	52	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T5	–196	69	69	69	100	67	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T4	–196	78	78	78	135	74	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T3	–196	78	78	78	200	69	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T2	–196	78	78	78	300	62	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T1 [1]	–196	78	78	78	450	51	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Flameproof enclosure Ex d"

FMP54

Position 9, 10 (Seal) = D1

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	60	60	60	85	56	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T5	–196	75	75	75	100	71	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T4	–196	75	75	75	135	67	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T3	–196	75	75	75	200	58	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T2	–196	75	75	75	280	48	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
C	T6	–196	60	60	60	85	56	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T5	–196	75	75	75	100	71	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T4	–196	78	78	78	135	70	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T3	–196	78	78	78	200	61	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]
	T2	–196	78	78	78	280	51	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–16 –27 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	60	60	60	85	57	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T5	–196	75	75	75	100	72	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T4	–196	75	75	75	135	69	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T3	–196	75	75	75	200	63	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T2	–196	75	75	75	280	55	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
C	T6	–196	60	60	60	85	57	85	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T5	–196	75	75	75	100	72	100	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T4	–196	78	78	78	135	72	135	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T3	–196	78	78	78	200	65	200	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]
	T2	–196	78	78	78	280	57	280	–40 –50 [1]	–40 –50 [1]	–40 –50 [1]	–196	–23 –34 [1]

1) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

FMP54

Position 9, 10 (Seal) = D2

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	60	60	60	85	58	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T5	–196	75	75	75	100	73	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T4	–196	75	75	75	135	70	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T3	–196	75	75	75	200	66	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T2	–196	75	75	75	300	58	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T1 [1]	–196	75	75	75	450	47	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
C	T6	–196	60	60	60	85	57	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T5	–196	75	75	75	100	72	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T4	–196	78	78	78	135	73	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T3	–196	78	78	78	200	68	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T2	–196	78	78	78	300	61	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]
	T1 [1]	–196	78	78	78	450	49	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–26 –37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–196	60	60	60	85	58	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T5	–196	75	75	75	100	73	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T4	–196	75	75	75	135	71	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T3	–196	75	75	75	200	66	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T2	–196	75	75	75	300	59	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
	T1 [1]	–196	75	75	75	450	49	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–28 –37 [2]
C	T6	–196	60	60	60	85	58	85	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T5	–196	75	75	75	100	73	100	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T4	–196	78	78	78	135	74	135	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T3	–196	78	78	78	200	69	200	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T2	–196	78	78	78	300	62	300	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]
	T1 [1]	–196	78	78	78	450	51	450	–40 –50 [2]	–40 –50 [2]	–40 –50 [2]	–196	–27 –37 [2]

1) Functional: Max. permissible process temperature
2) Only in connection with Optional specification, ID Jx (Test, Certificate) = JN

Explosion protection "Intrinsic safety Ex i"

FMP55

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	51	51	51	85	44	85	–40	–40	–40	–50	–37
	T5	–50	66	66	66	100	59	100	–40	–40	–40	–50	–37
	T4	–50	75	75	75	135	62	135	–40	–40	–40	–50	–37
	T3	–50	75	75	75	200	48	200	–40	–40	–40	–50	–37
C	T6	–50	54	54	54	85	47	85	–40	–40	–40	–50	–37
	T5	–50	69	69	69	100	62	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	65	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	50	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	51	51	51	85	45	85	–40	–40	–40	–50	–38
	T5	–50	66	66	66	100	60	100	–40	–40	–40	–50	–38
	T4	–50	75	75	75	135	63	135	–40	–40	–40	–50	–38
	T3	–50	75	75	75	200	50	200	–40	–40	–40	–50	–38
C	T6	–50	54	54	54	85	48	85	–40	–40	–40	–50	–37
	T5	–50	69	69	69	100	63	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	66	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	54	200	–40	–40	–40	–50	–37

Explosion protection "Flameproof enclosure Ex d"

FMP55

Position 5 (Housing) = B

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	60	60	60	85	54	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	69	100	–40	–40	–40	–50	–37
	T4	–50	75	75	75	135	62	135	–40	–40	–40	–50	–37
	T3	–50	75	75	75	200	48	200	–40	–40	–40	–50	–37
C	T6	–50	60	60	60	85	52	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	67	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	65	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	50	200	–40	–40	–40	–50	–37

Position 5 (Housing) = C

(2)		P1		P2		P3		P4		P5		P6	
		T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a	T_p	T_a
B	T6	–50	60	60	60	85	55	85	–40	–40	–40	–50	–38
	T5	–50	75	75	75	100	70	100	–40	–40	–40	–50	–38
	T4	–50	75	75	75	135	63	135	–40	–40	–40	–50	–38
	T3	–50	75	75	75	200	50	200	–40	–40	–40	–50	–38
C	T6	–50	60	60	60	85	54	85	–40	–40	–40	–50	–37
	T5	–50	75	75	75	100	69	100	–40	–40	–40	–50	–37
	T4	–50	78	78	78	135	66	135	–40	–40	–40	–50	–37
	T3	–50	78	78	78	200	54	200	–40	–40	–40	–50	–37

Zone 0/1, Zone 1: Remote; 1 channel

Probe design: remote

Position 3 (Power Supply, Output) = A, B, C: 1 channel used
Probe: Zone 0, Zone 1; Electronics housing: Zone 1

Optional specification, ID Mx (Probe Design) = MB, MC, MD

Explosion protection "Intrinsic safety Ex i"

FMP5x

Position 5 (Housing) = B, C

(1)		P1		P2		P3		P4		P5		P6	
		T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a
A, B	T6	–	60	–	60	–	60	–	–40	–	–40	–	–
	T5	–	75	–	75	–	75	–	–40	–	–40	–	–
C	T6	–	60	–	60	–	60	–	–40	–	–40	–	–
	T5	–	80	–	80	–	80	–	–40	–	–40	–	–

1) T_p = dependent on the sensor

Explosion protection "Flameproof enclosure Ex d"

FMP5x

Position 5 (Housing) = B, C

(1)		P1		P2		P3		P4		P5		P6	
		T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a
A, B, C	T6	–	60	–	60	–	60	–	–40	–	–40	–	–

1) T_p = dependent on the sensor

Zone 0/1, Zone 1: Remote; 2 channels

Probe design: remote

Position 3 (Power Supply, Output) = B, C: 2 channels used
Probe: Zone 0, Zone 1; Electronics housing: Zone 1

Optional specification, ID Mx (Probe Design) = MB, MC, MD

Explosion protection "Intrinsic safety Ex i"

FMP5x

Position 5 (Housing) = B, C

(2)		P1		P2		P3		P4		P5		P6	
		T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a
B	T6	–	51	–	51	–	51	–	–40	–	–40	–	–
	T5	–	66	–	66	–	66	–	–40	–	–40	–	–
C	T6	–	54	–	54	–	54	–	–40	–	–40	–	–
	T5	–	78	–	78	–	78	–	–40	–	–40	–	–

1) T_p = dependent on the sensor

Explosion protection "Flameproof enclosure Ex d"

FMP5x

Position 5 (Housing) = B, C

(2)		P1		P2		P3		P4		P5		P6	
		T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a	T_p 1)	T_a
B, C	T6	–	60	–	60	–	60	–	–40	–	–40	–	–

1) T_p = dependent on the sensor

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