

Installation Instructions

P/N MMI-20010087, Rev. AA

August 2009

ATEX Installation Instructions for Micro Motion[®] F-Series Sensors

For ATEX-approved sensor installations



Note: For hazardous installations in Europe, refer to standard EN 60079-14 if national standards do not apply.

Information affixed to equipment that complies with the Pressure Equipment Directive can be found on the internet at www.micromotion.com/library.

If you require the information given in this manual in a different language, please contact Micro Motion Customer Service.

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Reference no. EB-20000916 Rev. KA

F-Series Sensors

ATEX Installation Instructions

- For installing Micro Motion F-Series sensors with ATEX certificate number BVS 03 ATEX E 176 X



Subject: Equipment type

Manufactured and submitted for examination

Address

Basis for examination:

Standard basis

Code for type of protection

EC Type Examination Certificate

Sensor type F* *****Z*******

Micro Motion, Inc.

Boulder, Co. 80301, USA

Annex II of Directive 94/9/EC

EN 60079-0:2006 General requirements

EN 60079-11:2007 Intrinsic safety 'i'

EN 61241-0:2006 and EN 61241-1:2004 Dust evaluation 'tD A'

II 2G Ex ib IIB/IIC T1–T4/T5/T6

II 2D Ex tD A21 IP65 T*

BVS 03 ATEX E 176 X

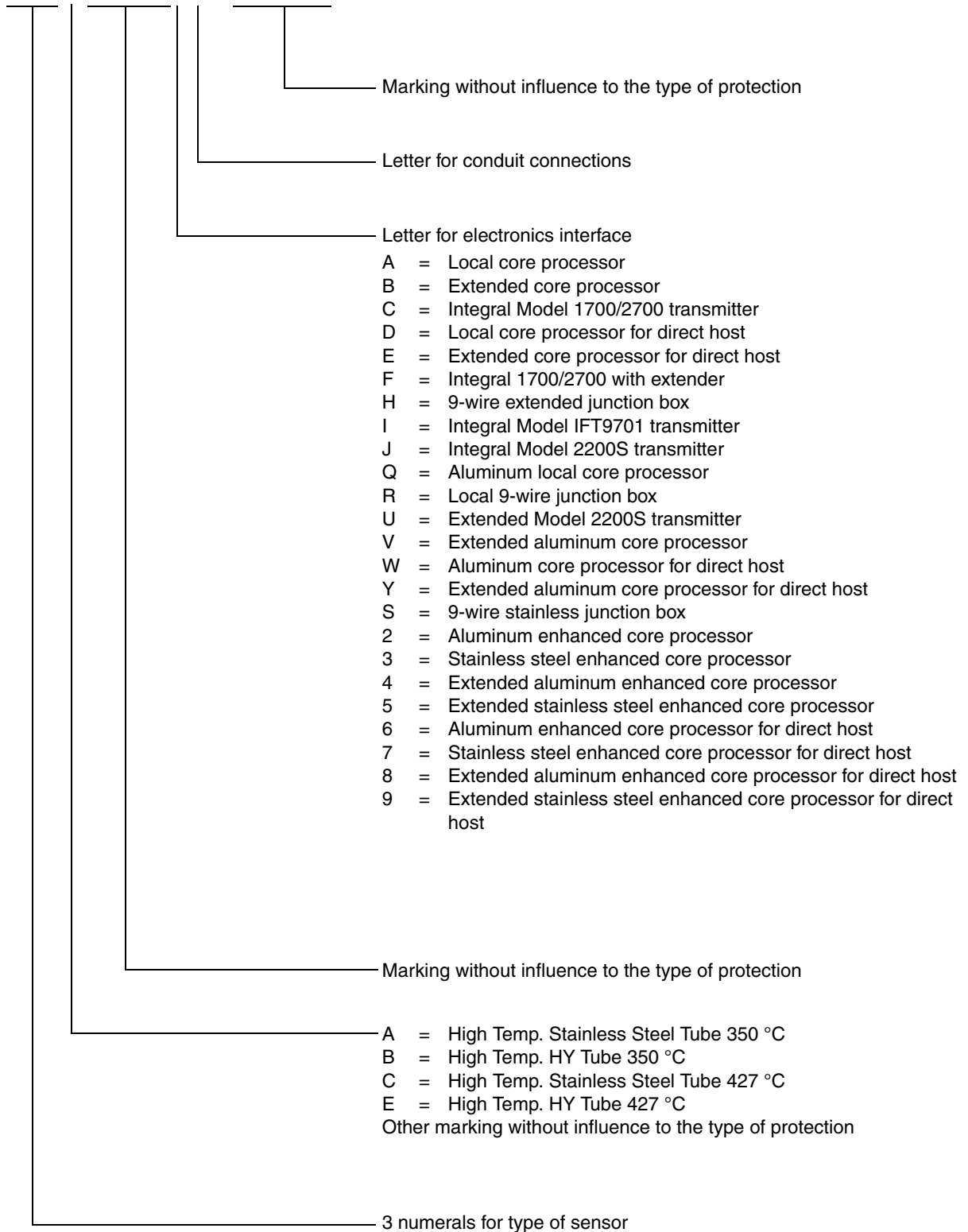


1) Subject and type

Sensor type F*** *****Z*****

Instead of the *** letters and numerals will be inserted which characterize the following modifications:

F * * * * * Z * * * * *



2) Description

The flow sensor in combination with a transmitter is used for flow measurement.

The flow sensor, which consists of magnetically excited oscillating tubes, contains as electrical components coils, resistors, temperature sensors and terminals and connectors.

- When used with an integral mounted junction box, the variation gets the denomination F*** *****(S or T)***** for a SS enclosure and F*** *****(R or H)***** for an aluminum enclosure. See Sections 3.1 and 3.2.
- When used with an integral mounted signal processing device type 700, the variation gets the denomination type F*** *****(A, B, D, or E)***** for a SS enclosure and F*** *****(Q, V, W, or Y)***** for an aluminum enclosure. See Sections 3.3 and 3.4.



- When used with an integral mounted enhanced signal processing device type 800, the variation gets the denomination type F*** *****(3, 5, 7, or 9)***** for a SS enclosure and F*** *****(2, 4, 6, or 8)***** for an aluminum enclosure. See Sections 3.3 and 3.4.



- The high temperature version F***(A, B, C, or E)***** can be executed with a junction box (see Section 3.2), or transmitter (see Sections 3.6 and 3.8), or core processor/enhanced core processor (see Section 3.4); this variation has therefore always the denomination F***(A, B, C, or E)*****.



- When used with an integral transmitter type 2200S***** , the variation gets the denomination type F*** *****(J or U)***** . See Sections 3.5 and 3.6. By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified according to the following table:

	Sensor type	
	F025 *****(J or U)*Z***** F025 *****(J or U)*Z***** CIC A2 F050 *****(J or U)*Z***** F050 *****(J or U)*Z***** CIC A2 F100 *****(J or U)*Z***** F100 *****(J or U)*Z***** CIC A2 F200 *****(J or U)*Z***** F200 *****(J or U)*Z***** CIC A1 F300 *****(J or U)*Z***** CIC A4 F300 *****(J or U)*Z***** F025(A, B, C, or E) *****J*Z***** F050(A, B, C, or E) *****J*Z***** F100(A, B, C, or E) *****J*Z***** F025(A, B, C, or E) *****J*Z***** CIC A3 F050(A, B, C, or E) *****J*Z***** CIC A3 F100(A, B, C, or E) *****J*Z***** CIC A3	F300 *****(J or U)*Z***** F300(A, B, C, or E) *****J*Z*****
Transmitter type 2200S****1*Z*****	Ex ib IIC T1–T4 Ex ibD 21 T70°C	Ex ib IIB T1–T4 Ex ibD 21 T70°C

- When used with an integral transmitter type *700***** the variation gets the denomination type F***
*****(C or F)*****. See Sections 3.7 and 3.8. By mounting the sensor directly to the *700 transmitter the
use of the unit will be modified according to the following table:



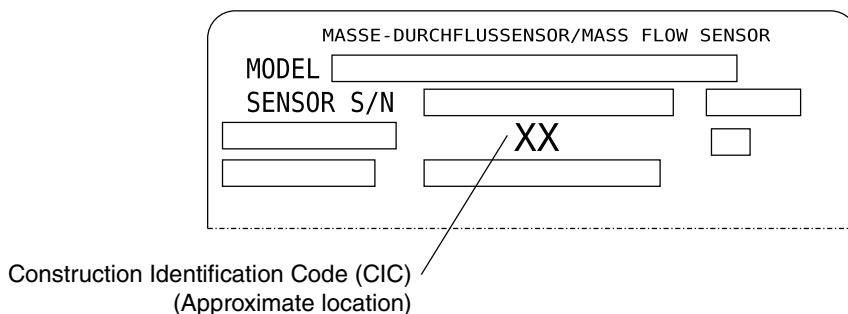
	Sensor type	
	F025 *****(C or F)*Z***** F025 *****(C or F)*Z***** CIC A2 F050 *****(C or F)*Z***** F050 *****(C or F)*Z***** CIC A2 F100 *****(C or F)*Z***** F100 *****(C or F)*Z***** CIC A2 F200 *****(C or F)*Z***** F200 *****(C or F)*Z***** CIC A1 F300 *****(C or F)*Z***** CIC A4 F300 *****(C or F)*6***** F025(A, B, C, or E) *****C*Z***** F050(A, B, C, or E) *****C*Z***** F100(A, B, C, or E) *****C*Z***** F025(A, B, C, or E) *****C*Z***** CIC A3 F050(A, B, C, or E) *****C*Z***** CIC A3 F100(A, B, C, or E) *****C*Z***** CIC A3	F300 *****(C or F)*Z***** F300(A, B, C, or E)*****C*Z*****
Transmitter type *700*1(1 or 2)*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(3, 4, or 5)*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(1 or 2)D*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(3, 4, or 5)D*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type 2700*1(1 or 2)(E or G)*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type 2700*1(3, 4, or 5)(E or G)*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C

(1) For dust temperature ratings, see temperature graphs.

- When used with an integral transmitter type IFT9701***** the variation gets the denomination type F***
*****|*Z*****. See Section 3.9.



Modifications to the design which have impact on the electrical parameters are indicated by a Construction Identification Code (CIC). This code consists out of two digits, starting with an A and followed by a sequence number; for example A4. The CIC can be found on the approval label, see picture below:



Supplement 1 covers:

- The addition of the F300 sensor.

Supplement 2 covers:

- Revised pick off coil parameters for the F200 sensors. Sensors constructed using these revised coil parameters will be identified with a construction identification code (C.I.C.) of A1.

Supplement 3 covers:

- The addition of the dust approval and the alternative 9-wire feed-through.

Supplement 4 covers:

- The addition of the F300A sensor.

Supplement 5 covers:

- Revised drive and pick-off coil parameters for the F025–F100 Sensors. Sensors constructed using these revised coil parameters will be identified with a construction identification code (C.I.C.) of A2.
- Electronic option codes 2–9 have been added to cover the 800ECP.
- Option code S has been added for the 9-wire stainless junction box.
- Maximum fluid temperature has been increased to 204 °C and the lower ambient/fluid temperature has been changed as well: see temperature graphs.

Supplement 6 covers:

- The addition of the F025 A, B, C, or E – F100 A, B, C, or E.
- The addition of the F300 B, C, or E Sensors.
- The lower ambient/fluid temperature for the F300A has changed.

Supplement 7 covers:

- Revised coil parameters of the F025-F100 A, B, C, or E. Sensors constructed using these revised coil parameters will be identified with a construction identification code (C.I.C.) of A3.
- New standard series EN 60079-** and EN 61241-*.

Supplement 8 covers:

- The addition of the 2200S.
- Option code T added for the 9-wire stainless steel junction box with extender.
- Added the F300 IIC, approval option code 6 and CIC A4.
- Revised electrical parameters for sensors with junction box.


3) Parameters

3.1) Type F* *****(R, H, S, or T)*Z*******

Sensor with junction box, excluding F*** (A, B, C, or E)****(R or S)*Z*****


3.1.1) Drive circuit (connections 1–2 or red and brown)

Voltage	Ui	DC	11,4	V
Current	li		2,45	A
Power	Pi		2,54	W
Effective internal capacitance	Ci		Negligible	

Sensor type 		Inductance (mH)	Coil resistance (Ω)	Series resistor (Ω)	Minimum ambient /fluid temp (°C)
F025 *****(R, H, S, or T)*Z*****	IIC	5,83	24,1	988,8	-40
F025 *****(R, H, S, or T)*Z***** CIC A2	IIC	7,5	84,95	569,0	-68
			77,27	568,83	-83
F050 *****(R, H, S, or T)*Z*****	IIC	5,83	24,1	988,8	-40
F050 *****(R, H, S, or T)*Z***** CIC A2	IIC	7,5	84,95	569,0	-68
			77,27	568,83	-83
F100 *****(R, H, S, or T)*Z*****	IIC	29,9	262,1	207,7	-40
F100 *****(R, H, S, or T)*Z***** CIC A2	IIC	7,5	84,95	569,0	-68
			77,27	568,83	-83
F200 *****(R, H, S, or T)*Z*****	IIC	9,4	37,4	148,3	-40
F200 *****(R, H, S, or T)*Z***** CIC A1	IIC	9,4	37,4	148,3	-40
			27,5	148,17	-90
			18,43	148,03	-138
F300 *****(R, H, S, or T)*Z*****	IIB	11,75	83,5	7,9	-40
F300 *****(R, H, S, or T)*Z***** CIC A4	IIC	11,75	57,8	129	-100
F300 *****(R, H, S, or T)*6*****	IIC	11,75	57,8	129	-100

3.1.2) Pick-off circuit (connections 5/9 and 6/8 or green/white and blue/gray)

Voltage	U _i	DC	21,13	V
Current	i _i		18,05	mA
Power	P _i		45	mW
Effective internal capacitance	C _i		Negligible	

Sensor type 		Inductance (mH)	Coil resistance (Ω)	Series resistor (Ω)	Minimum ambient /fluid temp (°C)
F025 ***** (R, H, S, or T) *Z*****	IIC	6,9	105	0	-40
F025 ***** (R, H, S, or T) *Z***** CIC A2	IIC	7,5	84,95	0-569	-68
			77,27	0-568,83	-83
F050 ***** (R, H, S, or T) *Z*****	IIC	6,9	105	0	-40
F050 ***** (R, H, S, or T) *Z***** CIC A2	IIC	7,5	84,95	0-569	-68
			77,27	0-568,83	-83
F100 ***** (R, H, S, or T) *Z*****	IIC	6,9	105	0	-40
F100 ***** (R, H, S, or T) *Z***** CIC A2	IIC	7,5	84,95	0-569	-68
			77,27	0-568,83	-83
F200 ***** (R, H, S, or T) *Z*****	IIC	23,8	182,5	0	-40
F200 ***** (R, H, S, or T) *Z***** CIC A1	IIC	12,4	128,4	0-569,3	-40
			94,3	0-568,73	-90
			63,21	0-568,19	-138
F300 ***** (R, H, S, or T) *Z*****	IIB	12,4	128,4	0-569,3	-40
F300 ***** (R, H, S, or T) *Z***** CIC A4	IIC	12,4	88,6	0-568,63	-100
F300 ***** (R, H, S, or T) *6*****	IIC	12,4	88,6	0-568,63	-100

3.1.3) Temperature circuit (connections 3, 4, and 7 or orange, yellow, and violet)

Voltage	U _i	DC	21,13	V
Current	i _i		26	mA
Power	P _i		112	mW
Effective internal capacitance	C _i		Negligible	
Effective internal inductance	L _i		Negligible	


3.1.3.1) Identification resistor circuit (terminals 3 & 4 or wires orange & yellow)

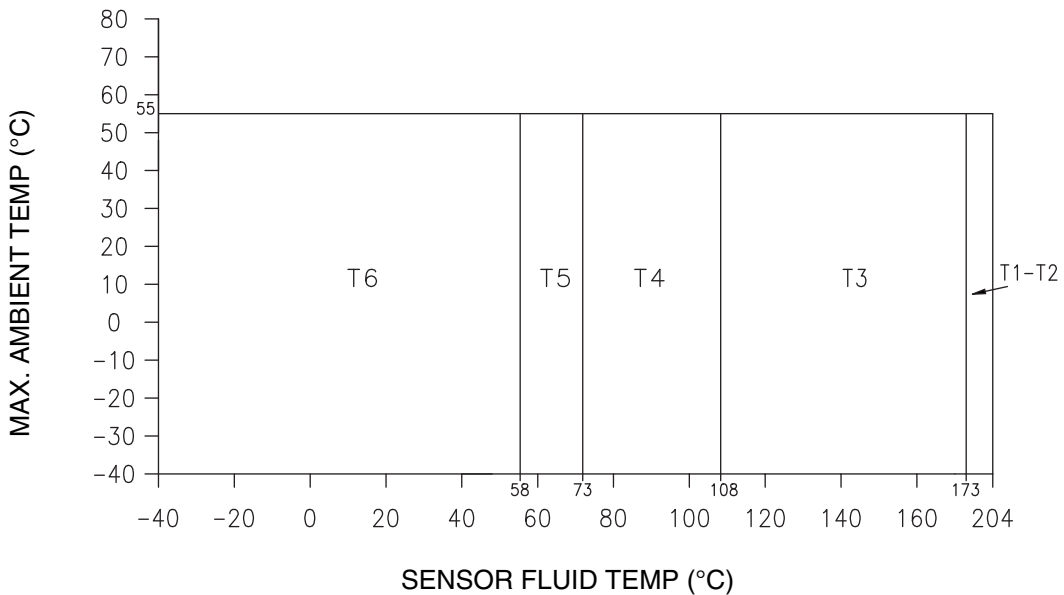
Sensor type	Inductance (mH)	Coil resistance (Ω)	Serial resistor (Ω)	Minimum ambient /fluid temperature (°C)
F300***** (R,H,S,T) *Z*****	N/A	N/A	42,2 to 44,3	-40
F300***** (R,H,S,T) *Z***** CIC A4	N/A	N/A	42,2 to 44,3	-100
F300***** (R,H,S,T) *6*****	N/A	N/A	42,2 to 44,3	-100

3.1.4) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.

3.1.4.1)

Sensor type	
F025*****(R,H,S,T)*Z*****	IIC
F050*****(R,H,S,T)*Z*****	IIC
F100*****(R,H,S,T)*Z*****	IIC
F200*****(R,H,S,T)*Z*****	IIC





Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

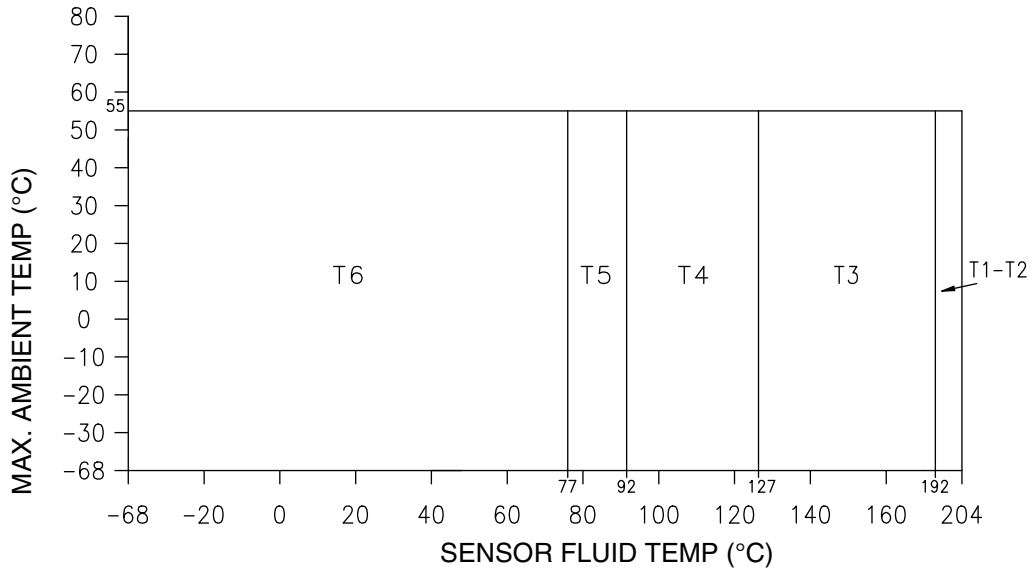
Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

Ambient temperature range Ta -40 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.1.4.2)

Sensor type		
F025*****(R,H,S,T)*Z***** CIC A2	IIC	Connected to non-MVD transmitter (e.g., RFT9739)
F050*****(R,H,S,T)*Z***** CIC A2	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 207°C.

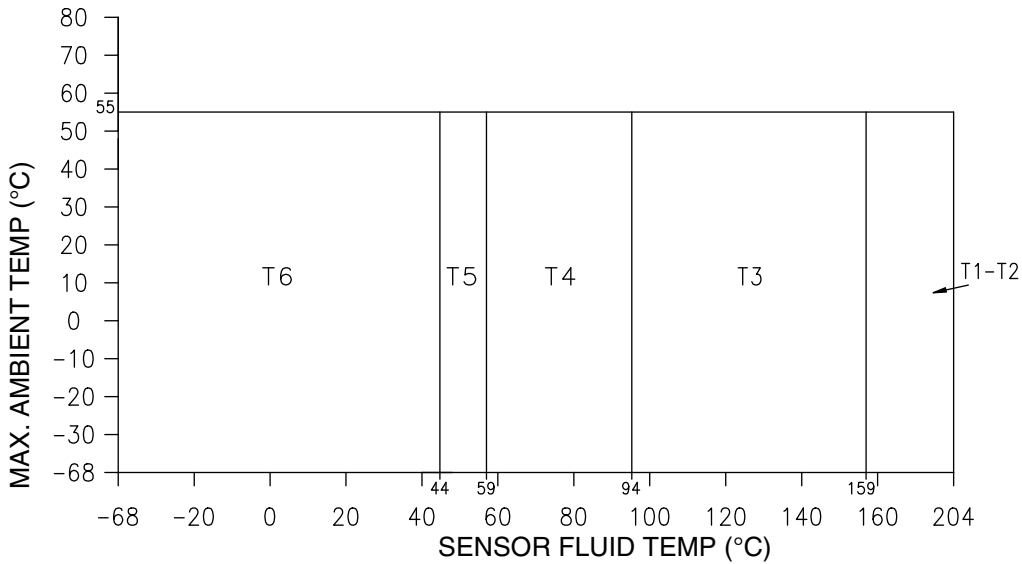
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -68 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.1.4.3)

Sensor type		
F100*****(R,H,S,T)*Z***** CIC A2	IIC	Connected to non-MVD transmitter (e.g., RFT9739)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.



Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 240°C.

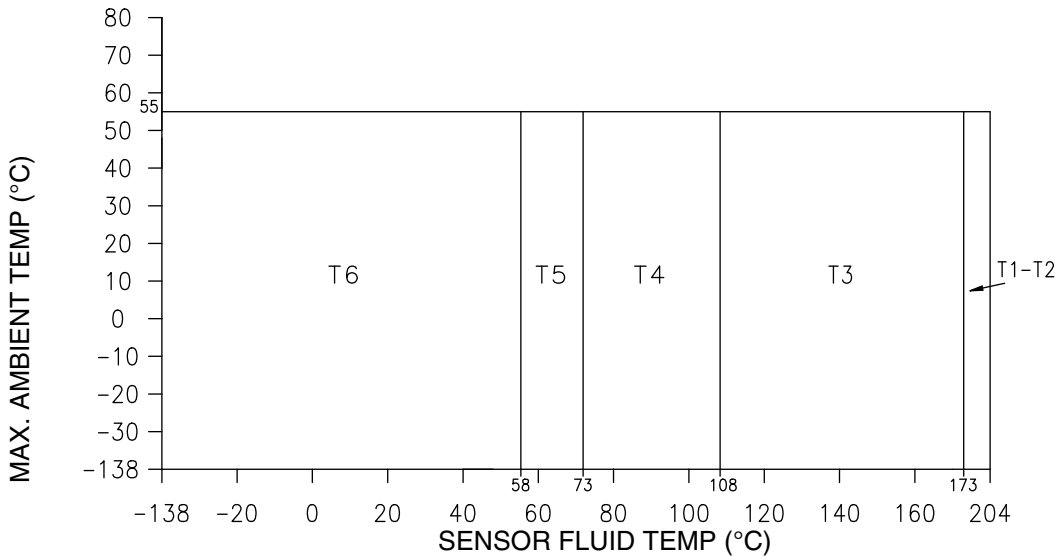
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range Ta -68 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.1.4.7)

Sensor type		
F200*****(R,H,S,T)*Z***** CIC A1	IIC	Connected to MVD transmitter (e.g., 1000/2000/3000MVD Series)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

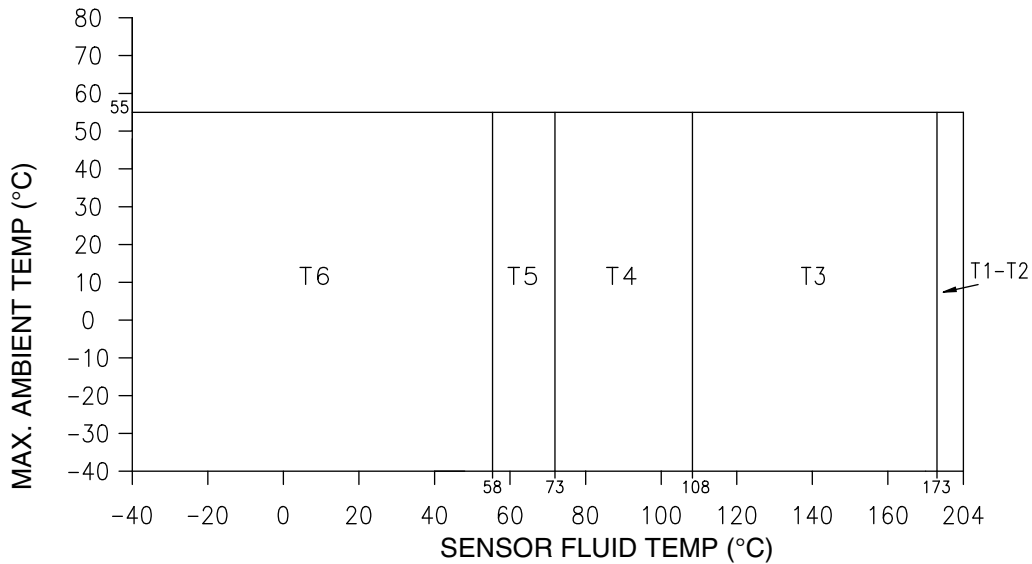
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range Ta -138 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.1.4.8)

Sensor type		
F300*****(R,H,S,T)*Z*****	IIB	Connected to MVD transmitter (e.g., 1000/2000/3000MVD Series)



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

Ambient temperature range Ta -40 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.2) **Type F***(A, B, C, or E)****(R or S)*Z*******
High-temperature sensors with junction box

3.2.1) Drive circuit (connections 1–2 or red and brown)

Voltage	Ui	DC	11,4	V
Current	li		2,45	A
Power	Pi		2,54	W
Effective internal capacitance	Ci	Negligible		

Sensor type		Inductance (mH)	Coil resistance (Ω)	Series resistor (Ω)	Minimum ambient/fluid temp (°C)
F025(A, B, C, and E)****(R or S)*Z*****	IIC	1,8	19,8	55,3	-50
F025(A, B, C, and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	38,5	-50
F050(A, B, C, and E)****(R or S)*Z*****	IIC	1,8	19,8	55,3	-50
F050(A, B, C, and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	38,5	-50
F100(A, B, C, and E)****(R or S)*Z*****	IIC	1,8	19,8	55,3	-50
F100(A, B, C, and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	38,5	-50
F300(A, B, C, and E)****(R or S)*Z*****	IIB	7,75	54,3	19,8	-50

3.2.2) Pick-off circuit (connections 5/9 and 6/8 or green/white and blue/grey)


Voltage	Ui	DC	21,13	V
Current	li		18,05	mA
Power	Pi		45	mW
Effective internal capacitance	Ci	Negligible		

Sensor type		Inductance (mH)	Coil resistance (Ω)	Series resistor (Ω)	Minimum ambient/fluid temp (°C)
F025 (A, B, C and E)****(R or S)*Z*****	IIC	1,8	19,8	0–569,2	-50
F025 (A, B, C and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	0–569,2	-50
F050 (A, B, C and E)****(R or S)*Z*****	IIC	1,8	19,8	0–569,2	-50
F050 (A, B, C and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	0–569,2	-50
F100 (A, B, C and E)****(R or S)*Z*****	IIC	1,8	19,8	0–569,2	-50
F100 (A, B, C and E)****(R or S)*Z***** CIC A3	IIC	0,9	13,5	0–569,2	-50
F300 (A, B, C and E)****(R or S)*Z*****	IIB	6,5	41,1	0–569,2	-50

3.2.3) Temperature circuit

Voltage	U _i	DC	21,13	V
Current	I _i		26	mA
Power	P _i		112	mW
Effective internal capacitance	C _i	Negligible		
Effective internal inductance	L _i	Negligible		



3.2.3.1) Identification resistor circuit (terminals 3 & 4 or wires orange & yellow)

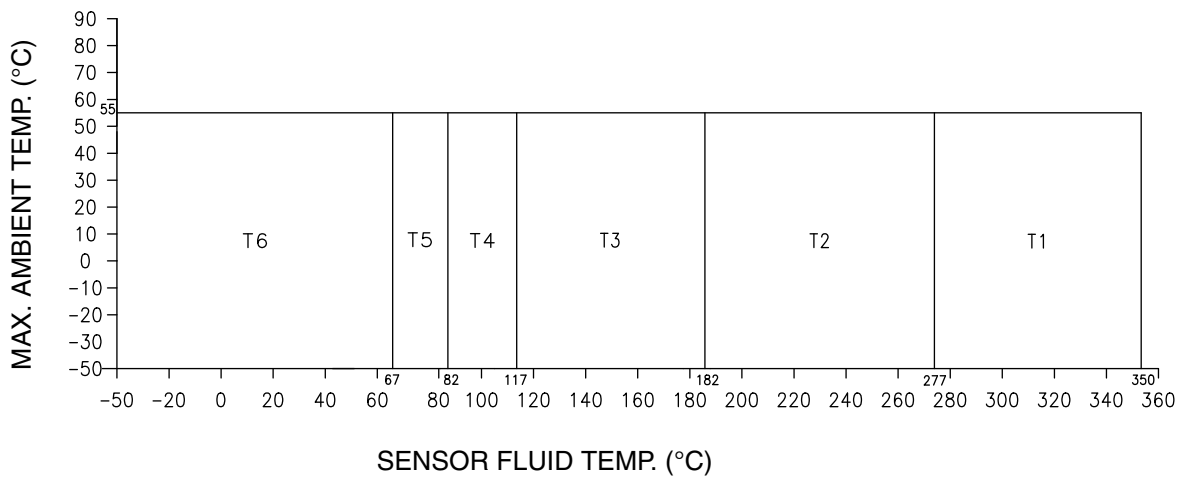
Sensor type 	Inductance (mH)	Coil resistance (Ω)	Series resistor (Ω)	Minimum ambient /fluid temp (°C)
F025 (A, B, C and E)****(R or S)*Z*****	N/A	N/A	42,2 to 44,3	-50
F025 (A, B, C and E)****(R or S)*Z***** CIC A3	N/A	N/A	42,2 to 44,3	-50
F050 (A, B, C and E)****(R or S)*Z*****	N/A	N/A	42,2 to 44,3	-50
F050 (A, B, C and E)****(R or S)*Z***** CIC A3	N/A	N/A	42,2 to 44,3	-50
F100 (A, B, C and E)****(R or S)*Z*****	N/A	N/A	42,2 to 44,3	-50
F100 (A, B, C and E)****(R or S)*Z***** CIC A3	N/A	N/A	42,2 to 44,3	-50
F300 (A, B, C and E)****(R or S)*Z*****	N/A	N/A	42,2 to 44,3	-50

3.2.4) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs

3.2.4.1)

Sensor type		
F025(A,B)****(R,S)*****	IIC	Connected to MVD transmitter (e.g., 1000/2000/3000MVD Series)
F025(A,B)****(R,S)***** CIC A3	IIC	
F050(A,B)****(R,S)*****	IIC	
F050(A,B)****(R,S)***** CIC A3	IIC	
F100(A,B)****(R,S)*****	IIC	
F100(A,B)****(R,S)***** CIC A3	IIC	
F300(A,B)****(R,S)*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.



Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2:T 290°C, T1:T 363°C.

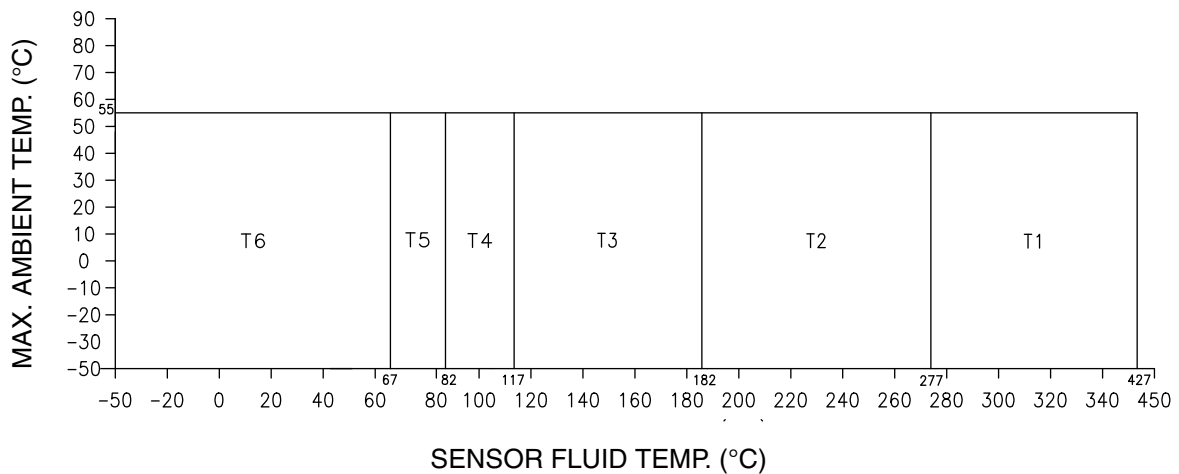
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -50 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.2.4.2)

Sensor type		
F025(C,E)****(R,S)*****	IIC	Connected to MVD transmitter (e.g., 1000/2000/3000MVD Series)
F025(C,E)****(R,S)***** CIC A3	IIC	
F050(C,E)****(R,S)*****	IIC	
F050(C,E)****(R,S)***** CIC A3	IIC	
F100(C,E)****(R,S)*****	IIC	
F100(C,E)****(R,S)***** CIC A3	IIC	
F300(C,E)****(R,S)*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T6:T 80°C, T5:T 95°C, T4:T 130°C, T3:T 195°C, T2:T 290°C, T1:T 440°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -50 °C up to +55 °C

The use of the sensor at an ambient temperature higher than +55°C is possible, provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.3) Type F*** *****(2-9, A, B, D, E, Q, V, W, or Y)*Z*****

Sensor with integral core processor, excluding F*** (A, B, C, or E)****(2, 3, 6, 7, A, D, Q, or W)*Z*****



3.3.1) Input circuits (terminals 1-4)

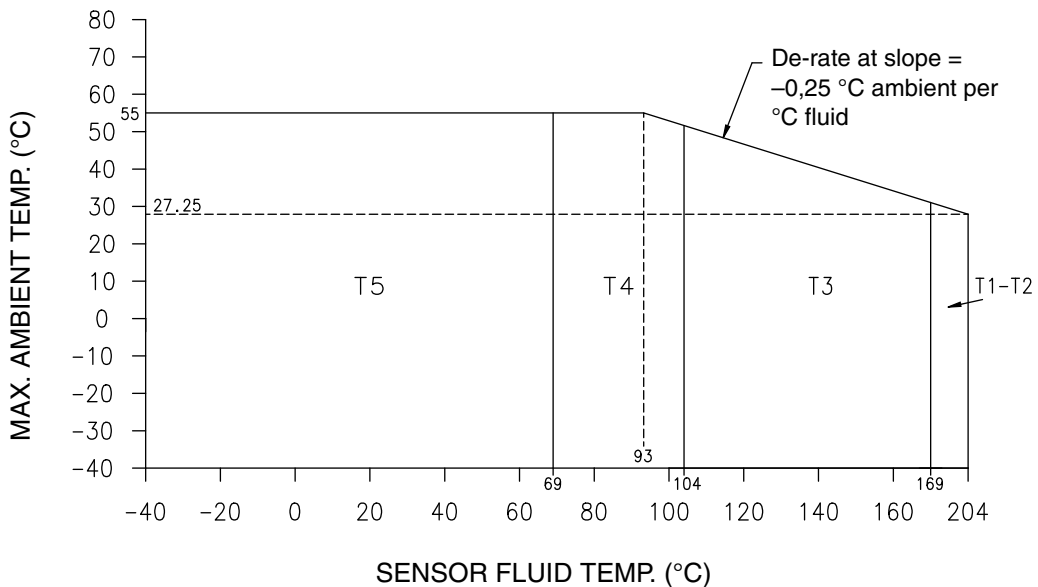
Voltage	U_i	DC	17,3	V
Current	I_i		484	mA
Power	P_i		2,1	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		30	μH

3.3.2) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and are shown in the following graphs.

3.3.2.1)

Sensor type		
F025*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	IIC	With integral core processor
F050*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	IIC	
F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	IIC	
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 230°C.

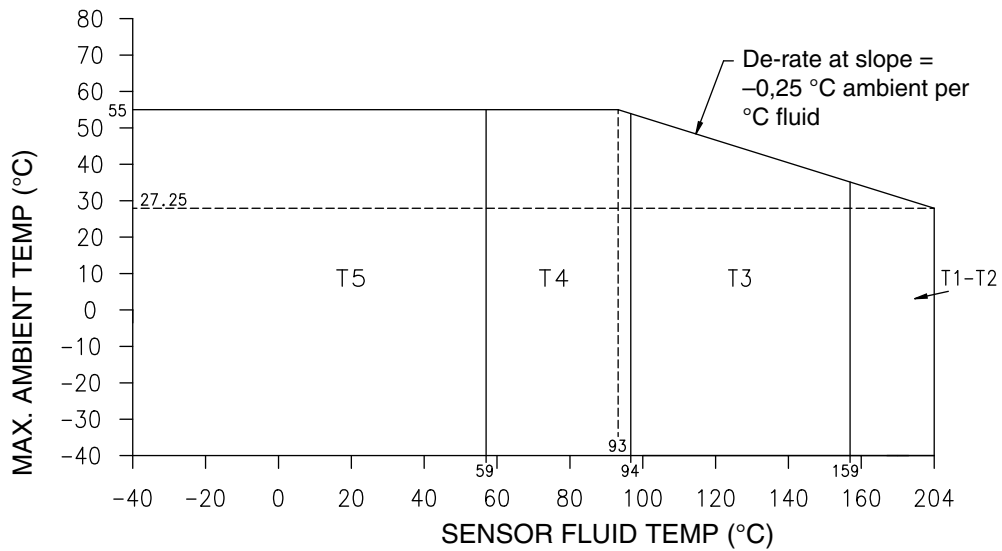
Ambient temperature range

Ta

-40 °C up to +55 °C

3.3.2.3)

Sensor type		
F100*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	CIC A2	IIC With integral core processor





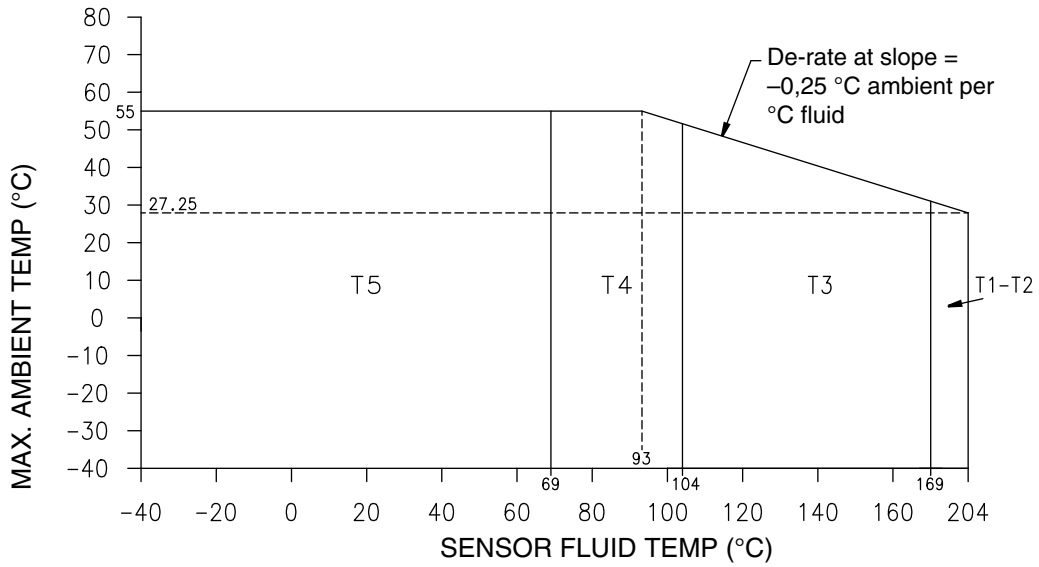
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 240°C.

Ambient temperature range Ta -40 °C up to +55 °C

3.3.2.4)

Sensor type		
F200*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	CIC A1	IIC With integral core processor





Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

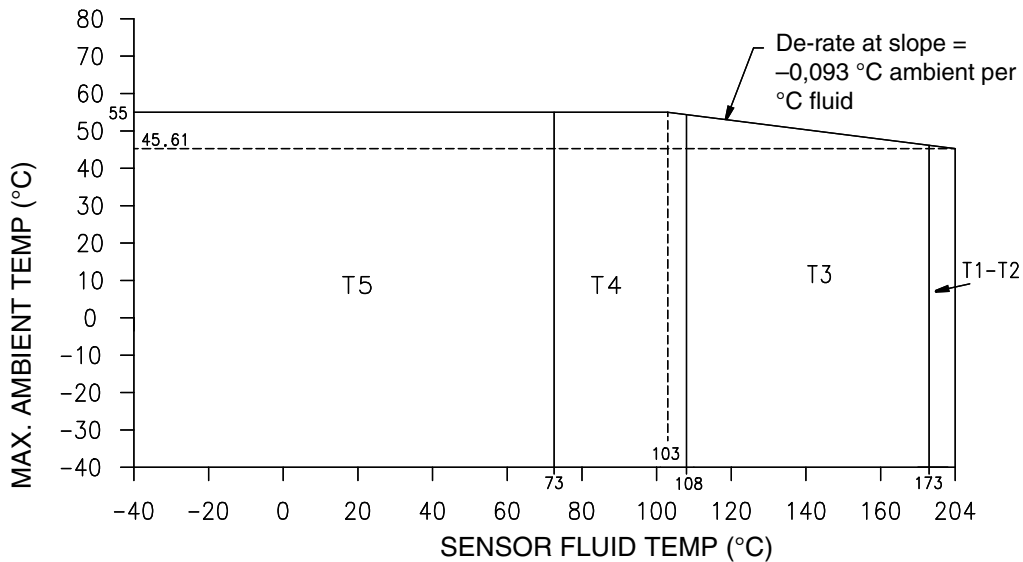
Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 230°C.

Ambient temperature range

Ta -40 °C up to +55 °C

3.3.2.5)

Sensor type		
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z*****	IIB	With integral core processor
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*Z***** CIC A4	IIC	
F300*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*6*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

Ambient temperature range T_a -40 °C up to +55 °C

3.4) **Type F***(A, B, C, or E)****(2, 3, 6, 7, A, D, Q, or W)*Z*******
High-temperature sensors with core processor



3.4.1) Input circuit (terminals 1–4)

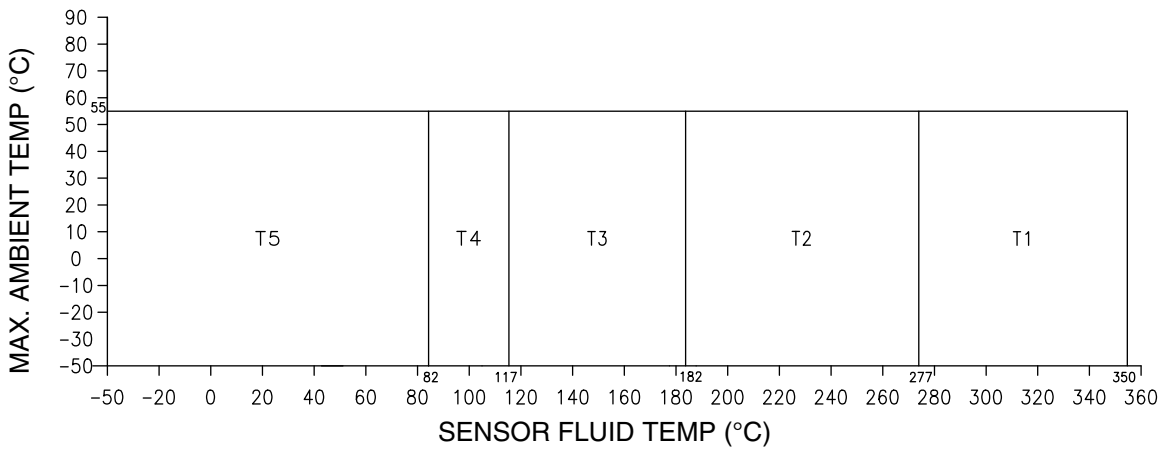
Voltage	U_i	DC	17,3	V
Current	I_i		484	mA
Power	P_i		2,1	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		30	μH

3.4.2) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.

3.4.2.1)

Sensor type		
F025(A,B)****(2, 3, 6, 7, A, D, Q, W)*****	IIC	With integral core processor
F025(A,B)****(2, 3, 6, 7, A, D, Q, W)***** CIC A3	IIC	
F050(A,B)****(2, 3, 6, 7, A, D, Q, W)*****	IIC	
F050(A,B)****(2, 3, 6, 7, A, D, Q, W)***** CIC A3	IIC	
F100(A,B)****(2, 3, 6, 7, A, D, Q, W)*****	IIC	
F100(A,B)****(2, 3, 6, 7, A, D, Q, W)***** CIC A3	IIC	
F300(A,B)****(2, 3, 6, 7, A, D, Q, W)*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2: T 290°C, T1:T 363°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.



Ambient temperature range T_a -50 °C up to +55 °C

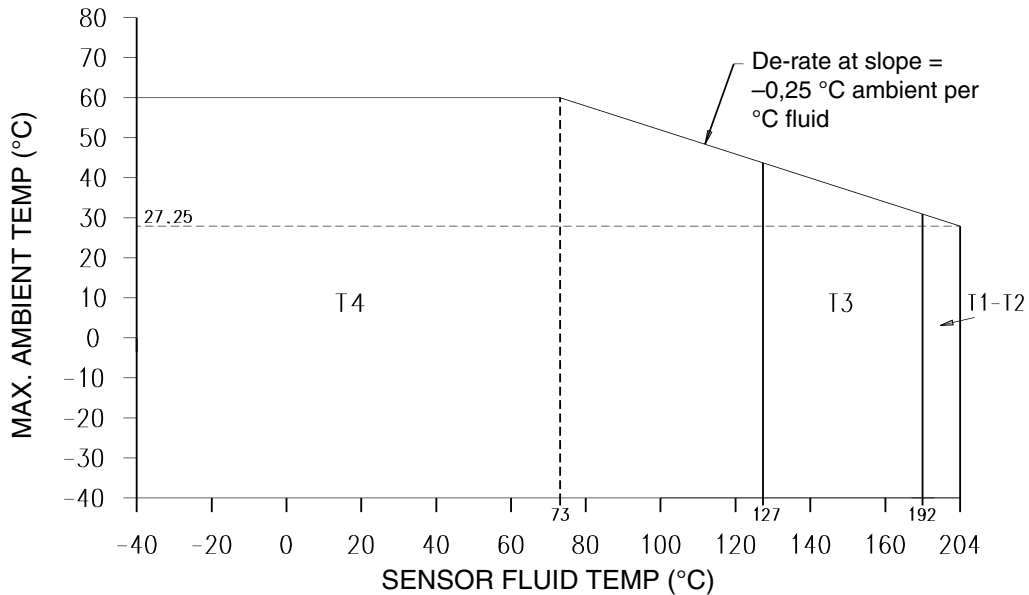
The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted minimum 1 meter away from the sensor by means of a flexible stainless steel hose, and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.5.2) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and are shown in the following graphs

3.5.2.1)

Sensor type		
F025 *****(J,U)*Z*****	IIC	With integral Model 2200S transmitter
F025 *****(J,U)*Z***** CIC A2	IIC	
F050 *****(J,U)*Z*****	IIC	
F050 *****(J,U)*Z***** CIC A2	IIC	





Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

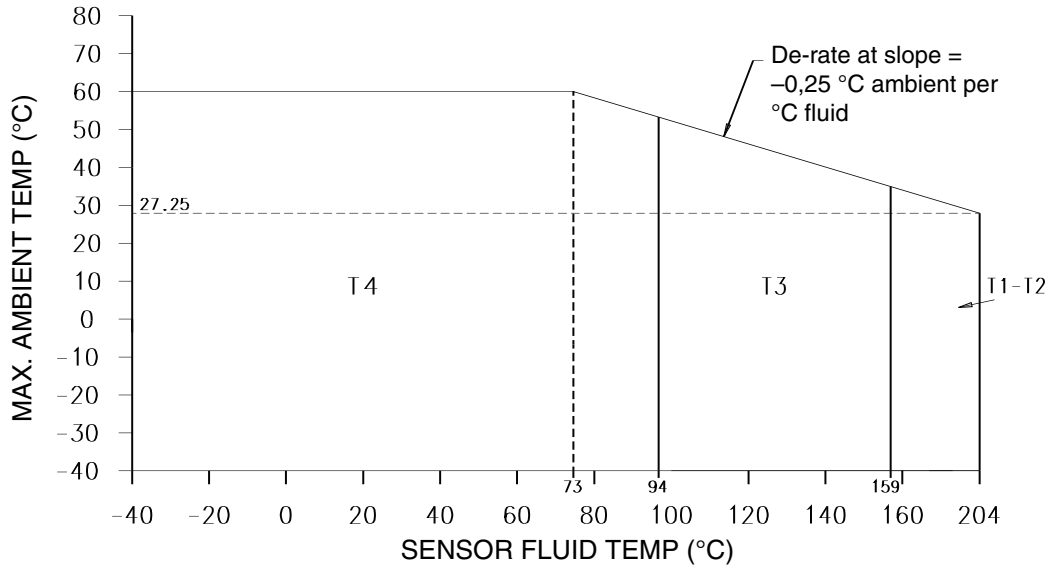
Note 2: The maximum surface temperature for dust is as follows: T4:T 130°C, T3:T 195°C, T2 to T1:T 207°C.

Ambient temperature range

Ta -40 °C up to +60 °C

3.5.2.2)

Sensor type		
F100 *****(J,U)*Z*****	IIC	With integral Model 2200S transmitter
F100 *****(J,U)*Z***** CIC A2	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.



Note 2: The maximum surface temperature for dust is as follows: T4:T 130°C, T3:T 195°C, T2 to T1:T 240°C.

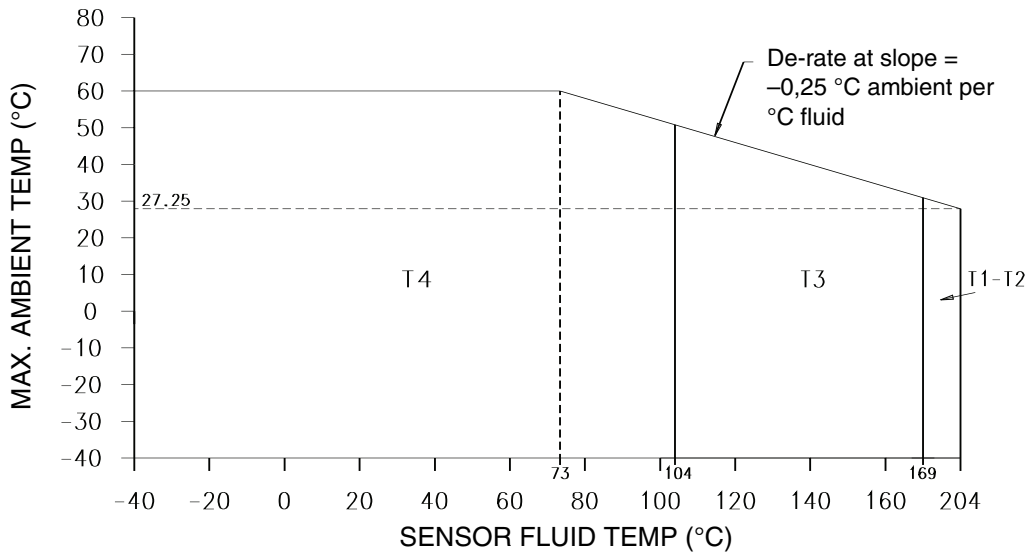
Ambient temperature range

Ta

-40 °C up to +60 °C

3.5.2.3)

Sensor type		
F200 *****(J,U)*Z*****	IIC	With integral Model 2200S transmitter
F200 *****(J,U)*Z***** CIC A1	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.



Note 2: The maximum surface temperature for dust is as follows: T4:T 130°C, T3:T 195°C, T2 to T1:T 230°C.

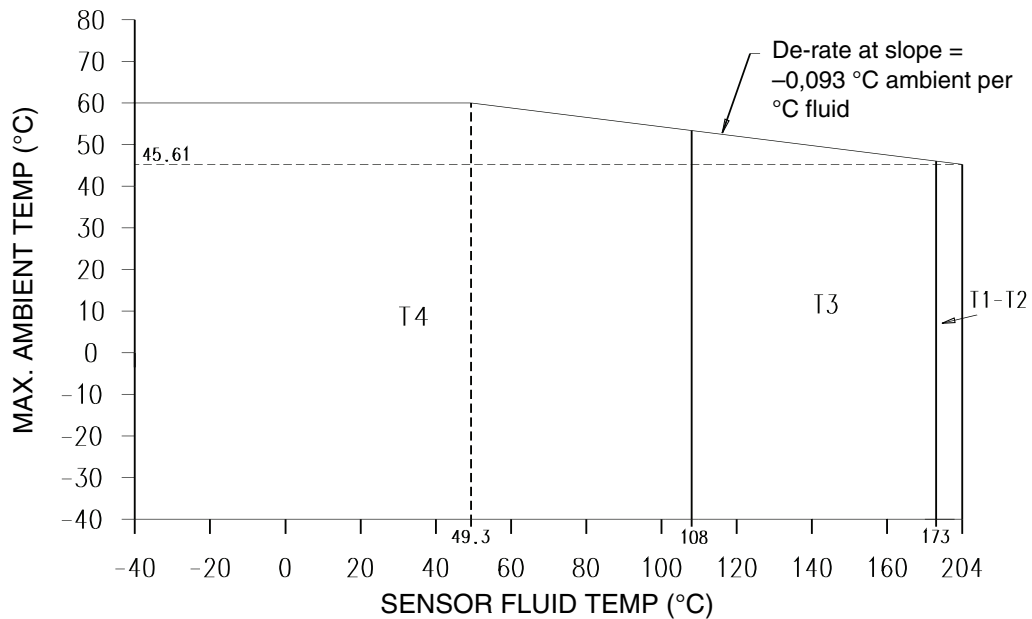
Ambient temperature range

Ta

-40 °C up to +60 °C

3.5.2.4)

Sensor type		
F300 *****(J,U)*Z*****	IIB	With integral Model 2200S transmitter
F300 *****(J,U)*Z***** CIC A4	IIC	
F300 *****(J,U)*6*****	IIC	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
 Note 2: The maximum surface temperature for dust is as follows: T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

Ambient temperature range T_a -40 °C up to +60 °C

3.6) **Type F***(A, B, C, or E)****J*******
 High-temperature transmitter with 2200S transmitter



3.6.1) Input circuits (terminals 1–2)

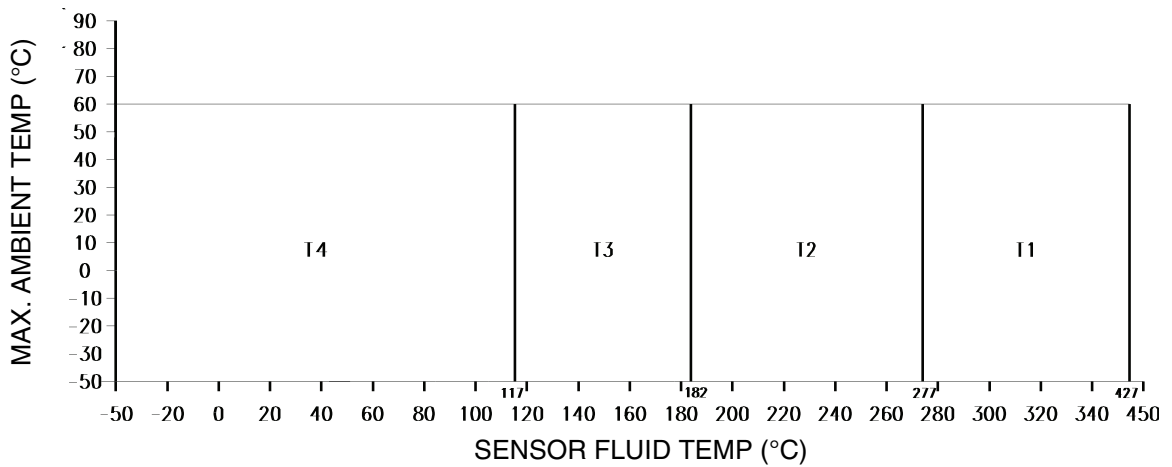
Voltage	U_i	DC	28	V
Current	I_i		120	mA
Power	P_i		0,84	W
Effective internal capacitance	C_i		2200	pF
Effective internal inductance	L_i		45	μ H

3.6.2) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.

3.6.2.2)

Sensor type		
F025(C,E)***J*****	IIC	With integral Model 2200S transmitter
F025(C,E)***J***** CIC A3	IIC	
F050(C,E)***J*****	IIC	
F050(C,E)***J***** CIC A3	IIC	
F100(C,E)***J*****	IIC	
F100(C,E)***J***** CIC A3	IIC	
F300(C,E)***J*****	IIB	



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature T for dust is as follows: T4:T 130°C, T3:T 195°C, T2: T 290°C, T1:T 440°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -50 °C up to +60 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted minimum 1 meter away from the sensor by means of a flexible stainless steel hose, and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.7) **Type F*** *****(C or F)*Z*******


Sensor with Model 1700/2700 transmitter, excluding F*** (A, B, C, or E)****C*Z*****

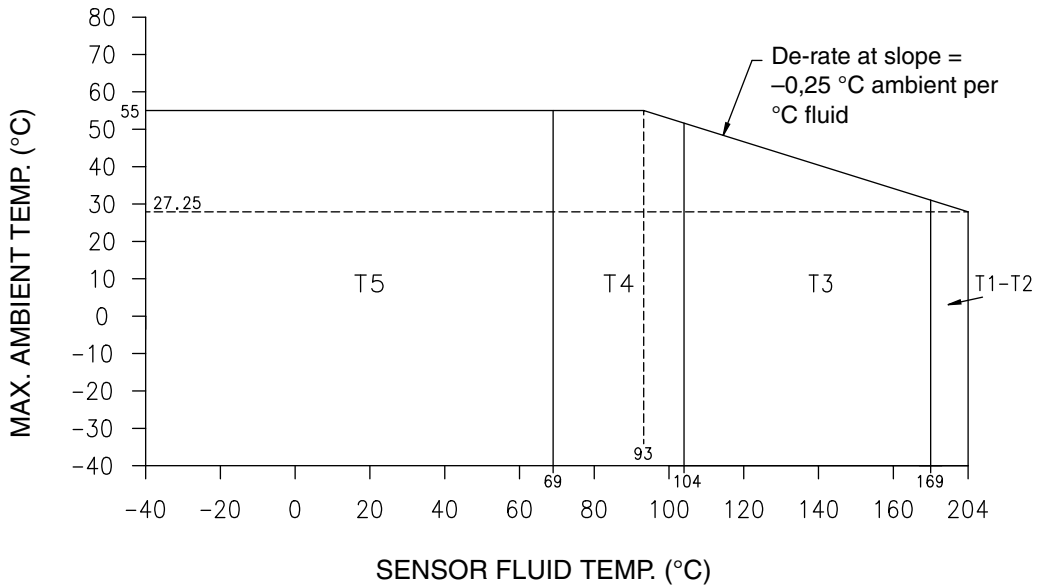
3.7.1) Electrical parameters see EB-3600636 for the transmitter type *700*****.

3.7.2) Temperature class/ maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.

3.7.2.1)

Sensor type	
F025*****(C,F)*Z*****	IIC
F050*****(C,F)*Z*****	IIC
F100*****(C,F)*Z*****	IIC
F200*****(C,F)*Z*****	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.


Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 230°C.

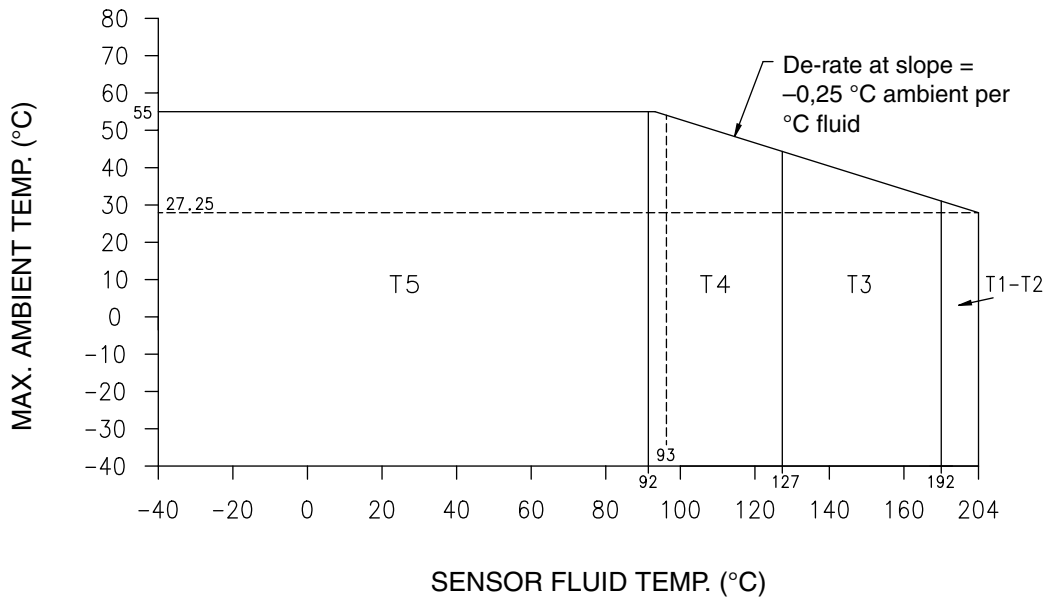
Ambient temperature range

Ta

-40 °C up to +55 °C

3.7.2.2)

Sensor type	
F025*****(C,F)*Z*****(CIC A2)	IIC
F050*****(C,F)*Z*****(CIC A2)	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.


Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 207°C.

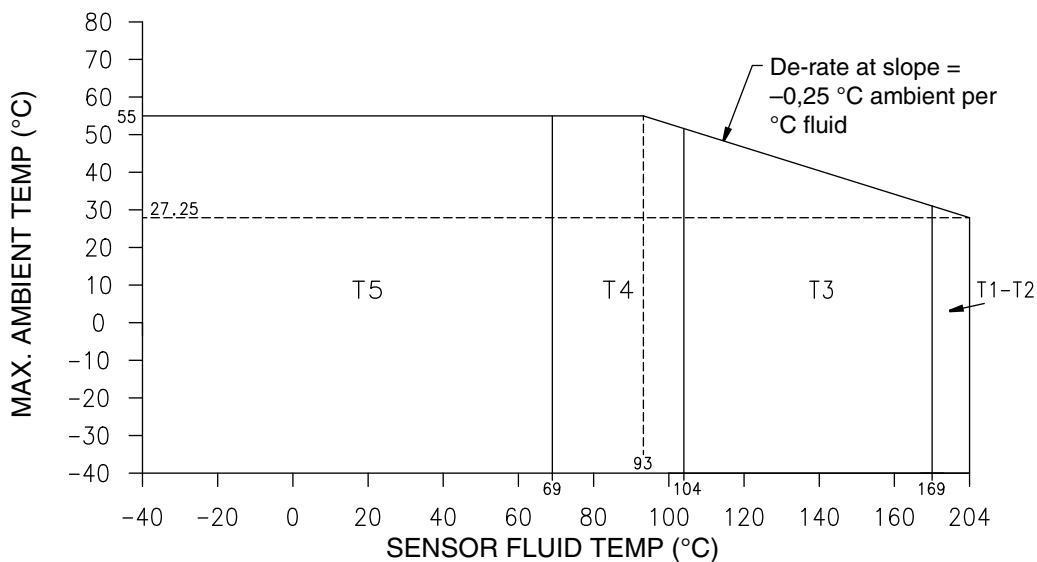
Ambient temperature range

Ta

-40 °C up to +55 °C

3.7.2.4)

Sensor type	
F200*****(C,F)*Z***** CIC A1	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.


Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 230°C.

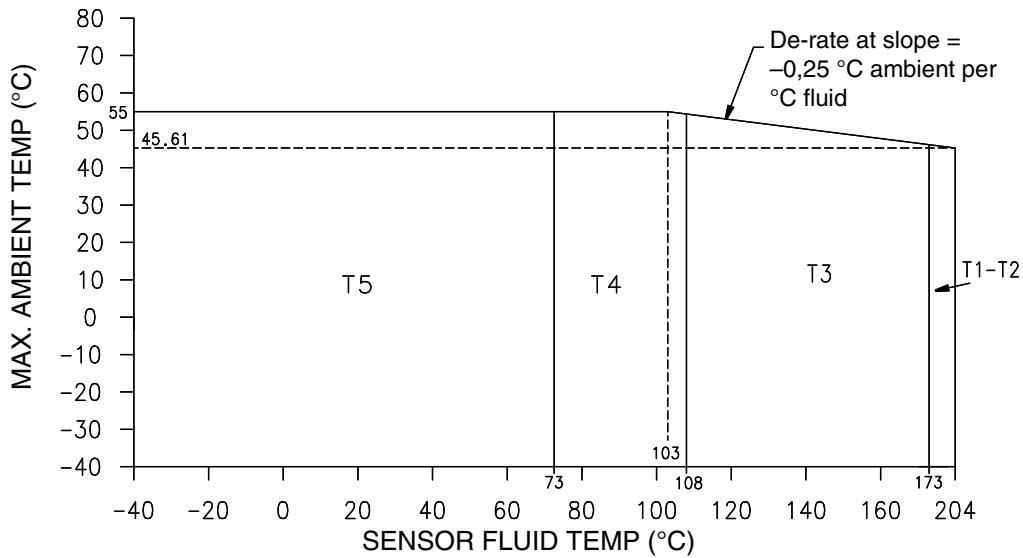
Ambient temperature range

Ta

-40 °C up to +55 °C

3.7.2.5)

Sensor type	
F300*****(C,F)*Z*****	IIB
F300*****(C,F)*Z***** CIC A4	IIC
F300*****(C,F)*6*****	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2 to T1:T 226°C.

Ambient temperature range Ta -40 °C up to +55 °C


3.8) **Type F***(A, B, C, or E)****C*Z*******
 High-temperature sensor with Model 1700/2700 transmitter

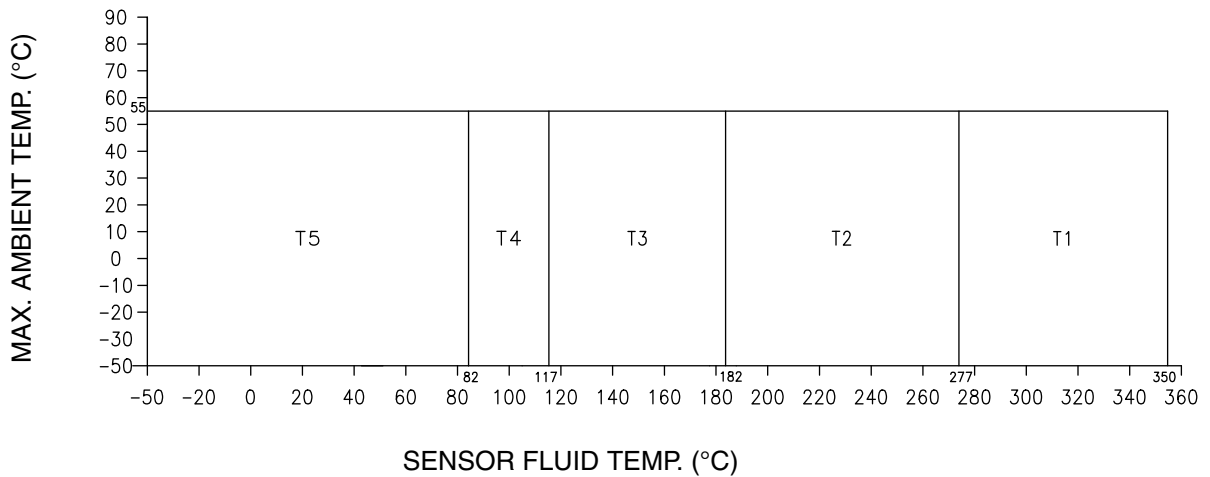
3.8.1) Electrical parameters see EB-3600636 for the transmitter type*700*****

3.8.2) Temperature class/maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.

3.8.2.1)

Sensor type	
F025(A,B)****C*****	IIC
F025(A,B)****C***** CIC A3	IIC
F050(A,B)****C*****	IIC
F050(A,B)****C***** CIC A3	IIC
F100(A,B)****C*****	IIC
F100(A,B)****C***** CIC A3	IIC
F300(A,B)****C*****	IIB



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.


Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2: T 290°C, T1:T 363°C.

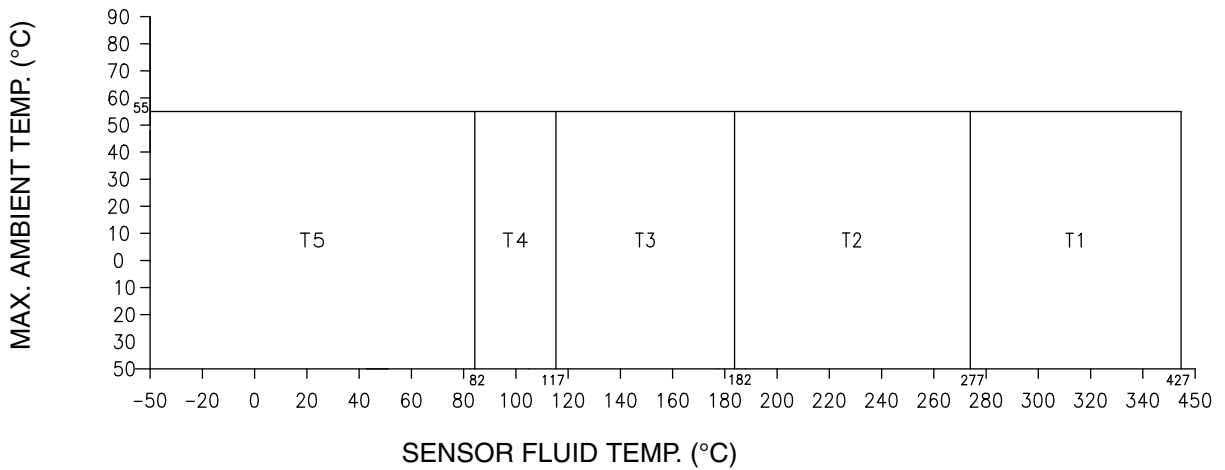
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -50 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted minimum 1 meter away from the sensor by means of a flexible stainless steel hose, and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.8.2.2)

Sensor type	
F025(C,E)****C*****	IIC
F025(C,E)****C***** CIC A3	IIC
F050(C,E)****C*****	IIC
F050(C,E)****C***** CIC A3	IIC
F100(C,E)****C*****	IIC
F100(C,E)****C***** CIC A3	IIC
F300(C,E)****C*****	IIB



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

Note 2: The maximum surface temperature for dust is as follows: T5:T 95°C, T4:T 130°C, T3:T 195°C, T2: T 290°C, T1:T 440°C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40°C.

Ambient temperature range T_a -50 °C up to +55 °C

The use of the sensor at higher ambient temperatures is possible, since the electronics are mounted minimum 1 meter away from the sensor by means of a flexible stainless steel hose, and provided that the ambient temperature does not exceed the maximum temperature of the medium taking into account the temperature classification and the maximum operating temperature of the sensor.

3.9) **Type F*** ****I*Z*******


Sensor with Model IFT9701 transmitter, excluding F300*****Z*****, F025(A, B, C, or E)*****Z*****, F050(A, B, C, or E)*****Z*****, F100(A, B, C, or E)*****Z*****, and F300(A, B, C, or E)*****Z*****

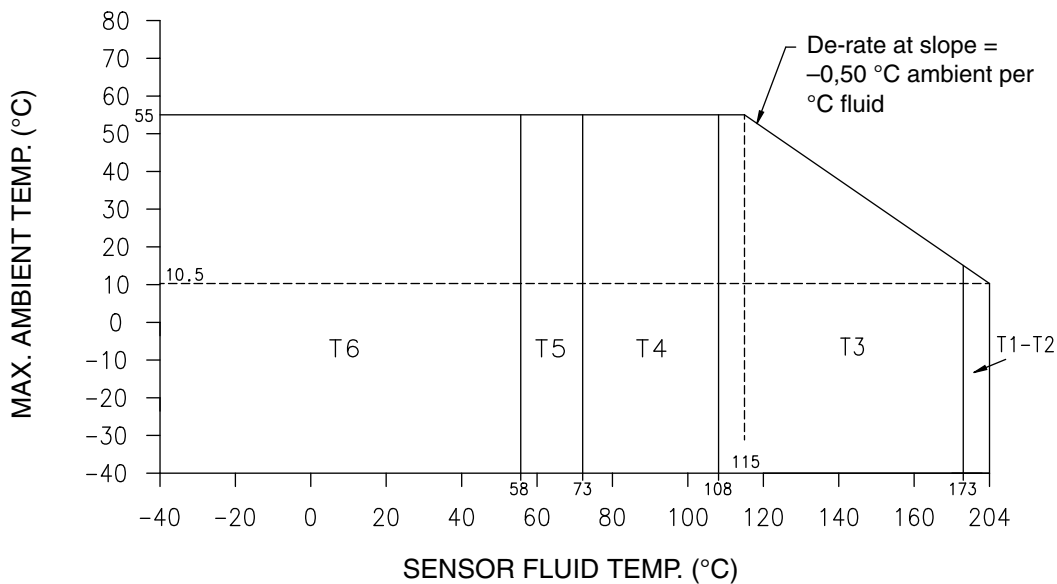
3.9.1) Electrical parameters see EB-20000373 for the transmitter type IFT9701*****.

3.9.2) Temperature class/maximum surface temperature T

The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graphs.


3.9.2.1)

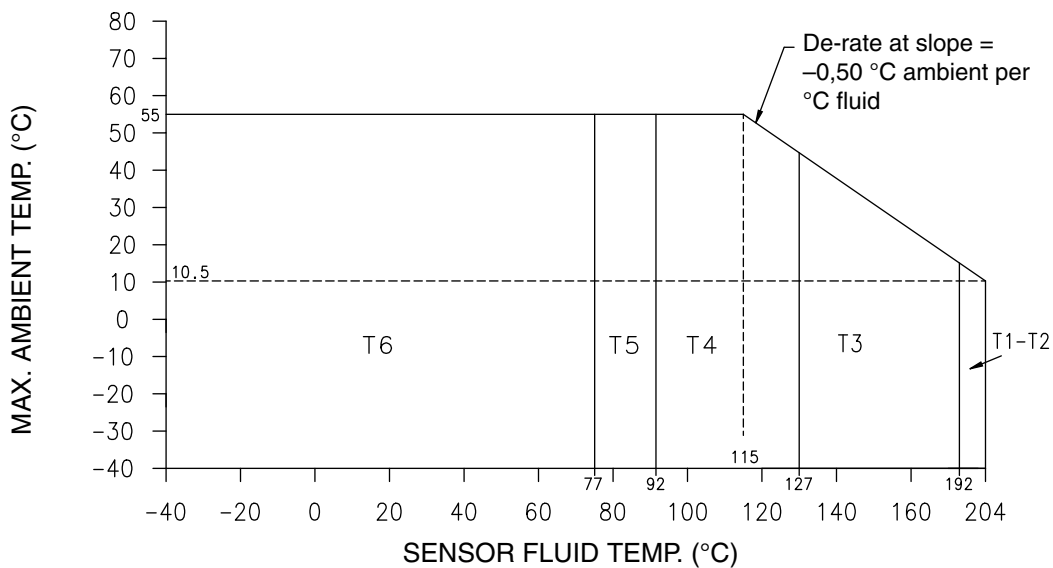
Sensor type	
F025*****I*Z*****	IIC
F050*****I*Z*****	IIC
F100*****I*Z*****	IIC
F200*****I*Z*****	IIC
F200*****I*Z***** CIC A1	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.


3.9.2.2)

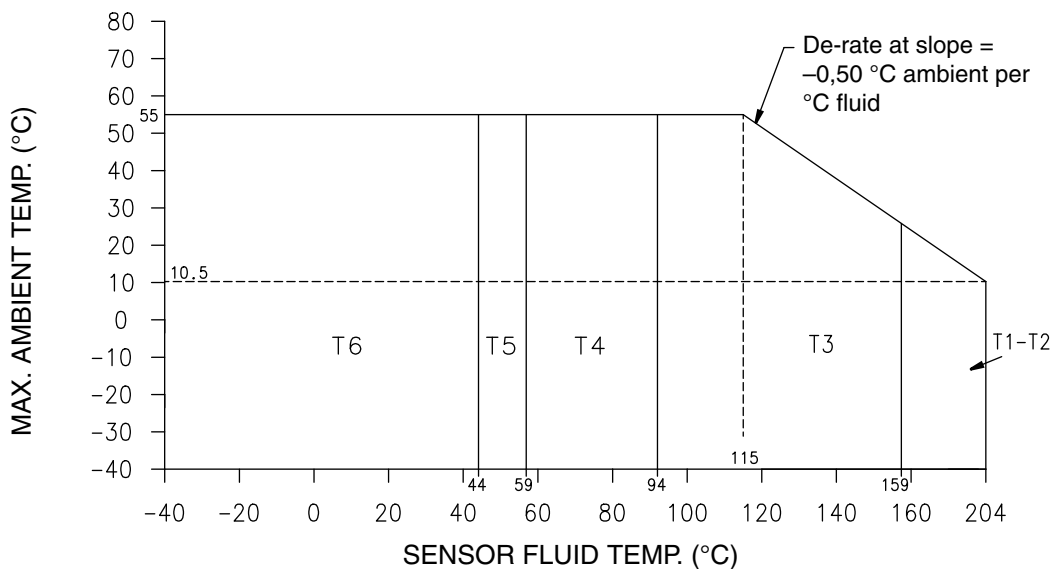
Sensor type	
F025*****I*Z***** CIC A2	IIC
F050*****I*Z***** CIC A2	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

3.9.2.3)


Sensor type	
F100****I*Z**** CIC A2	IIC



Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

4) Marking

The marking of the equipment shall include the following:

 **II 2G**
II 2D with additional marking required by the standards mentioned in the following tables.

Type	Type of protection gas	Type of protection dust
F025*****1)*Z*****	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F050*****1)*Z*****	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F100*****1)*Z*****	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F200*****1)*Z*****	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F200*****1)*Z***** CIC A1	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F300*****1)*Z*****	Ex ib IIB T1–T6	Ex tD A21 IP65T ³⁾ °C
F300*****1)*Z***** CIC A4	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F300*****1)*G*****	Ex ib IIC T1–T6	Ex tD A21 IP65T ³⁾ °C
F025 *****1)*Z*****	Ex ib IIC T1–T6	
F025 *****1)*Z***** CIC A2	Ex ib IIC T1–T6	
F050 *****1)*Z*****	Ex ib IIC T1–T6	
F050 *****1)*Z***** CIC A2	Ex ib IIC T1–T6	
F100 *****1)*Z*****	Ex ib IIC T1–T6	
F100 *****1)*Z***** CIC A2	Ex ib IIC T1–T6	
F200 *****1)*Z*****	Ex ib IIC T1–T6	
F200 *****1)*Z***** CIC A1	Ex ib IIC T1–T6	
F025*****2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F025*****2)*Z***** CIC A2	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F050*****2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F050*****2)*Z***** CIC A2	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F100*****2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F100*****2)*Z***** CIC A2	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F200*****2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F200*****2)*Z***** CIC A1	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F300*****2)*Z*****	Ex ib IIB T1–T5	Ex tD A21 IP65T ³⁾ °C
F300*****2)*Z***** CIC A4	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F300*****2)*G*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F025 ⁴⁾ ***** 2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F025 ⁴⁾ ***** 2)*Z***** CIC A3	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F050 ⁴⁾ ***** 2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F050 ⁴⁾ ***** 2)*Z***** CIC A3	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F100 ⁴⁾ ***** 2)*Z*****	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F100 ⁴⁾ ***** 2)*Z***** CIC A3	Ex ib IIC T1–T5	Ex tD A21 IP65T ³⁾ °C
F300 ⁴⁾ ***** 2)*Z*****	Ex ib IIB T1–T5	Ex tD A21 IP65T ³⁾ °C

For sensors with junction box connected to non-MVD transmitters (e.g., RFT9739) is valid:

Type	Type of protection gas	Min. ambient/fluid temp. gas	Type of protection dust
F025*****1)*Z***** CIC A2	Ex ib IIC T1–T6	–68 °C	Ex tD A21 IP65T ³⁾ °C
F050*****1)*Z***** CIC A2	Ex ib IIC T1–T6	–68 °C	Ex tD A21 IP65T ³⁾ °C
F100*****1)*Z***** CIC A2	Ex ib IIC T1–T6	–68 °C	Ex tD A21 IP65T ³⁾ °C
F200*****1)*Z***** CIC A1	Ex ib IIC T1–T6	–90 °C	Ex tD A21 IP65T ³⁾ °C

For sensors with junction box connected to MVD transmitters (e.g., 1700/2700) is valid:

Type	Type of protection gas	Min. ambient/fluid temp. gas	Type of protection dust
F025****1)*Z***** CIC A2	Ex ib IIC T1–T6	–83 °C	Ex tD A21 IP65T ³⁾ °C
F050****1)*Z***** CIC A2	Ex ib IIC T1–T6	–83 °C	Ex tD A21 IP65T ³⁾ °C
F100****1)*Z***** CIC A2	Ex ib IIC T1–T6	–83 °C	Ex tD A21 IP65T ³⁾ °C
F200****1)*Z***** CIC A1	Ex ib IIC T1–T6	–138 °C	Ex tD A21 IP65T ³⁾ °C
F300****1)*Z*****	Ex ib IIB T1–T6	–40°C	Ex tD A21 IP65T ³⁾ °C
F300****1)*Z***** CIC A4	Ex ib IIC T1–T6	–100°C	Ex tD A21 IP65T ³⁾ °C
F300****1)*6*****	Ex ib IIC T1–T6	–100°C	Ex tD A21 IP65T ³⁾ °C
F025 ⁴⁾ ****1)*Z*****	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F025 ⁴⁾ ****1)*Z***** CIC A3	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F050 ⁴⁾ ****1)*Z*****	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F050 ⁴⁾ ****1)*Z***** CIC A3	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F100 ⁴⁾ ****1)*Z*****	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F100 ⁴⁾ ****1)*Z***** CIC A3	Ex ib IIC T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C
F300 ⁴⁾ ****1)*Z*****	Ex ib IIB T1–T6	–50 °C	Ex tD A21 IP65T ³⁾ °C

- 1) At this position the letter R, H, S, or T will be inserted.
- 2) At this position the numeral 2, 3, 4, 5, 6, 7, 8, or 9; or the letter A, B, D, E, Q, V, W, or Y will be inserted.
- 3) Maximum surface temperature T for dust, see temperature graphs and the manufacturers instructions. Minimum ambient and process temperature for dust is –40 °C.
- 4) At this position the letter A, B, C, or E will be inserted.

5) Special conditions for safe use / Installation instructions

- 5.1) By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified according to the following table:

	Sensor type	
	F025 *****(J or U)*Z***** F025 *****(J or U)*Z***** CIC A2 F050 *****(J or U)*Z***** F050 *****(J or U)*Z***** CIC A2 F100 *****(J or U)*Z***** F100 *****(J or U)*Z***** CIC A2 F200 *****(J or U)*Z***** F200 *****(J or U)*Z***** CIC A1 F300 *****(J or U)*Z***** CIC A4 F300 *****(J or U)*6***** F025(A, B, C, or E) **** J*Z***** F050(A, B, C, or E) **** J*Z***** F100(A, B, C, or E) **** J*Z***** F025(A, B, C, or E) **** J*Z***** CIC A3 F050(A, B, C, or E) **** J*Z***** CIC A3 F100(A, B, C, or E) **** J*Z***** CIC A3	F300 *****(J or U)*Z***** F300(A, B, C, or E) **** J* Z*****
Transmitter type 2200S****1)*Z*****	Ex ib IIC T1–T4 Ex ibD 21 T70°C	Ex ib IIB T1–T4 Ex ibD 21 T70°C

5.2) By mounting the sensor directly to the *700 transmitter the use of the unit will be modified according to the following table:

	Sensor type	
	F025 *****(C or F)*Z***** F025 *****(C or F)*Z***** CIC A2 F050 *****(C or F)*Z***** F050 *****(C or F)*Z***** CIC A2 F100 *****(C or F)*Z***** F100 *****(C or F)*Z***** CIC A2 F200 *****(C or F)*Z***** F200 *****(C or F)*Z***** CIC A1 F300 *****(C or F)*Z***** CIC A4 F300 *****(C or F)*6***** F025(A, B, C, or E) *****C*Z***** F050(A, B, C, or E) *****C*Z***** F100(A, B, C, or E) *****C*Z***** F025(A, B, C, or E) *****C*Z***** CIC A3 F050(A, B, C, or E) *****C*Z***** CIC A3 F100(A, B, C, or E) *****C*Z***** CIC A3	F300 *****(C or F)*Z***** F300(A, B, C, or E)*****C*Z*****
Transmitter type *700*1(1 or 2)*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(3, 4, or 5)*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(1 or 2)D*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type *700*1(3, 4, or 5)D*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type 2700*1(1 or 2)(E or G)*****	Ex ib IIB+H ₂ T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C
Transmitter type 2700*1(3, 4, or 5)(E or G)*****	Ex ib IIC T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C	Ex ib IIB T1–T5 Ex tD A21 IP 65 T ⁽¹⁾ °C

(1) For dust temperature ratings, see temperature graphs.

- 5.3) When the application requires that IIB certified sensors are to be used in IIC hazardous area's, these sensors can be modified by adding an infallible series resistor in the drive coil circuitry done by the manufacturer or his representative. In this case, the modified sensor can be marked with IIC and must be marked with an identification code (so-called ETO number). Furthermore the manufacturer or his representative must issue a Manufacturing Declaration which shows how the calculations have been done, what resistor value is to be added and what the identification code is.
- 5.4) The above is also applicable when IIB or IIC certified sensors are going to be used at lower fluid temperatures than indicated in the EC Type Examination Certificate.
- 5.5) A combination of points 5.3 and 5.4 is also allowed.

Cable glands and adapters

ATEX Installation Instructions

1) **ATEX certification requirement**

All sensor and transmitter cable glands and adapters are required to be ATEX certified. Refer to the specific manufacturer's website for installation instructions.

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