



# IECEX Certificate of Conformity



Certificate No.: IECEx BVS 15.0035 X

Annex

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Copy of Marking Plate:

The marking of the equipment shall include the following:

Ex ib IIIC T°C Db

IP66/IP67

with additional marking required by the standards mentioned in the following tables:

Minimum ambient/fluid temperature (Gas) for sensors with J-box connected to 9739MVD, MVD transmitters (1000/2000/3000MVD) and 4000/5000 series:

Type	Type of protection gas	Min. ambient/fluid temp. Gas <sup>3)</sup>
CMF010*****)* ****	Ex ib IIC T6...T1 Gb	-240 °C
CMF025*****)* ****	Ex ib IIC T6...T1 Gb	-240 °C
CMF050*****)* ****	Ex ib IIC T6...T1 Gb	-240 °C
CMF100*****)* ****	Ex ib IIC T6...T1 Gb	-60 °C
CMF100*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMF200*****)* ****	Ex ib IIB T6...T1 Gb	-55 °C
CMF200*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMF200 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMF200 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMF300*****)* ****	Ex ib IIB T6...T1 Gb	-55 °C
CMF300*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMF300 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMF300 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMF350*****)* ****	Ex ib IIB T6...T1 Gb	-68 °C
CMF350*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMF350 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMF350 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMF400*****)* ****	Ex ib IIB T6...T1 Gb	-68 °C
CMF400*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMF400 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMF400 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMFHCV*****)* ****	Ex ib IIB T6...T1 Gb	-50 °C / -40 °C
CMFHCV*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C / -40 °C
CMFHC2*****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC2*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMFHC2 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC2 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMFHC3*****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC3*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMFHC3 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC3 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C
CMFHC4*****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC4*****)*7****	Ex ib IIC T6...T1 Gb	-240 °C
CMFHC4 <sup>4)</sup> *****)* ****	Ex ib IIB T6...T1 Gb	-50 °C
CMFHC4 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T6...T1 Gb	-50 °C

1) At this place the letter R, H, S or T will be inserted.

3) Maximum surface temperature T for dust, see temperature graphs and manufacturer's instructions. Minimum ambient and process temperature for dust is -40 °C. When marked with ETO 18748 the minimum ambient allowed for dust is -50 °C.

4) At this place the letter A, B, C or E will be inserted.



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Minimum ambient/fluid temperature (Gas) for sensors with integral Core:

Type	Type of protection gas	Min. ambient/fluid temp. Gas <sup>3)</sup>
CMF010*****)* ****	Ex ib IIC T5...T1 Gb	-40 °C
CMF025*****)* ****	Ex ib IIC T5...T1 Gb	-40 °C
CMF050*****)* ****	Ex ib IIC T5...T1 Gb	-40 °C
CMF100*****)* ****	Ex ib IIC T5...T1 Gb	-40 °C
CMF100*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMF200*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMF200*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMF200 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMF200 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMF300*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMF300*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMF300 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMF300 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMF350*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMF350*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMF350 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMF350 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMF400*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMF400*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMF400 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMF400 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMFHCV*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C / -40 °C
CMFHCV*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C / -40 °C
CMFHC2*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMFHC2*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMFHC2 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMFHC2 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMFHC3*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMFHC3*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMFHC3 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMFHC3 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C
CMFHC4*****)* ****	Ex ib IIB T5...T1 Gb	-40 °C
CMFHC4*****)*7****	Ex ib IIC T5...T1 Gb	-40 °C
CMFHC4 <sup>4)</sup> *****)* ****	Ex ib IIB T5...T1 Gb	-50 °C
CMFHC4 <sup>4)</sup> *****)* **** CIC A4	Ex ib IIC T5...T1 Gb	-50 °C

2) At this place 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.

4) At this place the letter A, B, C or E will be inserted.



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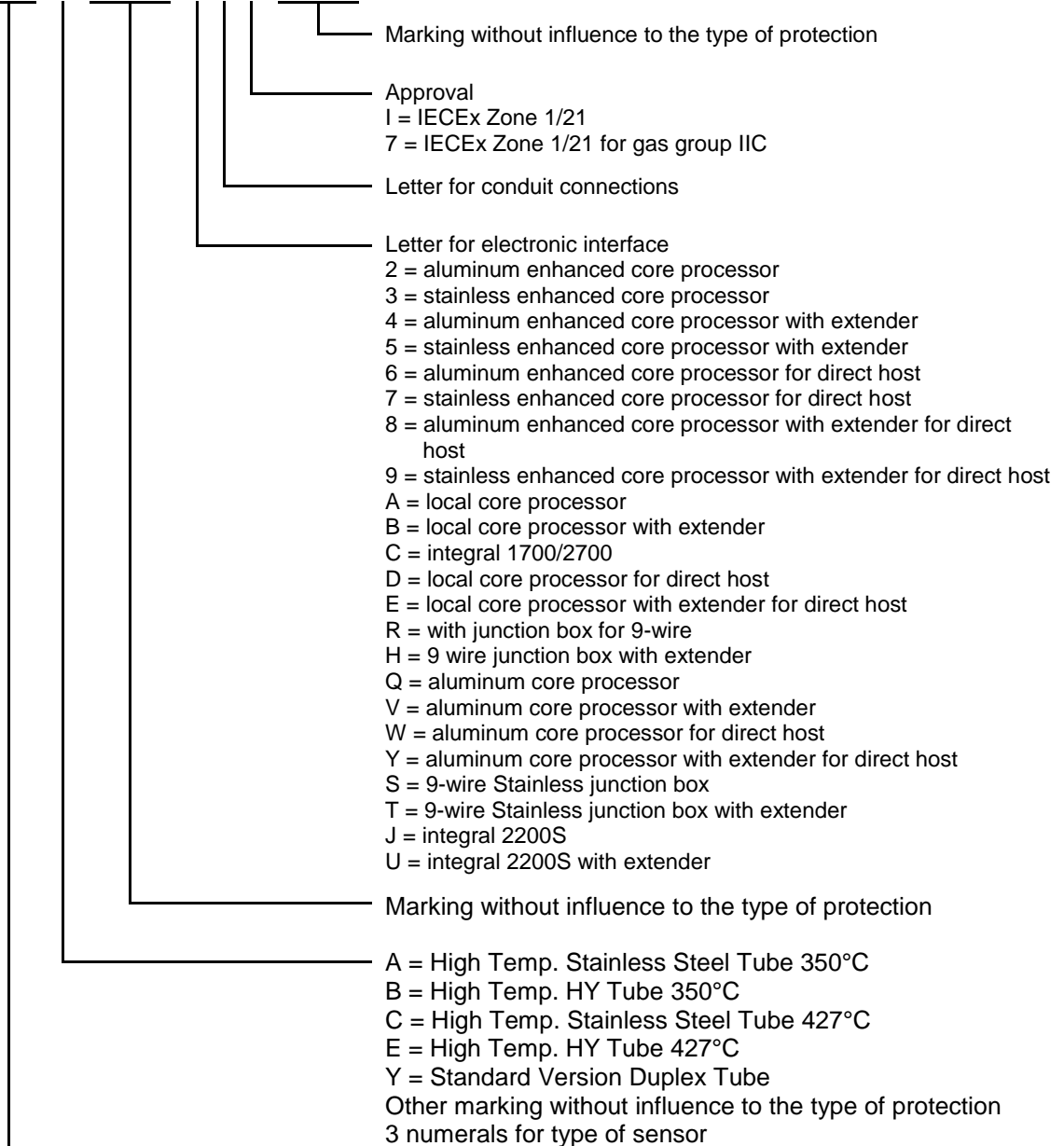
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### General product information:

Sensor type CMF\*\*\* \*\*\*\*\*

Instead of the \*\*\* in the complete denomination letters and numerals will be inserted which characterize the following variations:

C M F \* \* \* \* \* \* \* \* \* \* \* \* \* \*



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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 (IECEX BVS09.0022 U), the variation gets the denomination CMF\*\*\*\*\* (S or T)\*\*\*\*\* for a SS enclosure and CMF\*\*\*\*\* (R or H)\*\*\*\*\* for an aluminum enclosure.



- When used with an integral mounted signal processing device type 700 (IECEX BVS 04.0002 U), the variation gets the denomination type CMF\*\*\* \*\*\*\*\* (A, B, D, E)\*\*\*\*\* for a SS enclosure and CMF\*\*\* \*\*\*\*\* (Q, V, W or Y)\*\*\*\*\* for an aluminum enclosure.



- When used with an integral mounted enhanced signal processing device type 800 (IECEX BVS 05.0010 U), the variation gets the denomination type CMF\*\*\* \*\*\*\*\* (3, 5, 7 or 9)\*\*\*\*\* for a SS enclosure and CMF\*\*\* \*\*\*\*\* (2, 4, 6 or 8)\*\*\*\*\* for an aluminum enclosure.



- The high temperature version CMF\*\*\* (A, B, C or E)\*\*\*\*\* can be executed with a junction box (see section 3.2), or core processor/enhanced core processor (see section 3.4), or 1700/2700 transmitter (see section 3.5), or 2200 transmitter (see section 3.7); this variation has therefore always the denomination CMF\*\*\* (A, B, C or E)\*\*\*\*\*. By mounting the sensor directly to the 1700/2700 or 2200S transmitter the use of the unit will be modified.



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- When used with an integral transmitter type 2200S (IECEX BVS 08.0038 X), the variation gets the denomination type CMF\*\*\*\*\* (J or U)\*\*\*\*\*. See section 3.6 and 3.7. By mounting the sensor directly to the 2200S transmitter the use of the unit will be modified.



Modifications to the design which have impact on the electrical parameters are indicated by a Construction Identification Code (CIC). This code consists 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.

The drive coil series resistance for the High Temp Sensors (CMF\*\*\*A,B,C or E) suitable for IIC applications are identified with a Construction Identification Code (C.I.C.) of A4.


### Parameters


- 1        Type CMF\*\*\*\*\* (R, H, S or T)\*\*\*\*\* with J-box except CMF\*\*\* (A, B, C or E)\*\*\* (R, S)\*\*\*\*\*




#### 1.1        Drive circuit (connections 1 - 2 or wires red and brown)


Voltage	$U_i$	DC	11,4	V
Current	$I_i$		2.45	A
Power	$P_i$		2.54	W
Effective internal capacitance	$C_i$		Negligible	
Effective internal inductance	$L_i$		Per following table	


Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF010***** (R,H,S,T)*I****		(IIC)	2.51	0	945.1	-240

Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF025***** (R,H,S,T)*I****		(IIC)	2.51	0	170.1	-240
CMF050***** (R,H,S,T)*I****		(IIC)	2.51	0	170.1	-240
CMF100***** (R,H,S,T)*I****		(IIC)	6.7	58.4	89.0	-40
CMF100***** (R,H,S,T)*I****		(IIC)	6.7	52.4	89.0	-60
CMF100***** (R,H,S,T)*7****		(IIC)	6.7	0	177.0	-240

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Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF200*****(R,H,S,T)*I****		(IIB)	9.5	85.8	0	-55
CMF200*****(R,H,S,T)*7****		(IIC)	9.5	0	177.0	-240
CMF300*****(R,H,S,T)*I****		(IIB)	9.5	85.8	0	-55
CMF300*****(R,H,S,T)*7****		(IIC)	9.5	0	177.0	-240

Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF350*****(R,H,S,T)*I****		(IIB)	11.75	71.4	19.8	-68
CMF350*****(R,H,S,T)*7****		(IIC)	11.75	0	187.1	-240
CMF400*****(R,H,S,T)*I****		(IIB)	11.75	71.4	19.8	-68
CMF400*****(R,H,S,T)*7****		(IIC)	11.75	0	187.1	-240


Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMFHC2*****(R,H,S,T)*I****		(IIB)	5.0	19.5	38.5	-50
CMFHC2*****(R,H,S,T)*7****		(IIC)	5.0	0	126.0	-240
CMFHC3*****(R,H,S,T)*I****		(IIB)	5.0	19.5	38.5	-50
CMFHC3*****(R,H,S,T)*7****		(IIC)	5.0	0	126.0	-240
CMFHC4*****(R,H,S,T)*I****		(IIB)	5.0	19.5	38.5	-50
CMFHC4*****(R,H,S,T)*7****		(IIC)	5.0	0	126.0	-240
CMFHC*Y*****(R,H,S,T)*I****		(IIB)	5.0	19.5	38.5	-50/-40
CMFHC*Y*****(R,H,S,T)*7****		(IIC)	5.0	0	126.0	-240/-40


1.2 Pick-off circuit coil (Terminals 5/9 and 6/8 or wires green/white and blue/grey)


Voltage	$U_i$	DC	21.13	V
Current	$I_i$		18.05	mA
Power	$P_i$		45	mW
Effective internal capacitance	$C_i$		Negligible	
Effective internal inductance	$L_i$		Per following table	


Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF010*****(R,H,S,T)*I****		(IIC)	2.51	0	0	-240

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Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF025*****(R,H,S,T)*I****	(IIC)	2.51	0	0	-240
CMF050*****(R,H,S,T)*I****	(IIC)	2.51	0	0	-240
CMF100*****(R,H,S,T)*I****	(IIC)	0.441	11.1	0	-40
CMF100*****(R,H,S,T)*I****	(IIC)	0.441	9.9	0	-60
CMF100*****(R,H,S,T)*7****	(IIC)	0.441	0	0	-240

Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF200*****(R,H,S,T)*I****	(IIB)	0.6	21.14	0 to 567.9	-55
CMF200*****(R,H,S,T)*7****	(IIC)	0.6	0	0 to 567.9	-240
CMF300*****(R,H,S,T)*I****	(IIB)	0.6	21.14	0 to 567.9	-55
CMF300*****(R,H,S,T)*7****	(IIC)	0.6	0	0 to 567.9	-240

Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF350*****(R,H,S,T)*I****	(IIB)	12.4	109.8	0 to 566.4	-68
CMF350*****(R,H,S,T)*7****	(IIC)	12.4	0	0 to 566.4	-240
CMF400*****(R,H,S,T)*I****	(IIB)	12.4	109.8	0 to 566.4	-68
CMF400*****(R,H,S,T)*7****	(IIC)	12.4	0	0 to 566.4	-240


Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMFHC2*****(R,H,S,T)*I****	(IIB)	2.8	49.2	42.6 to 566.4	-50
CMFHC2*****(R,H,S,T)*7****	(IIC)	2.8	0	198.4 to 566.4	-240
CMFHC3*****(R,H,S,T)*I****	(IIB)	2.8	49.2	42.6 to 566.4	-50
CMFHC3*****(R,H,S,T)*7****	(IIC)	2.8	0	198.4 to 566.4	-240
CMFHC4*****(R,H,S,T)*I****	(IIB)	2.8	49.2	42.6 to 566.4	-50
CMFHC4*****(R,H,S,T)*7****	(IIC)	2.8	0	198.4 to 566.4	-240
CMFHC*Y*****(R,H,S,T)*I****	(IIB)	2.8	49.2	42.6 to 566.4	-50/-40
CMFHC*Y*****(R,H,S,T)*7****	(IIC)	2.8	0	198.4 to 566.4	-240/-40

### 1.3 Temperature circuit (terminals 3, 4 and 7 or wires 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	

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

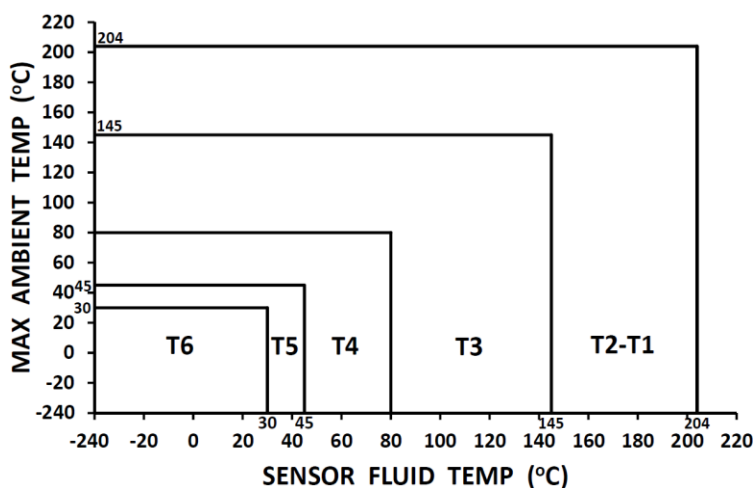
Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Serial Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF350*****(R,H,S,T)*I****	(IIB)	N/A	N/A	39.7 to 42.2	-68
CMF350*****(R,H,S,T)*7****	(IIC)	N/A	N/A	39.7 to 42.2	-240
CMF400*****(R,H,S,T)*I****	(IIB)	N/A	N/A	39.7 to 42.2	-68
CMF400*****(R,H,S,T)*7****	(IIC)	N/A	N/A	39.7 to 42.2	-240

#### 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:

##### 1.4.1

Sensor type		Sensor type	
CMF010*****(R,H,S,T)*I****	(IIC)	CMF025*****(R,H,S,T)*I****	(IIC)
		CMF050*****(R,H,S,T)*I****	(IIC)
Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 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 T for dust is as follows: T6:T 80  $^{\circ}\text{C}$ , T5:T 95  $^{\circ}\text{C}$ , T4:T 130  $^{\circ}\text{C}$ , T3:T 195  $^{\circ}\text{C}$ , T2 to T1:T 254  $^{\circ}\text{C}$ .

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40  $^{\circ}\text{C}$ . When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50  $^{\circ}\text{C}$ .

Ambient temperature range



$T_a$

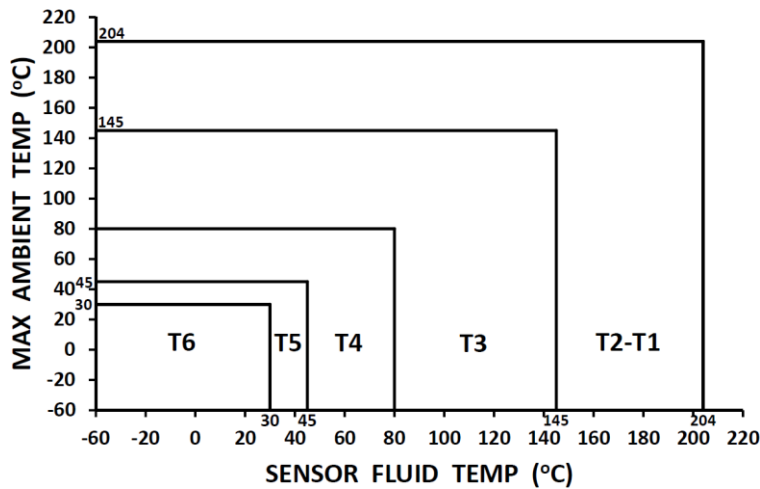
see graph



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1.4.2.

	
Sensor type	
CMF100*****(R,H,S,T)*I****	(IIC) Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 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 T 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 254 °C.

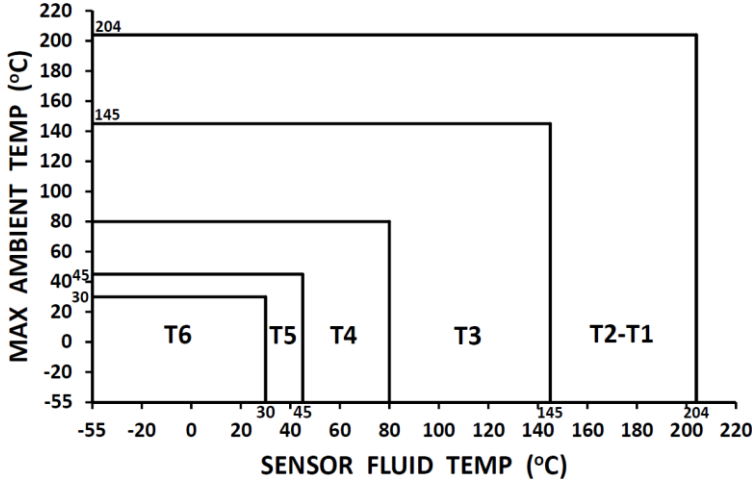
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.3.

	
Sensor type	
CMF200*****(R,H,S,T)*I****	(IIB) Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series
CMF300*****(R,H,S,T)*I****	(IIB) Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series

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

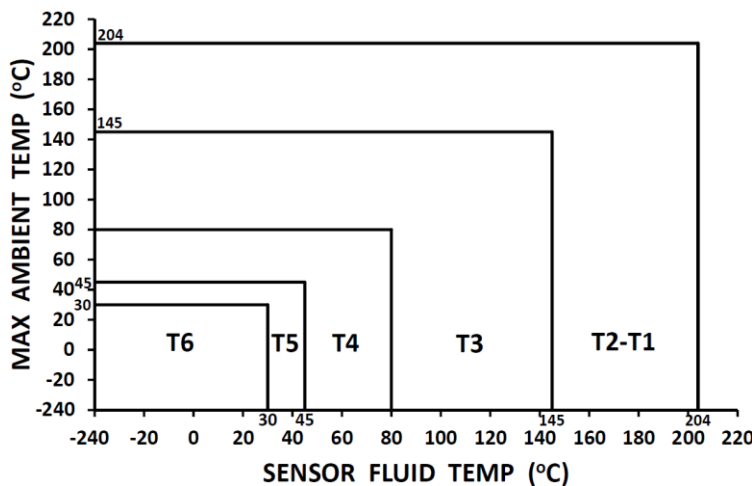
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 254 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.4.

Sensor type	Sensor type
CMF100****(R,H,S,T)*7****	CMF200****(R,H,S,T)*7****
(IIC)	(IIC)
	CMF300****(R,H,S,T)*7****
	(IIC)
Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series	



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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: T6: 80 °C, T5: 95 °C, T4: 130 °C, T3: 195 °C, T2 and T1: 254 °C.

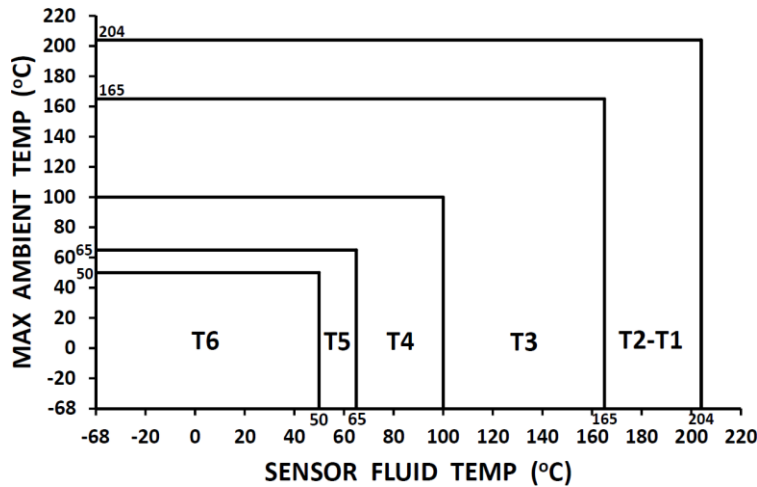
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50°C.

Ambient temperature range:

T<sub>a</sub> see graph

1.4.5.

			
Sensor type			
CMF350****(R,H,S,T)*I****	(IIB)	Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series	
CMF350****(R,H,S,T)*7****	(IIC)		
CMF400****(R,H,S,T)*I****	(IIB)		
CMF400****(R,H,S,T)*7****	(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 T 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 234 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.



Ambient temperature range:

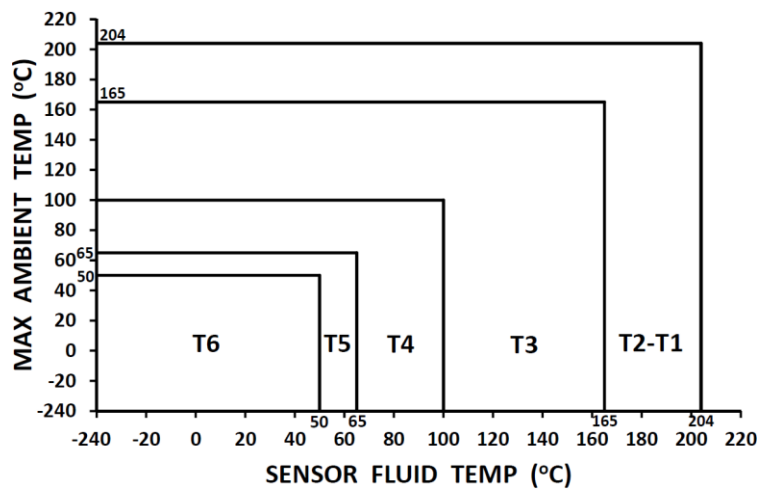
T<sub>a</sub>

see graph

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1.4.6.

			
Sensor type		(IIC)	Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series
CMF350*****(R,H,S,T)*7****	(IIC)		
CMF400*****(R,H,S,T)*7****	(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 T 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 234 °C.

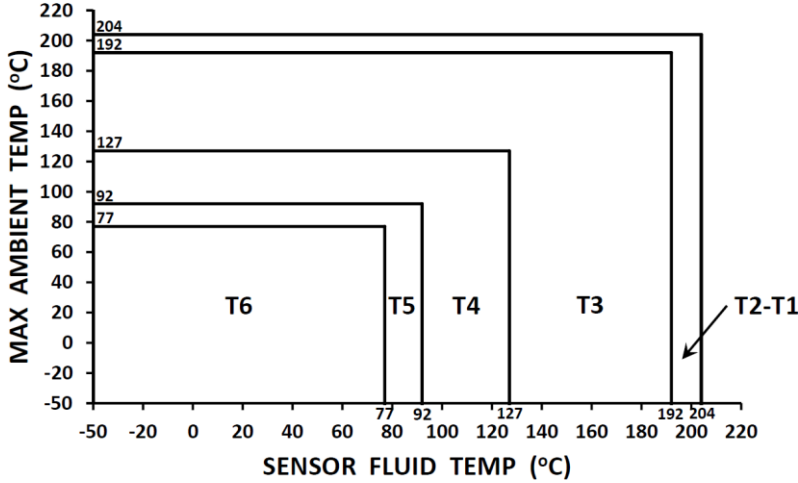
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.7

			
Sensor type		(IIB)	Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series
CMFHC2*****(R,H,S,T)*1****	(IIB)		
CMFHC3*****(R,H,S,T)*1****	(IIB)		
CMFHC4*****(R,H,S,T)*1****	(IIB)		

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

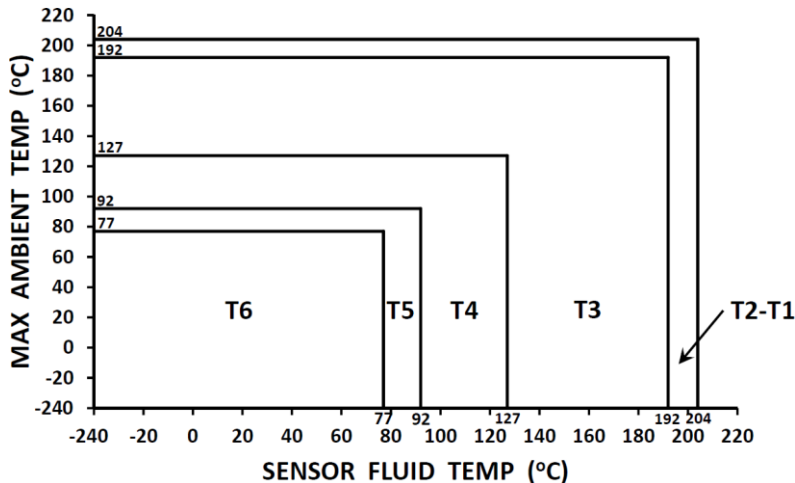
Note 2: The maximum surface temperature T for dust is as follows: T6:T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.8

	
Sensor type	
CMFHC2****(R,H,S,T)*7****	(IIC)
CMFHC3****(R,H,S,T)*7****	(IIC)
CMFHC4****(R,H,S,T)*7****	(IIC)
Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series	



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

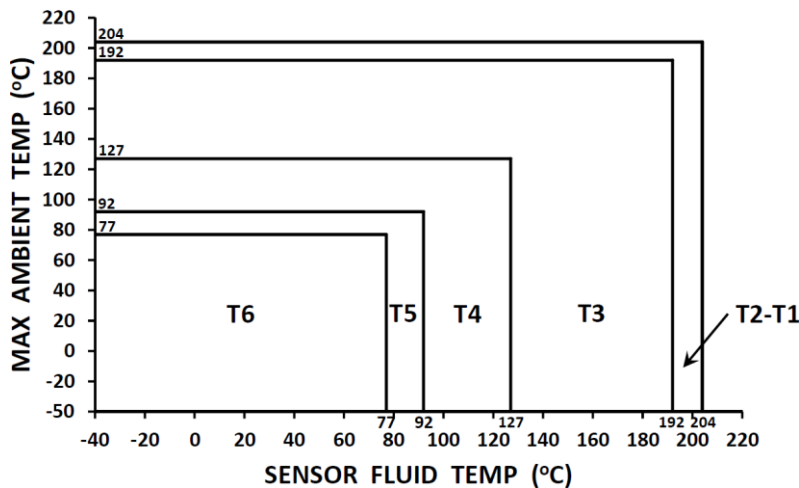
Note 2: The maximum surface temperature T for dust is as follows: T6: T 80 °C, T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient and process fluid temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.9

	
Sensor type	
CMFHC*Y****(R,H,S,T)*I****	(IIB) Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 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 T 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.

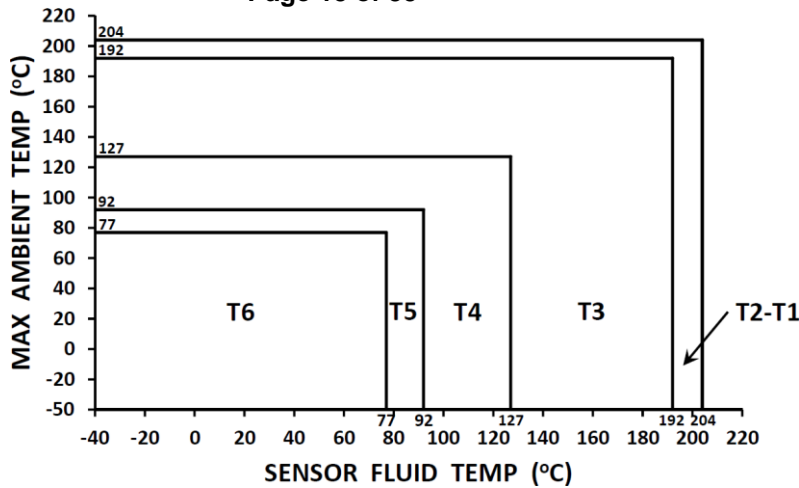
Note 3: The minimum ambient temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

1.4.10

	
Sensor type	
CMFHC*Y****(R,H,S,T)*7****	(IIC) Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series

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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: 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 temperature allowed for dust is -40 °C. When marked with ETO 18748 the minimum ambient temperature allowed for dust is -50 °C.

Ambient temperature range:  $T_a$  see graph

2 Type CMF\*\*\* (A, B, C or E)\*\*\* (R,S)\*\*\*\*\* with J-box.

2.1. Drive circuit (connections 1 - 2 or wires red and brown)


Voltage	$U_i$	DC	11.4	V
Current	$I_i$		2.45	A
Power	$P_i$		2.54	W
Effective internal capacitance	$C_i$		Negligible	
Effective internal inductance	$L_i$		Per following table	

Sensor type		Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )	
CMF200(A, B, C, E)*** (R,S)*** I****		(IIB)	4.0	32.3	19.8	-50
CMF200(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	4.0	32.3	88.9	-50
CMF300(A, B, C, E)*** (R,S)*** I****		(IIB)	4.0	32.3	19.8	-50
CMF300(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	4.0	32.3	88.9	-50
CMF350(A, B, C, E)*** (R,S)*** I****		(IIB)	7.75	54.3	19.8	-50
CMF350(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	7.75	54.3	106.7	-50
CMF400(A, B, C, E)*** (R,S)*** I****		(IIB)	7.75	54.3	19.8	-50
CMF400(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	7.75	54.3	106.7	-50
CMFHC2(A, B, C, E)*** (R,S)*** I****		(IIB)	7.75	54.3	24.7	-50
CMFHC2(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	7.75	54.3	106.7	-50
CMFHC3(A, B, C, E)*** (R,S)*** I****		(IIB)	7.75	54.3	24.7	-50
CMFHC3(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	7.75	54.3	106.7	-50
CMFHC4(A, B, C, E)*** (R,S)*** I****		(IIB)	5.95	51.3	12.8	-50
CMFHC4(A, B, C, E)*** (R,S)*** I**** CIC A4		(IIC)	5.95	51.3	88.9	-50

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2.2 Pick-off circuit (Terminals 5/9 and 6/8 or wires green/white and blue/grey)


Voltage	$U_i$	DC	21.13	V
Current	$I_i$		18.05	mA
Power	$P_i$		45	mW
Effective internal capacitance	$C_i$		Negligible	
Effective internal inductance	$L_i$		Per following table	

Sensor type:			Inductance (mH)	Coil Resistance ( $\Omega$ )	Series Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF200(A, B, C, E)****(R,S)*I****		(IIB)	1.25	15.4	569.2	-50
CMF200(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	1.25	15.4	569.2	-50
CMF300(A, B, C, E)****(R,S)*I****		(IIB)	1.25	15.4	569.2	-50
CMF300(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	1.25	15.4	569.2	-50
CMF350(A, B, C, E)****(R,S)*I****		(IIB)	6.50	41.1	569.2	-50
CMF350(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	6.50	41.1	569.2	-50
CMF400(A, B, C, E)****(R,S)*I****		(IIB)	6.50	41.1	569.2	-50
CMF400(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	6.50	41.1	569.2	-50
CMFH2(A, B, C, E)****(R,S)*I****		(IIB)	0.85	9.1	42.6	-50
CMFH2(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	0.85	9.1	42.6	-50
CMFH3(A, B, C, E)****(R,S)*I****		(IIB)	0.85	9.1	42.6	-50
CMFH3(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	0.85	9.1	42.6	-50
CMFH4(A, B, C, E)****(R,S)*I****		(IIB)	0.85	9.1	42.6	-50
CMFH4(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	0.85	9.1	42.6	-50

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	
Effective internal inductance	$L_i$		Per following table	

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



Sensor type			Inductance (mH)	Coil Resistance ( $\Omega$ )	Serial Resistor ( $\Omega$ )	Minimum Ambient/Fluid Temp ( $^{\circ}\text{C}$ )
CMF350(A, B, C, E)****(R,S)*I****		(IIB)	N/A	N/A	39.7 to 42.2	-50
CMF350(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	N/A	N/A	39.7 to 42.2	-50
CMF400(A, B, C, E)****(R,S)*I****		(IIB)	N/A	N/A	39.7 to 42.2	-50
CMF400(A, B, C, E)****(R,S)*I**** CIC A4		(IIC)	N/A	N/A	39.7 to 42.2	-50

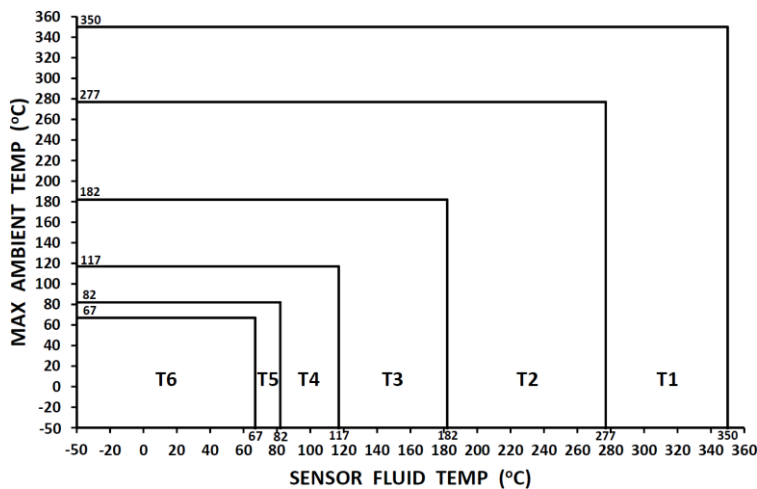


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2.4 Temperature class/ maximum surface temperature T  
 The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of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

2.4.1

																													
<p>Sensor type</p> <table border="1"> <tr><td>CMF200(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF200(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF300(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF300(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF350(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF350(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF400(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF400(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC2(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC2(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC3(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC3(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC4(A or B)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC4(A or B)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> </table>		CMF200(A or B)****(R,S)*I****	(IIB)	CMF200(A or B)****(R,S)*I**** CIC A4	(IIC)	CMF300(A or B)****(R,S)*I****	(IIB)	CMF300(A or B)****(R,S)*I**** CIC A4	(IIC)	CMF350(A or B)****(R,S)*I****	(IIB)	CMF350(A or B)****(R,S)*I**** CIC A4	(IIC)	CMF400(A or B)****(R,S)*I****	(IIB)	CMF400(A or B)****(R,S)*I**** CIC A4	(IIC)	CMFHFC2(A or B)****(R,S)*I****	(IIB)	CMFHFC2(A or B)****(R,S)*I**** CIC A4	(IIC)	CMFHFC3(A or B)****(R,S)*I****	(IIB)	CMFHFC3(A or B)****(R,S)*I**** CIC A4	(IIC)	CMFHFC4(A or B)****(R,S)*I****	(IIB)	CMFHFC4(A or B)****(R,S)*I**** CIC A4	(IIC)
CMF200(A or B)****(R,S)*I****	(IIB)																												
CMF200(A or B)****(R,S)*I**** CIC A4	(IIC)																												
CMF300(A or B)****(R,S)*I****	(IIB)																												
CMF300(A or B)****(R,S)*I**** CIC A4	(IIC)																												
CMF350(A or B)****(R,S)*I****	(IIB)																												
CMF350(A or B)****(R,S)*I**** CIC A4	(IIC)																												
CMF400(A or B)****(R,S)*I****	(IIB)																												
CMF400(A or B)****(R,S)*I**** CIC A4	(IIC)																												
CMFHFC2(A or B)****(R,S)*I****	(IIB)																												
CMFHFC2(A or B)****(R,S)*I**** CIC A4	(IIC)																												
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CMFHFC3(A or B)****(R,S)*I**** CIC A4	(IIC)																												
CMFHFC4(A or B)****(R,S)*I****	(IIB)																												
CMFHFC4(A or B)****(R,S)*I**** CIC A4	(IIC)																												
<p>Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series</p>																													



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: 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.

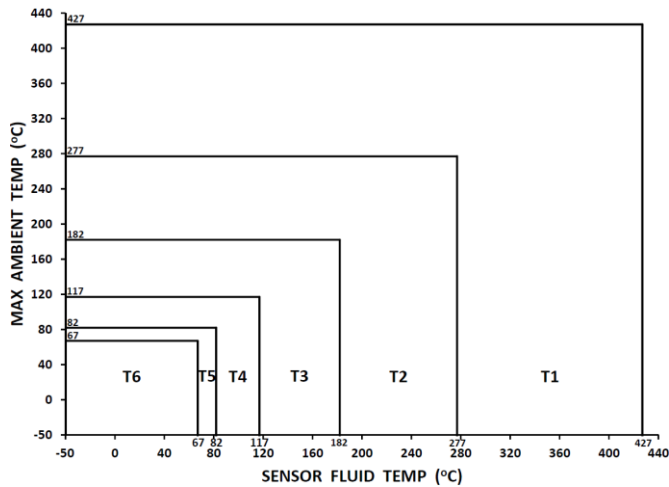
Note 4: The Junction Box is 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range:  $T_a$  see graph

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2.4.2

																													
<p>Sensor type</p> <table border="1"> <tr><td>CMF200(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF200(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF300(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF300(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF350(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF350(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMF400(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMF400(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC2(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC2(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC3(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC3(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> <tr><td>CMFHFC4(C or E)****(R,S)*I****</td><td>(IIB)</td></tr> <tr><td>CMFHFC4(C or E)****(R,S)*I**** CIC A4</td><td>(IIC)</td></tr> </table>		CMF200(C or E)****(R,S)*I****	(IIB)	CMF200(C or E)****(R,S)*I**** CIC A4	(IIC)	CMF300(C or E)****(R,S)*I****	(IIB)	CMF300(C or E)****(R,S)*I**** CIC A4	(IIC)	CMF350(C or E)****(R,S)*I****	(IIB)	CMF350(C or E)****(R,S)*I**** CIC A4	(IIC)	CMF400(C or E)****(R,S)*I****	(IIB)	CMF400(C or E)****(R,S)*I**** CIC A4	(IIC)	CMFHFC2(C or E)****(R,S)*I****	(IIB)	CMFHFC2(C or E)****(R,S)*I**** CIC A4	(IIC)	CMFHFC3(C or E)****(R,S)*I****	(IIB)	CMFHFC3(C or E)****(R,S)*I**** CIC A4	(IIC)	CMFHFC4(C or E)****(R,S)*I****	(IIB)	CMFHFC4(C or E)****(R,S)*I**** CIC A4	(IIC)
CMF200(C or E)****(R,S)*I****	(IIB)																												
CMF200(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMF300(C or E)****(R,S)*I****	(IIB)																												
CMF300(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMF350(C or E)****(R,S)*I****	(IIB)																												
CMF350(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMF400(C or E)****(R,S)*I****	(IIB)																												
CMF400(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMFHFC2(C or E)****(R,S)*I****	(IIB)																												
CMFHFC2(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMFHFC3(C or E)****(R,S)*I****	(IIB)																												
CMFHFC3(C or E)****(R,S)*I**** CIC A4	(IIC)																												
CMFHFC4(C or E)****(R,S)*I****	(IIB)																												
CMFHFC4(C or E)****(R,S)*I**** CIC A4	(IIC)																												
<p>Connected to 9739MVD and MVD transmitters, e.g. 1000/2000/3000MVD series and 4000/5000 series</p>																													



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: 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.

Note 4: The Junction Box is 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range:  $T_a$  see graph

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- 3 Type CMF\*\*\*\*\* (2-9, A, B, D, E, Q, V, W or Y)\*\*\*\*\* with integral core-processor, except type CMF\*\*\*(A, B, C, E)\*\*\*\* (2, 3, 6, 7, A, D, Q, W)\*\*\*\*\*



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	$\mu$ H

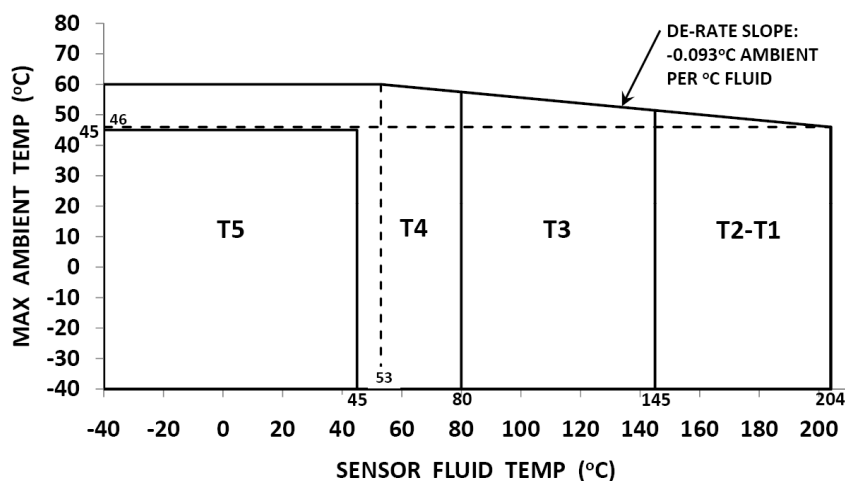
3.2 Temperature class/ maximum surface temperature T

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 graph:

3.2.1

Sensor type	CMF010	CMF100	CMF200/300	
CMF010***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIC)
CMF025***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIC)
CMF050***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIC)
CMF100***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIC)
CMF200***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIB)
CMF200***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)7*****				(IIC)
CMF300***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)1*****				(IIB)
CMF300***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)7*****				(IIC)

With integral core processor



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

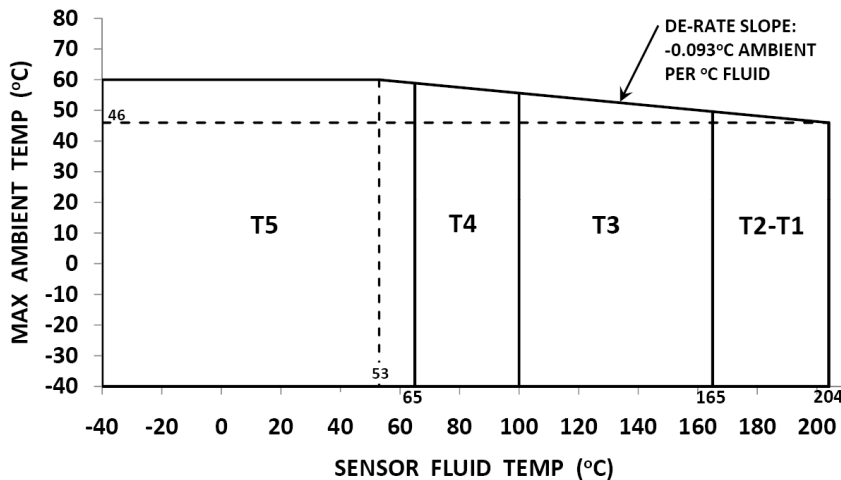
Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 254 °C.

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

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

3.2.2

		
Sensor type		
CMF350***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	(IIB)	With integral core processor
CMF350***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	(IIC)	
CMF400***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I*****	(IIB)	
CMF400***** (2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7*****	(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 T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 234 °C.

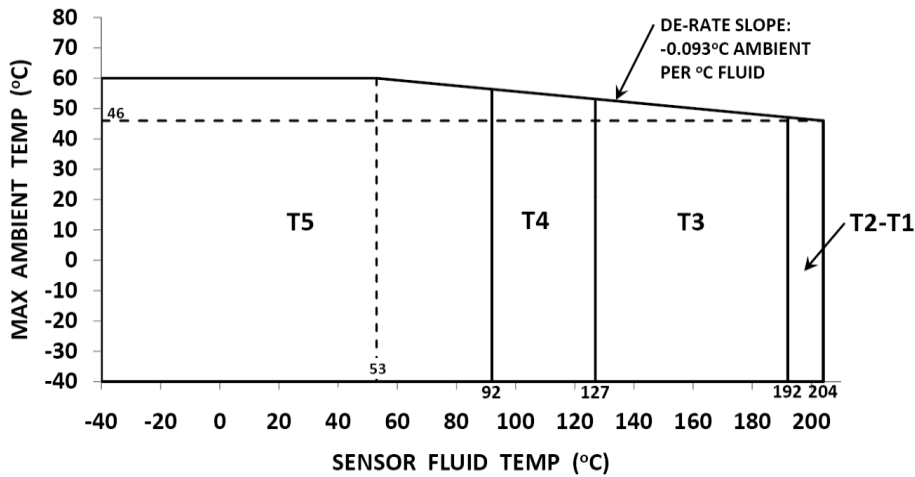
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

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

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3.2.3

		
Sensor type		With integral core processor
CMFHC2*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	(IIB)	
CMFHC2*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7****	(IIC)	
CMFHC3*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	(IIB)	
CMFHC3*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7****	(IIC)	
CMFHC4*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*I****	(IIB)	
CMFHC4*****(2,3,4,5,6,7,8,9,A,B,D,E,Q,V,W,Y)*7****	(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 T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2 to T1:T 207 °C.

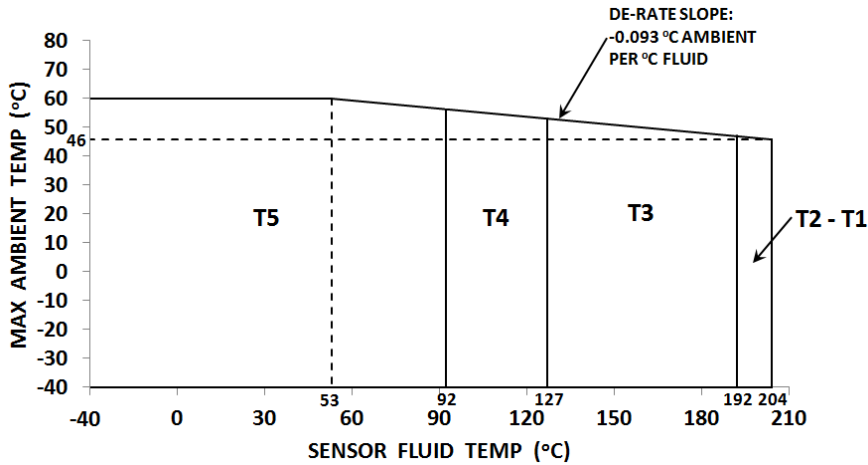
Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.

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

3.2.4

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

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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: 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  $T_a$  -40 °C to +60 °C

- 4 Type CMF\*\*\* (A, B, C or E)\*\*\* (2, 3, 6, 7, A, D, Q, W)\*\*\*\*\* with integral core processor.



#### 4.1 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

#### 4.2 Temperature class/ maximum surface temperature T

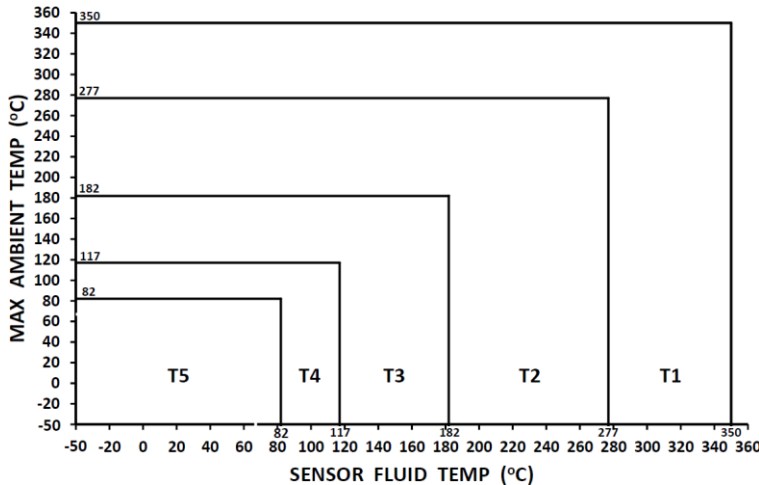
The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

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4.2.1

	
Sensor type	
CMF200(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF200(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF300(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF300(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF350(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF350(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF400(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF400(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMFH2C(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFH2C(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMFH3C(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFH3C(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMFH4C(A or B)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFH4C(A or B)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(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 T 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.

Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.



Ambient temperature range

T<sub>a</sub>

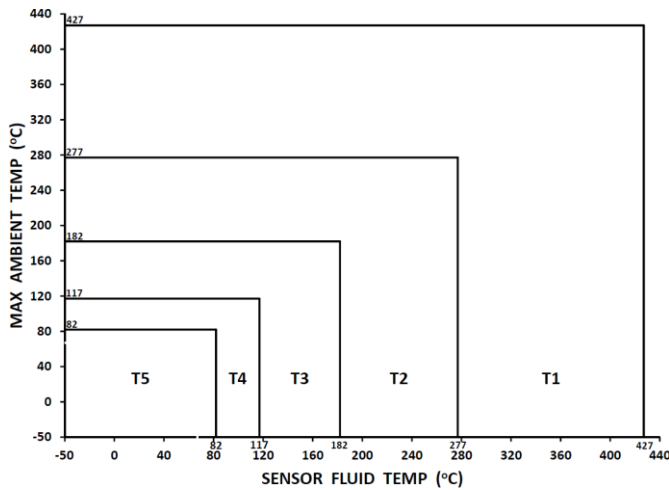
see graph

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4.2.2

	
Sensor type	
CMF200(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF200(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF300(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF300(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF350(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF350(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMF400(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMF400(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMFHFC2(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFHFC2(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(IIC)
CMFHFC3(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFHFC3(C or E)****(2,3,6,7,A,D,,Q,W)*I**** CIC A4	(IIC)
CMFHFC4(C or E)****(2,3,6,7,A,D,Q,W)*I****	(IIB)
CMFHFC4(C or E)****(2,3,6,7,A,D,Q,W)*I**** CIC A4	(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 T 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.

Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range

T<sub>a</sub>

see graph



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5 Type CMF\*\*(A, B, C or E)\*\*C\*I\*\* High-temperature sensor with integral 1700/2700 transmitter

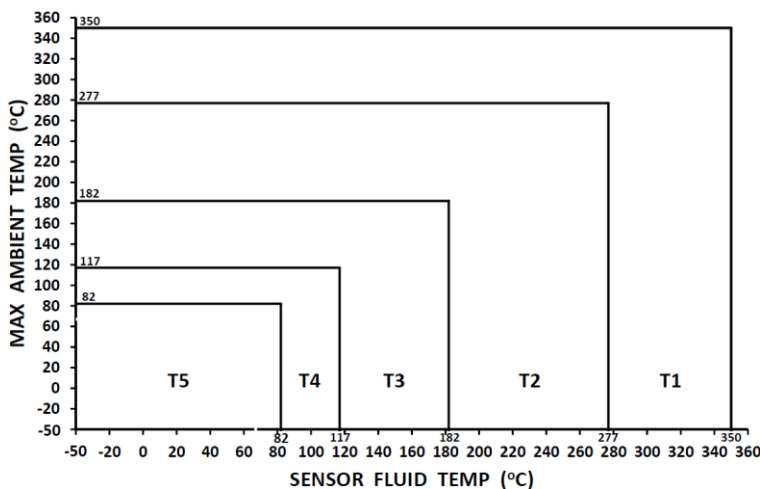


5.1 Electrical parameters see IECEx BVS 04.0006 X for the transmitter type \*700\*\*\*\*\*

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 is shown in the following graph:

5.2.1

		
Sensor type		
CMF200(A or B)**C*I**	(IIB)	With Integral 1700/2700 Transmitter
CMF200(A or B)**C*I** CIC A4	(IIC)	
CMF300(A or B)**C*I**	(IIB)	
CMF300(A or B)**C*I** CIC A4	(IIC)	
CMF350(A or B)**C*I**	(IIB)	
CMF350(A or B)**C*I** CIC A4	(IIC)	
CMF400(A or B)**C*I**	(IIB)	
CMF400(A or B)**C*I** CIC A4	(IIC)	
CMFHFC2(A or B)**C*I**	(IIB)	
CMFHFC2(A or B)**C*I** CIC A4	(IIC)	
CMFHFC3(A or B)**C*I**	(IIB)	
CMFHFC3(A or B)**C*I** CIC A4	(IIC)	
CMFHFC4(A or B)**C*I**	(IIB)	
CMFHFC4(A or B)**C*I** CIC A4	(IIC)	





# IECEX Certificate of Conformity

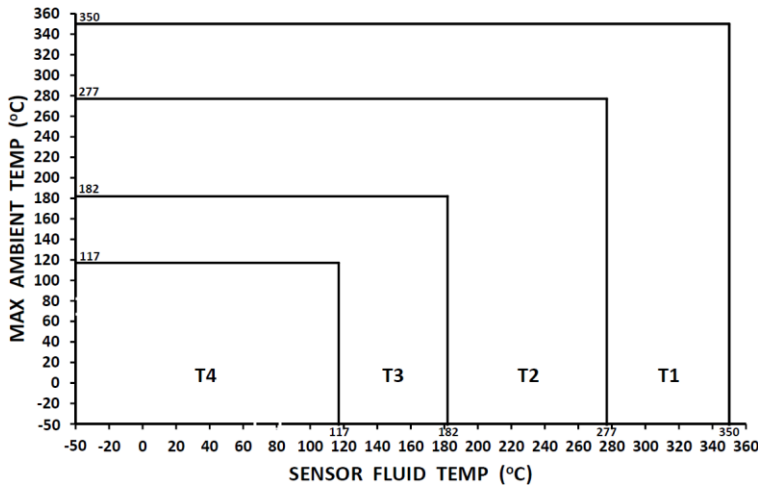


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- Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
- Note 2: The maximum surface temperature T for dust is as follows: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T363 °C.
- Note 3: The minimum ambient and process fluid temperature allowed for dust is -40 °C.
- Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range  $T_a$  see graph



When used with 1700/2700 Transmitter with Wireless HART Output Option Code "4"  
(\*700\*1\*4\*\*\*\*\*):



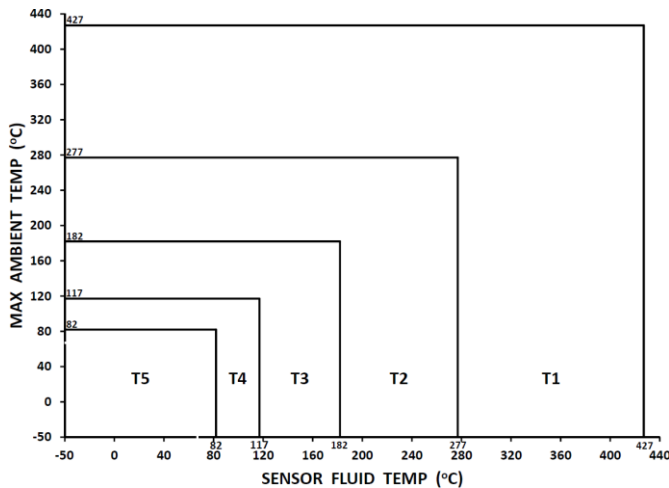
- Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.
  - Note 2: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.
- Ambient temperature range  $T_a$  see graph

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5.2.2

	
Sensor type	
CMF200(C or E)****C*I****	(IIB)
CMF200(C or E)****C*I**** CIC A4	(IIC)
CMF300(C or E)****C*I****	(IIB)
CMF300(C or E)****C*I**** CIC A4	(IIC)
CMF350(C or E)****C*I****	(IIB)
CMF350(C or E)****C*I**** CIC A4	(IIC)
CMF400(C or E)****C*I****	(IIB)
CMF400(C or E)****C*I**** CIC A4	(IIC)
CMFHFC2(C or E)****C*I****	(IIB)
CMFHFC2(C or E)****C*I**** CIC A4	(IIC)
CMFHFC3(C or E)****C*I****	(IIB)
CMFHFC3(C or E)****C*I**** CIC A4	(IIC)
CMFHFC4(C or E)****C*I****	(IIB)
CMFHFC4(C or E)****C*I**** CIC A4	(IIC)

With Integral  
1700/2700  
Transmitter



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: T5:T 95 °C, T4:T 130 °C, T3:T 195 °C, T2: T 290 °C, T1:T440 °C.

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

Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

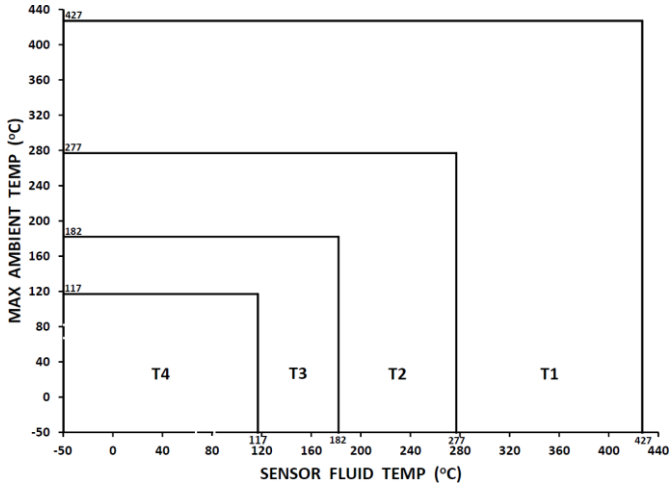
Ambient temperature range

T<sub>a</sub>

see graph

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When used with 1700/2700 Transmitter with Wireless HART Output Option Code "4"  
 (\*700\*1\*4\*\*\*\*\*):



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

Note 2: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range  $T_a$  see graph

6 Type CMF\*\*\*\*\* (J or U)\*\*\*\*\* with 2200S transmitter except type CMF\*\*\* (A, B, C, E)\*\*\* J\*\*\*\*\*.

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	$\mu$ H

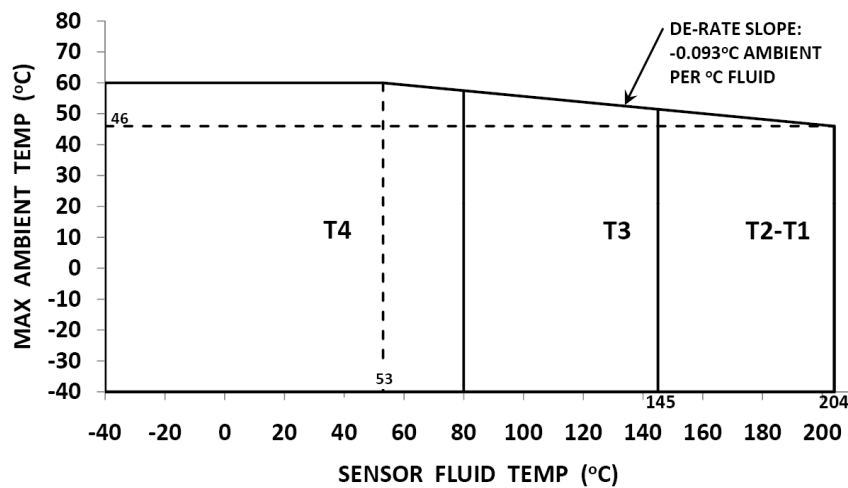
6.2 Temperature class/ maximum surface temperature T

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 are shown in the following graphs:

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6.2.1

Sensor type				
	CMF010	CMF100	CMF200/300	
	CMF010*****(J or U)*I****		(IIC)	With integral 2200S
	CMF025*****(J or U)*I****		(IIC)	
	CMF050*****(J or U)*I****		(IIC)	
	CMF100*****(J or U)*I****		(IIC)	
	CMF200*****(J or U)*I****		(IIB)	
	CMF200*****(J or U)*7****		(IIC)	
	CMF300*****(J or U)*I****		(IIB)	
	CMF300*****(J or U)*7****		(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 T for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 254 °C.

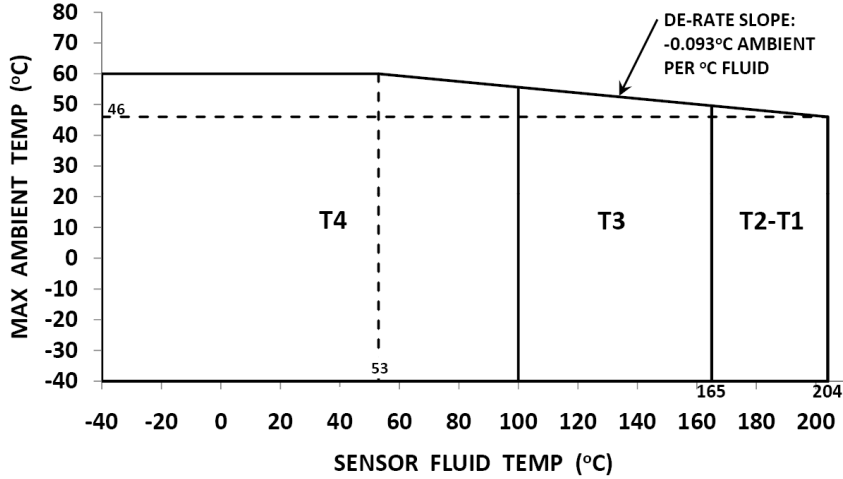
Ambient temperature range:  $T_a$  -40 °C to +60 °C

6.2.2

	
Sensor type	
CMF350*****(J or U)*I****	(IIB)
CMF350*****(J or U)*7****	(IIC)
CMF400*****(J or U)*I****	(IIB)
CMF400*****(J or U)*7****	(IIC)

With integral 2200S

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

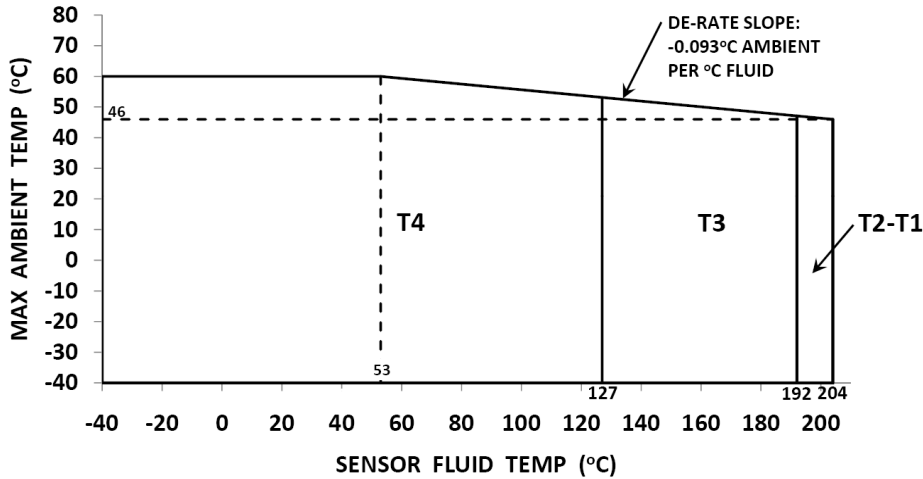
Note 2: The maximum surface temperature T for dust is as follows: T4:T 130 °C, T3:T 195 °C, T2 to T1:T 234 °C.

Ambient temperature range:  $T_a$   $-40\text{ °C to }+60\text{ °C}$

### 6.2.3

		
Sensor type		With integral 2200S
CMFHC2****(J or U)*I****	(IIB)	
CMFHC2****(J or U)*7****	(IIC)	
CMFHC3****(J or U)*I****	(IIB)	
CMFHC3****(J or U)*7****	(IIC)	
CMFHC4****(J or U)*I****	(IIB)	
CMFHC4****(J or U)*7****	(IIC)	

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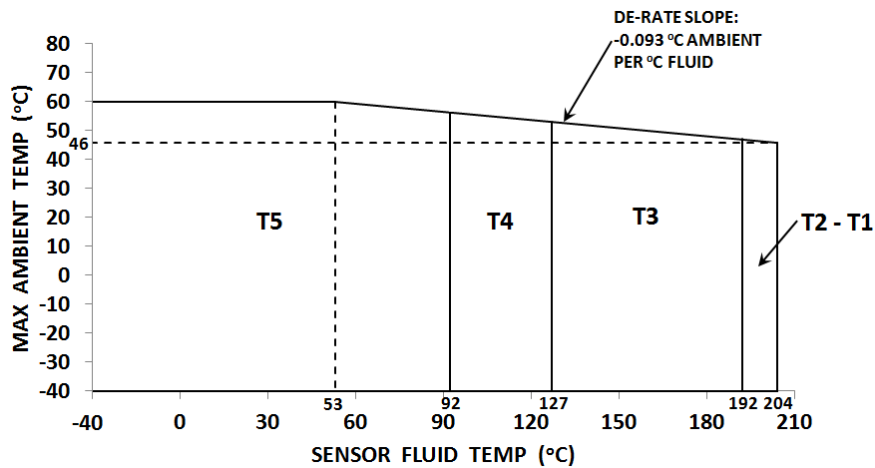
Note 1: Use the above graph to determine the temperature class for a given fluid and ambient temperature.

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

Ambient temperature range:  $T_a$   $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$

### 6.2.4

Sensor type		
CMFHC*Y****(J or U)*I****	(IIB)	With integral 2200S
CMFHC*Y****(J or U)*7****	(IIC)	



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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 to T1:T 207 °C.

Ambient temperature range:  $T_a$  -40 °C to +60 °C

7 Type CMF\*\*\* (A, B, C or E)\*\*\*\* J\*\*\*\*\* with integral 2200S transmitter





7.1 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	$\mu$ H

7.2 Temperature class/ maximum surface temperature T.

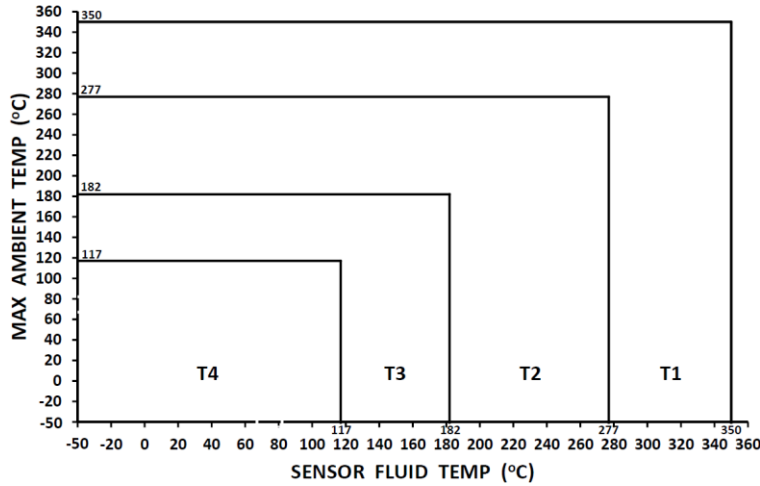
The classification into a temperature class/determination of the maximum surface temperature T depends on the temperature of the medium taking into account the maximum operating temperature of the sensor and is shown in the following graph:

7.2.1

		
Sensor type	With integral 2200S	
CMF200(A or B)**** J*I****		(IIB)
CMF200(A or B)**** J*I**** CIC A4		(IIC)
CMF300(A or B)**** J*I****		(IIB)
CMF300(A or B)**** J*I**** CIC A4		(IIC)
CMF350(A or B)**** J*I****		(IIB)
CMF350(A or B)**** J*I**** CIC A4		(IIC)
CMF400(A or B)**** J*I****		(IIB)
CMF400(A or B)**** J*I**** CIC A4		(IIC)
CMFHFC2(A or B)**** J*I****		(IIB)
CMFHFC2(A or B)**** J*I**** CIC A4		(IIC)
CMFHFC3(A or B)**** J*I****		(IIB)
CMFHFC3(A or B)**** J*I**** CIC A4		(IIC)
CMFHFC4(A or B)**** J*I****		(IIB)
CMFHFC4(A or B)**** J*I**** CIC A4		(IIC)



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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 363 °C.

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

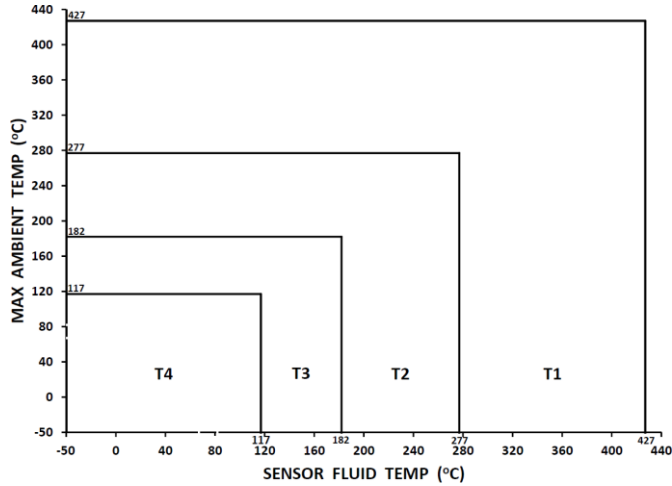
Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range:  $T_a$  -see graph

### 7.2.2

		
Sensor type		
CMF200(C or E)****J*I****	(IIB)	With integral 2200S
CMF200(C or E)****J*I**** CIC A4	(IIC)	
CMF300(C or E)****J*I****	(IIB)	
CMF300(C or E)****J*I**** CIC A4	(IIC)	
CMF350(C or E)****J*I****	(IIB)	
CMF350(C or E)****J*I**** CIC A4	(IIC)	
CMF400(C or E)****J*I****	(IIB)	
CMF400(C or E)****J*I**** CIC A4	(IIC)	
CMFHFC2(C or E)****J*I****	(IIB)	
CMFHFC2(C or E)****J*I**** CIC A4	(IIC)	
CMFHFC3(C or E)****J*I****	(IIB)	
CMFHFC3(C or E)****J*I**** CIC A4	(IIC)	
CMFHFC4(C or E)****J*I****	(IIB)	
CMFHFC4(C or E)****J*I**** CIC A4	(IIC)	

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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.

Note 4: The electronics are 1 meter away from the sensor by means of flexible stainless steel hose.

Ambient temperature range:

$T_a$

see graph

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**Conditions of Use” for Ex Equipment, if any:**

By mounting the sensor type CMF\*\*\*\*\* (J,U)\*\*\*\*\* directly to the transmitter 22\*\*S\*\*\*\*\* the use of the unit will be modified according to the following:



	CMF010***** (J,U)*I**** CMF025***** (J,U)*I**** CMF050***** (J,U)*I**** CMF100***** (J,U)*I**** CMF200***** (J,U)*7**** CMF300***** (J,U)*7**** CMF350***** (J,U)*7**** CMF400***** (J,U)*7**** CMFHC2***** (J,U)*7**** CMFHC3***** (J,U)*7**** CMFHC4***** (J,U)*7**** CMFHC*Y***** (J,U)*7**** CMF200(A,B,C,E)*** J*I**** CIC A4 CMF300(A,B,C,E)*** J*I**** CIC A4 CMF350(A,B,C,E)*** J*I**** CIC A4 CMF400(A,B,C,E)*** J*I**** CIC A4 CMFHC2(A,B,C,E)*** J*I**** CIC A4 CMFHC3(A,B,C,E)*** J*I**** CIC A4 CMFHC4(A,B,C,E)*** J*I**** CIC A4	CMF200***** (J,U)*I**** CMF300***** (J,U)*I**** CMF400***** (J,U)*I**** CMFHC2***** (J,U)*I**** CMFHC3***** (J,U)*I**** CMFHC4***** (J,U)*I**** CMFHC*Y***** (J,U)*I**** CMF200(A,B,C,E)*** J*I**** CMF300(A,B,C,E)*** J*I**** CMF400(A,B,C,E)*** J*I**** CMFHC2(A,B,C,E)*** J*I**** CMFHC3(A,B,C,E)*** J*I**** CMFHC4(A,B,C,E)*** J*I****
Transmitter type 2200S*(H or K)*1*****	Ex ib IIC T4..T1 Ex ibD 21 T <sup>3</sup> °C	Ex ib IIB T4..T1 Ex ibD 21 T <sup>3</sup> °C
Transmitter type 2200S*(5 or 6)*1*****	Ex ib IIC T4..T1	Ex ib IIB T4..T1

<sup>3)</sup> Max. surface temperature T for dust for types CMF\*\*\*\*\* see temperature graphs and manufacturer's instructions.

By mounting the sensor type CMF\*\*\*\*\*C\*\*\*\*\* directly to the transmitter \*700\*\*\*\*\* the use of the unit will be modified according to the following:

	CMF200(A,B,C,E)***C*I**** CIC A4 CMF300(A,B,C,E)***C*I**** CIC A4 CMF350(A,B,C,E)***C*I**** CIC A4 CMF400(A,B,C,E)***C*I**** CIC A4 CMFHC2(A,B,C,E)***C*I**** CIC A4 CMFHC3(A,B,C,E)***C*I**** CIC A4 CMFHC4(A,B,C,E)***C*I**** CIC A4	CMF200(A,B,C,E)***C*I**** CMF300(A,B,C,E)***C*I**** CMF350(A,B,C,E)***C*I**** CMF400(A,B,C,E)***C*I**** CMFHC2(A,B,C,E)***C*I**** CMFHC3(A,B,C,E)***C*I**** CMFHC4(A,B,C,E)***C*I****
Transmitter type *700*1 <sup>1</sup> *****	Ex ib IIB+H <sub>2</sub> T5...T1 Ex tb IIIC T <sup>3</sup> °C Db	Ex ib IIB T5...T1 Ex tb IIIC T <sup>3</sup> °C Db
Transmitter type *700*1 <sup>2</sup> *****	Ex ib IIC T5...T1 Ex tb IIIC T <sup>3</sup> °C Db	Ex ib IIB T5...T1 Ex tb IIIC T <sup>3</sup> °C Db
Transmitter type *700*1 <sup>1</sup> 4*****	Ex ib IIB+H <sub>2</sub> T4...T1	Ex ib IIB T45...T1
Transmitter type *700*1 <sup>2</sup> 4*****	Ex ib IIC T4...T1	Ex ib IIB T4...T1

<sup>1)</sup> At this place the numeral 1 or 2 will be inserted.

<sup>2)</sup> At this place the numeral 3, 4 or 5 will be inserted.

<sup>3)</sup> Max. surface temperature T for dust for types CMF\*\*\*\*\* see temperature graphs and manufacturer's instructions.