

Safety Instructions

Levelflex

FMP50/51/52/53/54/55/56/57

Modbus RS485

Control Drawing XP



Document: XA01700F-A

Safety instructions for electrical apparatus for explosion-hazardous areas → 3

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Temperature tables → 11

Levelflex FMP50/51/52/53/54/55/56/57

Modbus RS485

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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)
- BA01004F/00 (FMP56, FMP57)

Manufacturer address Endress+Hauser GmbH+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

FMP5x	-	*****	+	A*B*C*D*E*F*G*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

* = 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



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

FMP50, FMP51, FMP52, FMP53, FMP54, FMP55, FMP56, FMP57

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FMP5x	CC	CSA C/US XP Cl. I, Div. 1, Groups A-D
	C3	CSA C/US XP Cl. I, II, III, Div. 1, Groups A-G; Class I, AEx d [ia] IIC/Ex d [ia] IIC; Class I, Div. 2, Groups A-D

Position 3 (Power Supply, Output)		
Selected option		Description
FMP5x	M	4-wire, Modbus RS485

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
	N	Prepared for display FHX50 + NPT1/2"

Position 5 (Housing)		
Selected option		Description
FMP51 FMP52 FMP54-57	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)
FMP56	AB	Viton, -30...120 °C
	B3	EPDM, -40...120 °C
FMP57	A4	Viton, -30...150 °C
	B3	EPDM, -40...120 °C
	C5	Kalrez, -5...185 °C

Optional specifications

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
FMP56 FMP57	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
- 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**

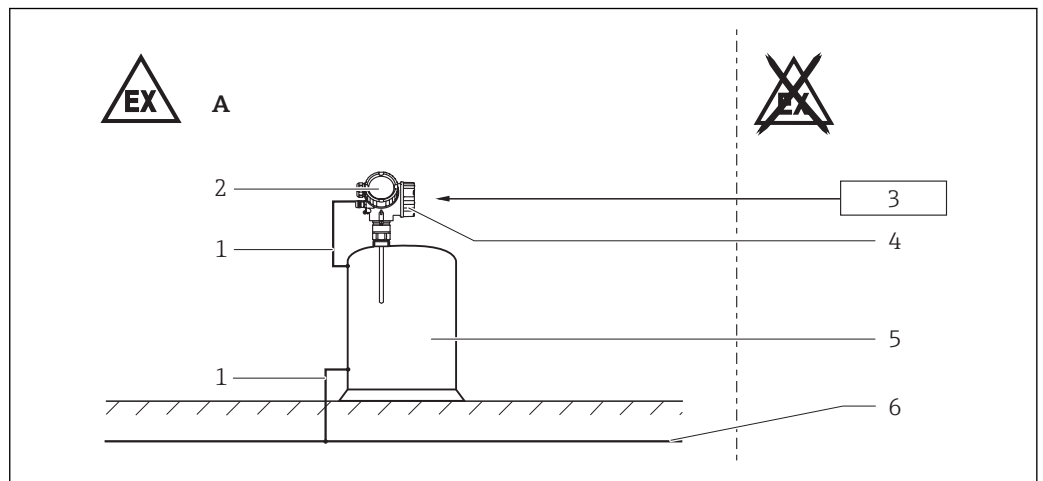
Permitted ambient temperature range at the electronics housing:
 $-40\text{ °C} \leq T_a \leq +80\text{ °C}$

- Observe the information in the temperature tables.
- Use supply wires suitable for 20 K above the ambient temperature.
- 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, FMP56, FMP57

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**



1

- A Class I, Div. 1 or 2, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Zone 1
- 1 Potential equalization line
- 2 Electronics compartment Ex ia; Electronic insert
- 3 Power supply
- 4 Connection compartment XP / Ex d
- 5 Tank; Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Zone 0, Zone 1
- 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.
- 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 $\geq +85\text{ °C}$; in accordance with the range of service temperature taking into account additional influences of the process conditions ($T_{a,\min}$), ($T_{a,\max} + 20\text{ K}$).

Explosionproof / Flameproof

Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III
Class I, Zone 0/1, AEx/Ex ia/db [ia Ga] IIC T6 Ga/Gb

- Install as per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- For the maximum supply voltage: See "Connection data" section.
- Control room equipment may not use or generate over 250 V_{rms}.
- 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 intrinsically safe, AEx ia/Ex ia, and suitable for installation in Class I, II, III, Division 1 or Class I, Zone 0/1.
- When prepared for use with an approved remote display FHX50, remote display is intrinsically safe suitable for Class I, Division 1/Zone 0 locations and connection between transmitter housing and remote display is intrinsically safe field wiring.
- WARNINGS: Substitution of components may impair intrinsic safety.

Factory sealed

Explosionproof conduit seal not required for terminal compartment when installed in Division 1 locations.

Terminal compartment

Do not open when explosive atmosphere is present.

For Class II and III

- Keep covers tight unless power has been switched off.
- Use a dust-tight seal at the conduit entry in a Class II and III location.

Class I, Div. 2, Groups A-D

The following instructions are applicable only for *Device type FMP5x, Basic specification, Position 1, 2 (Approval) = C3*

Device type FMP5x, Basic specification, Position 1, 2 (Approval) = CC is not marked for use in Class I, Division 2; however, these devices are suitable for this application when installed using the explosionproof instructions for Class I, Division 1.

Standard Wiring installation (only for NPT conduit entries)

- Install as per National Electrical Code (NFPA70) or Canadian Electrical Code, Part I (C22.1), as applicable.
- Using wiring methods appropriate for the location.
- Associated apparatus not required.
- For the maximum supply voltage: See "Connection data" section.
- Probe is intrinsically safe, AEx ia/Ex ia, and suitable for installation in Class I, II, III, Division 1 or Class I, Zone 0/1.
- When prepared for use with an approved remote display FHX50, remote display is intrinsically safe suitable for Class I, Division 1/Zone 0 locations and connection between transmitter housing and remote display is intrinsically safe field wiring.
- WARNINGS: Explosion hazard - Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- WARNINGS: Substitution of components may impair suitability for Class I, Div. 2.

Factory sealed


Explosionproof conduit seal not required for terminal compartment.

Process seals

The following device types are Dual Seal devices per ANSI/ISA 12.27.01 and do not require the use of an external secondary process seal.

Device type	Basic specification, Position 1, 2 (Approval)	MWP ¹⁾	Method of annunciation ²⁾
FMP50 FMP53 FMP56 FMP57	CC, C3	6 bar	Process fluid leakage through vent located in electronics compartment.
FMP51 FMP52 FMP55	C3	40 bar	Electronic firmware is incorporated to detect and signal any significant increases or decreases of measurement signal reflection caused by combustible or flammable process fluid between the primary and secondary seal.
FMP54	C3	370 bar	

- 1) Maximum Working Pressure for the Dual Seal rating. This value may be a value less than the MWP for the device.
- 2) No maintenance of annunciator necessary.

 Verify the chemical compatibility of the process seal specified on the nameplate in first position with the process fluid (see field "Mat." on the nameplate).

Temperature tables

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Connection data

Connection compartment AEx d/Ex d

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

Terminal 1 (+), 2 (-)	Terminal 3 (+), 4 (-)
Power supply: $U_{nom} = 10.5 \text{ to } 29 \text{ V}_{DC}$ $U_m = 250 \text{ V}$ $I_{nom} = 86 \text{ mA}$ $P_{nom} = 900 \text{ mW}$	Modbus RS485 output: $U_{nom} = 12 \text{ V}_{DC}$ $U_m = 250 \text{ V}$ $I_{nom} = 41 \text{ mA}$ $P_{nom} = 90 \text{ mW}$

Electronics compartment, intrinsically safe (AEx ia/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													
$U_i = 7.3 \text{ V}$ effective inner inductance $L_i = \text{negligible}$ effective inner capacitance $C_i = \text{negligible}$													
$U_o = 7.3 \text{ V}$ $I_o = 100 \text{ mA}$ $P_o = 160 \text{ mW}$													
$L_o \text{ (mH)} =$	5.00	2.00	1.00	0.50	0.20	0.10	0.05	0.02	0.01	0.005	0.002	0.001	
$C_o \text{ (}\mu\text{F)} =$	0.73	1.20	1.60	2.00	2.60	3.20	4.00	5.50	7.30	10.00	12.70	12.70	

Remote display interface

- Devices with *Basic specification, Position 4 (Display, Operation) = L, M or N* can be connected to the approved Endress+Hauser remote display FHX50.
- Refer to Safety Instructions XA01095F for additional installation instructions.

Levelflex FMP50/51/52/53/54/55/56/57

Modbus RS485

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Notes on the structure

Extract from the extended order code

Device type

FMP50, FMP51, FMP52, FMP53, FMP54, FMP55, FMP56, FMP57

Basic specifications

Position 1, 2 (Approval)		
Selected option		Description
FMP5x	CC	CSA C/US XP Cl. I, Div. 1, Groups A-D
	C3	CSA C/US XP Cl. I, II, III, Div. 1, Groups A-G; Class I, AEx d [ia] IIC/ Ex d [ia] IIC; Class I, Div. 2, Groups A-D

Position 3 (Power Supply, Output)		
Selected option		Description
FMP5x	M	4-wire, Modbus RS485

Position 5 (Housing)		
Selected option		Description
FMP51 FMP52 FMP54-57	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)
FMP56	AB	Viton, -30...120 °C
	B3	EPDM, -40...120 °C
FMP57	A4	Viton, -30...150 °C
	B3	EPDM, -40...120 °C
	C5	Kalrez, -5...185 °C

Optional specifications

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
FMP56	MD	Sensor remote, 9 m/27 ft cable, detachable + mounting bracket
FMP57		

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, ..

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

		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
M	T6	-40	60	60	60	85	53	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	68	100	-40	-40	-40	-	-
	T4	-40	80	81	80	135	67	135	-40	-40	-40	-	-
	T3	-40	80	81	80	200	52	200	-40	-40	-40	-	-

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 Column P6 is only relevant for version B of the derating.
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Class II, III, Division 1

1st column: Position 3 (Power Supply, Output) = A, B, ..

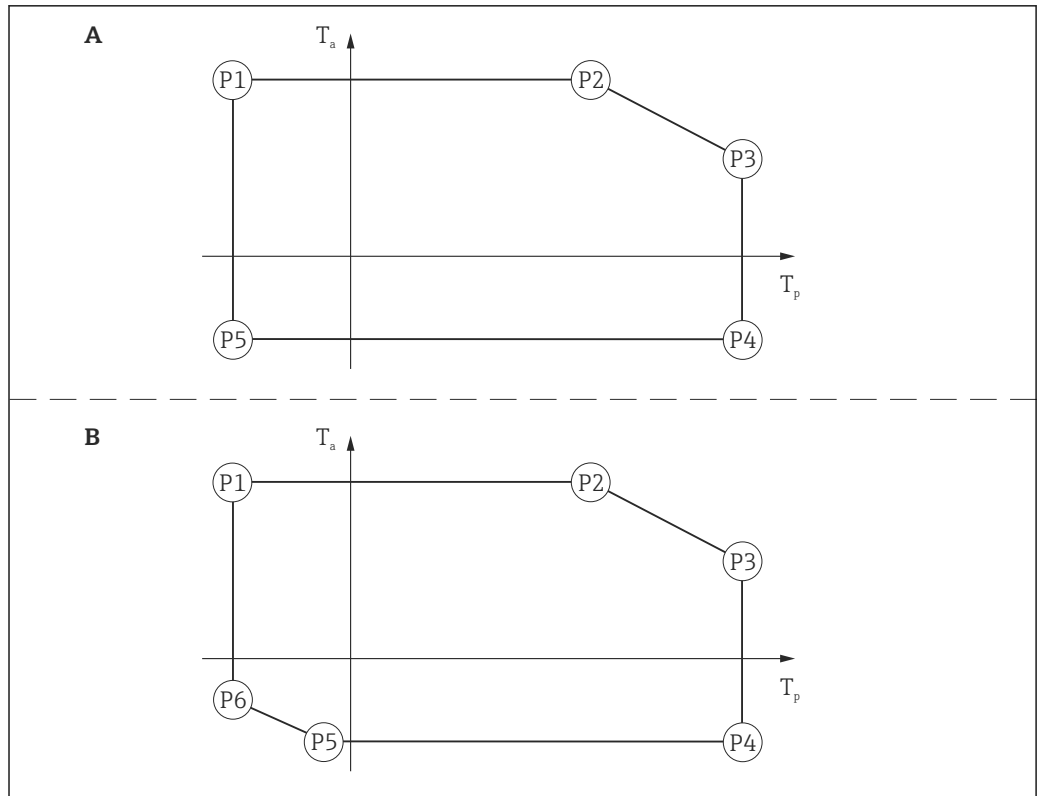
2nd column: Temperature values

M	$T = T_a + 5 \text{ K}$
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 T_a : Ambient temperature in °C

Example diagrams
of possible deratings



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



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Compact

Probe design: compact

Position 3 (Power Supply, Output) = M

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

- FMP50 →  15
- FMP51 →  16
- FMP52 →  17
- FMP53 →  18
- FMP54 →  19
- FMP55 →  21
- FMP56 →  22
- FMP57 →  23

 Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP50

Position 5 (Housing) = C

		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
M	T6	-20	60	60	60	80	56	80	-20	-20	-20	-	-


- i** Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP51*Position 5 (Housing) = B*

		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
M	T6	-40	60	60	60	85	51	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	66	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	64	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	48	200	-40	-40	-40	-	-

Position 5 (Housing) = C

		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
M	T6	-40	60	60	60	85	53	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	68	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	66	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	53	200	-40	-40	-40	-	-

 Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP52

Position 5 (Housing) = B

		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
M	T6	-40	60	60	60	85	52	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	67	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	65	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	50	200	-40	-40	-40	-	-

Position 5 (Housing) = C

		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
M	T6	-40	60	60	60	85	54	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	69	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	67	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	55	200	-40	-40	-40	-	-

- i** Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP53*Position 5 (Housing) = C*

		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
M	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	-	-

i Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP54

Position 9, 10 (Seal) = D1

Position 5 (Housing) = B

		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
M	T6	-196	60	60	60	85	56	85	-40	-40	-40	-196	-16
	T5	-196	75	75	75	100	71	100	-40	-40	-40	-196	-16
	T4	-196	78	78	78	135	70	135	-40	-40	-40	-196	-16
	T3	-196	78	78	78	200	61	200	-40	-40	-40	-196	-16
	T2	-196	78	78	78	280	51	280	-40	-40	-40	-196	-16

Position 5 (Housing) = C

		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
M	T6	-196	60	60	60	85	57	85	-40	-40	-40	-196	-23
	T5	-196	75	75	75	100	72	100	-40	-40	-40	-196	-23
	T4	-196	78	78	78	135	72	135	-40	-40	-40	-196	-23
	T3	-196	78	78	78	200	65	200	-40	-40	-40	-196	-23
	T2	-196	78	78	78	280	57	280	-40	-40	-40	-196	-23

FMP54*Position 9, 10 (Seal) = D2**Position 5 (Housing) = B*


		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
M	T6	-196	60	60	60	85	57	85	-40	-40	-40	-196	-26
	T5	-196	75	75	75	100	72	100	-40	-40	-40	-196	-26
	T4	-196	78	78	78	135	73	135	-40	-40	-40	-196	-26
	T3	-196	78	78	78	200	68	200	-40	-40	-40	-196	-26
	T2	-196	78	78	78	300	61	300	-40	-40	-40	-196	-26
	T1 ¹⁾	-196	78	78	78	450	49	450	-40	-40	-40	-196	-26

1) Functional: Max. permissible process temperature

Position 5 (Housing) = C

		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
M	T6	-196	60	60	60	85	58	85	-40	-40	-40	-196	-27
	T5	-196	75	75	75	100	73	100	-40	-40	-40	-196	-27
	T4	-196	78	78	78	135	74	135	-40	-40	-40	-196	-27
	T3	-196	78	78	78	200	69	200	-40	-40	-40	-196	-27
	T2	-196	78	78	78	300	62	300	-40	-40	-40	-196	-27
	T1 ¹⁾	-196	78	78	78	450	51	450	-40	-40	-40	-196	-27

1) Functional: Max. permissible process temperature

 Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP55

Position 5 (Housing) = B

		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
M	T6	-40	60	60	60	85	52	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	67	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	65	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	50	200	-40	-40	-40	-	-

Position 5 (Housing) = C

		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
M	T6	-40	60	60	60	85	54	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	69	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	66	135	-40	-40	-40	-	-
	T3	-40	78	78	78	200	54	200	-40	-40	-40	-	-


- i** Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP56*Position 5 (Housing) = B*

		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
M	T6	-40	60	60	60	85	51	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	66	100	-40	-40	-40	-	-
	T4	-40	78	78	78	120	68	120	-40	-40	-40	-	-

Position 5 (Housing) = C

		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
M	T6	-40	60	60	60	85	54	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	69	100	-40	-40	-40	-	-
	T4	-40	78	78	78	120	69	120	-40	-40	-40	-	-

 Explosion protection: XP / AEx d [ia]/Ex d [ia] or Division 2
 Probe: Class I, Zone 0 / Class I, Division 1
 Electronics housing: Class I, Zone 1 / Class I, Division 1 or Division 2

FMP57

Position 5 (Housing) = B

		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
M	T6	-40	60	60	60	85	53	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	68	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	66	135	-40	-40	-40	-	-
	T3	-40	78	78	78	185	57	185	-40	-40	-40	-	-

Position 5 (Housing) = C

		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
M	T6	-40	60	60	60	85	55	85	-40	-40	-40	-	-
	T5	-40	75	75	75	100	70	100	-40	-40	-40	-	-
	T4	-40	78	78	78	135	68	135	-40	-40	-40	-	-
	T3	-40	78	78	78	185	61	185	-40	-40	-40	-	-

Remote**Probe design: remote**

Position 3 (Power Supply, Output) = M

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



Explosion protection: XP / AEx d [ia]/Ex d [ia]

Probe: Class I, Zone 0 / Class I, Division 1

Electronics housing: Class I, Zone 1 / Class I, Division 1

FMP5x

Position 5 (Housing) = B, C

		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
M	T6	-	60	-	60	-	60	-	-40	-	-40	-	-

1) T_p = dependent on the sensor



Explosion protection: Division 2

Probe: Class I, Zone 0 / Class I, Division 1

Electronics housing: Class I, Division 2

FMP5x

Position 5 (Housing) = B, C

		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
M	T6	-	60	-	60	-	60	-	-40	-	-40	-	-
	T5	-	78	-	78	-	78	-	-40	-	-40	-	-

1) T_p = dependent on the sensor

Class II, III, Division 1

Position 3 (Power Supply, Output) = M

FMP5x

Position 5 (Housing) = B, C

M	$T = T_a + 10 \text{ K}$



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