



Certificate of Compliance

Certificate: 2692515

Master Contract: 200600

Project: 80220665

Date Issued: 2024-09-17

Issued To: Endress+Hauser Wetzer GmbH Co. KG
Obere Wank 1
Nesselwang, Bavaria, 87484
Germany

Attention: Michael Pfanzelt

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *Junlong Pan*
Junlong Pan

PRODUCTS

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations
CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

Ex ia IIC T6...T4 Ga
Class I Zone 0, AEx ia IIC T6...T4 Ga
Class I, Division 1, Groups A, B, C, and D

Product	Temperature sensor assembly, model TM411- aabcddeefgghhiiiijjkkllmmnnooppqrrssttuuvvwwxxyyzz112233445566 Where aa = approval type = C1, 8C, CE
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	<p>pp = transmitter option = 1A, 2C, 2E, 3A, 3B, 3C, 3D, 3E, 4A, 5A, 6B, 6C qq = terminal head option = A1, A2, D1, P1 R1, R2, R3, R4, R5, R6 zz = second transmitter = NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO</p> <p>Intrinsically safe when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	See Table 1, 2, 3 below

Product	<p>Temperature sensor assembly, model TM412- aabcddeefgghhiiiijjkkllmmnnooppqrrssttuuvvwwxyyzz112233445566</p> <p>Where aa = approval type = C1, 8C, CE nn = transmitter option = 1A, 2C, 2E, 3A, 3B, 3C, 3D, 3E, 3F, 3G, 4A, 5A, 6B, 6C o = terminal head option = A, B, C, D, E, F, G, H, J, M, K, L ww= second transmitter = NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO</p> <p>Intrinsically safe when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X/6P when option o = J
Temp. code and ambient temperature	See Table 1, 2, 3 below

Product	<p>Temperature sensor assembly iTHERM, type TM111- or TM112- aabccdddefghhijjjkkllmmnnooppqrrssttuuvv</p> <p>Where aa = approval type = CE hh = transmitter option = 0A, 1A, 2C, 2D*, 2F*, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C, 7A* ii = terminal head option = A1, A2, A3, D1, E2, E3, H1, H2, H3, H4, P1, R1, R2, R3, R4, R5, R6, F1*, F3*, F5*, F7* ll = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341 *only applicable for TM112</p>
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Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option ii = A1, A2, D1, H1, H2, H3, H4, F1, F3, F5, F7
Temp. code and ambient temperature	See Table 1, 2, 3 below

Product	<p>Temperature sensor assembly iTHERM, type TM131-aabcddeefgghijklmmnnooppqrrsstuuvwxyz, type TM151-aabcddeefgghijklmmnnooppqrrsstuuvwxyz, type TM152-aabccddeefgghijklmmnnooppqrrsstuuvwxyz</p> <p>Where aa = approval type = CE ll = transmitter option = 0A, 1A, 2C, 2D, 2E, 2F, 2G, 3A, 3C, 3D, 3F, 3I, 4A, 4B, 4C, 5A, 5B, 5C, 6B, 6C, 7A mm = terminal head option = A1, A2, A3, D1, E2, E3, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6, P1, R1, R2, R3, R4, R5, R6 pp = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Maximum Working Pressure (only for the assembly with Dual seal design)	200 bar when option c = H for TM131 and TM151
Enclosure Rating	Type 4X, IP6x when option mm = A1, A2, D1, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 1, 2, 3 below

Product	<p>Temperature sensor assembly iTHERM, type TM611-aabccdddefgghijklmmnnooppqrrsstuuvw</p> <p>Where aa = approval type = CE b = thermometer design = A gg = transmitter option = 0A, 1A, 2C, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C hh = terminal head option = A1, A2, A3, D1, E2, E3, H1, H2, H3, H4, H5, H6, P1, R1, R2, R3, R4, R5, R6 mm = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p>
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	Intrinsically safe when installed per drawing 10000010341
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option hh = A1, A2, D1, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 1, 2, 3 below

Conditions of Acceptability:

1. If the mounting head of the Temperature Sensor is made of Aluminum and mounted in an area where Equipment Protection Level Ga is required, the head must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.
2. Circuit of the following temperature sensors and inserts shall be connected to ground (for details, see the instruction manual, provided with the equipment):
 - a. - Type TS111, TS211 and TS212 with diameter 3mm or 1/8", single or dual
 - b. - Type TS111, TS211 and TS212 with diameter 6mm or 1/4" dual
3. For thermometers with two mounted head transmitters, the allowed ambient temperature is 12K lower than each head transmitter's certified ambient temperature.
4. For thermocouple inserts, the temperature class T6...T1 are equal to the process temperature.
5. For the dual seal version of TM131, the process temperature shall not bring the whole assembly of pressure switch/secondary seal and head transmitters beyond a range of ambient temperature between -20°C to +80°C therefore the pressure switch/secondary seal should be installed with a minimum required length of extension neck of 100mm above the process mounting flange.
6. The correlation of the ambient and process temperature to maximum surface temperature is described in the following tables:

For assemblies with transmitters:

Table 1

Type	Assembled transmitter	Temperature class	Ambient temperature range housing Ta
TM111	TMT84, TMT85, TMT162	T6	-40°C ≤ Ta ≤ +55°C
TM611	PA/FF,	T5	-40°C ≤ Ta ≤ +70°C
TM112	TMT8x, TMT7x with display,	T4	-40°C ≤ Ta ≤ +85°C
TM131	TMT142 HART		
TM151	TMT71, TMT72, TMT162	T6	-50°C ≤ Ta ≤ +55°C
TM152	HART	T5	-50°C ≤ Ta ≤ +70°C
		T4	-50°C ≤ Ta ≤ +85°C
	TMT82	T6	-50°C ≤ Ta ≤ +58°C(*)



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	TMT86	T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +75^{\circ}\text{C} (*)$
		T4*	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C} (*)$
		T6	$-52^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-52^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-52^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
TM411 TM412	TMT84, TMT85, TMT162 PA/FF, TMT8x, TMT7x with display, TMT181, TMT182	T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
	TMT71, TMT72, TMT162 HART	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
	TMT82	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +58^{\circ}\text{C}$
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +75^{\circ}\text{C}$
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
	TMT86	T6	$-52^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-52^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-52^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$

Note: * The maximum ambient temperature range(Ta) with dual seal version TM131 should not exceed the range of -20°C to $+80^{\circ}\text{C}$.

Table 2

Type	Assembled transmitter	Insert diameter	Temperature class	Process temperature range Tp	
TM111	TMT8x	3mm (1/8"),	T6	$-50^{\circ}\text{C} \leq \text{Tp} \leq +66^{\circ}\text{C}$	(64°C)*
TM611	TMT7x		T5	$-50^{\circ}\text{C} \leq \text{Tp} \leq +81^{\circ}\text{C}$	(79°C)*
TM112	TMT162	3mm (1/8")	T4	$-50^{\circ}\text{C} \leq \text{Tp} \leq +116^{\circ}\text{C}$	(114°C)*
TM131	TMT142		T3	$-50^{\circ}\text{C} \leq \text{Tp} \leq +181^{\circ}\text{C}$	(179°C)*
TM151	TMT18x	dual, 6mm (1/4")	T2	$-50^{\circ}\text{C} \leq \text{Tp} \leq +276^{\circ}\text{C}$	(279°C)*
TM152 (for TM411 TM412 only)	TM41x only)		T1	$-50^{\circ}\text{C} \leq \text{Tp} \leq +426^{\circ}\text{C}$	(427°C)*
		6mm (1/4")	T6	$-50^{\circ}\text{C} \leq \text{Tp} \leq +73^{\circ}\text{C}$	(71°C)*
			T5	$-50^{\circ}\text{C} \leq \text{Tp} \leq +88^{\circ}\text{C}$	(86°C)*
			T4	$-50^{\circ}\text{C} \leq \text{Tp} \leq +123^{\circ}\text{C}$	(121°C)*
			T3	$-50^{\circ}\text{C} \leq \text{Tp} \leq +188^{\circ}\text{C}$	(186°C)*
			T2	$-50^{\circ}\text{C} \leq \text{Tp} \leq +283^{\circ}\text{C}$	(286°C)*
			T1	$-50^{\circ}\text{C} \leq \text{Tp} \leq +433^{\circ}\text{C}$	(431°C)*

*Maximum process temperature when sensor is supplied with TMT162



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Note: The maximum process temperature for the model with dual seal version TM131 should not exceed +400°C.

For assemblies without transmitters:

Table 3

Insert diameter	Temperature class	Maximum allowed process temperature (sensor) Tp (process)				
		Pi ≤ 50 mW	Pi ≤ 100 mW	Pi ≤ 200 mW	Pi ≤ 500 mW	Pi ≤ 650 mW
3mm (1/8"), 3mm (1/8") dual or 6mm (1/4") dual	T6	66°C	55°C	36°C	-17°C	-27°C
	T5	81°C	70°C	51°C	-2°C	-12°C
	T4	116°C	105°C	86°C	33°C	23°C
	T3	181°C	170°C	151°C	98°C	88°C
	T2	276°C	265°C	246°C	193°C	183°C
	T1	426°C	415°C	396°C	343°C	333°C
6mm (1/4")	T6	73°C	68°C	60°C	38°C	28°C
	T5	88°C	83°C	75°C	53°C	43°C
	T4	123°C	118°C	110°C	88°C	78°C
	T3	188°C	183°C	175°C	153°C	143°C
	T2	283°C	278°C	270°C	248°C	238°C
	T1	433°C	428°C	420°C	398°C	388°C

Insert diameter	Temperature class	Maximum allowed process temperature (sensor) Tp (process)			Ambient temperature (housing), Ta (ambient)**
		Pi ≤ 750 mW	Pi ≤ 800 mW	Pi ≤ 1000 mW	
3mm (1/8"), 3mm (1/8") dual or 6mm (1/4") dual	T6	-40°C			-40°C ≤ Ta ≤ +66°C
	T5	-25°C	-33°C		-40°C ≤ Ta ≤ +81°C
	T4	10°C	2°C	-30°C	-40°C ≤ Ta ≤ +116°C
	T3	75°C	62°C	30°C	-40°C ≤ Ta ≤ +130°C
	T2	320°C	312°C	280°C	-40°C ≤ Ta ≤ +130°C
	T1	170°C	162°C	130°C	-40°C ≤ Ta ≤ +130°C



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6mm (1/4")	T6	21°C	17°C	1°C	-40°C ≤ Ta ≤ +73°C
	T5	36°C	32°C	16°C	-40°C ≤ Ta ≤ +88°C
	T4	71°C	67°C	51°C	-40°C ≤ Ta ≤ +123°C
	T3	136°C	127°C	111°C	-40°C ≤ Ta ≤ +130°C
	T2	231°C	227°C	211°C	-40°C ≤ Ta ≤ +130°C
	T1	381°C	377°C	361°C	-40°C ≤ Ta ≤ +130°C

** The ambient temperature at the terminal head may be directly influenced by the process temperature, but is also restricted to the allowed range of installed terminal head as follows:

Option Terminal head		Ta
TM41x	TM1x1	
A, C	A1, D1, H1, H3	-50°C ... +130°C
E, G, K, L	A3, E2	-40°C ... +130°C
D	P1	-40°C ... +100°C

Class II, Division 1, Groups E, F, and G, Class III

Product	Temperature sensor assembly, model TM411- aabcddeefgghhiiiijjkkllmmnnnooppqrrssttuuvvwwxyyzz112233445566
	Where aa = approval type = C1, 8C, CE pp = transmitter option = 1A, 2C, 2E, 3A, 3B, 3C, 3D, 3E, 4A, 5A, 6B, 6C qq = terminal head option = A1, A2, D1, R1, R2, R3, R4, R5, R6 zz = second transmitter = NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO
	Intrinsically safe when installed per drawing 10000005723
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	See Table 4, 5, 6 below



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Product	<p>Temperature sensor assembly, model TM412- aabcddeefghhiiijkkllmmnnooppqrrsstuuvwxxxyzz112233445566</p> <p>Where aa = approval type = C1, 8C, CE nn = transmitter option = 1A, 2C, 2E, 3A, 3B, 3C, 3D, 3E, 3F, 3G, 4A, 5A, 6B, 6C o = terminal head option = A, B, C, D, E, F, G, H, J, M, K, L ww= second transmitter = NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO</p> <p>Intrinsically safe when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X/6P when option o = J
Temp. code and ambient temperature	See Table 4, 5, 6 below

Product	<p>Temperature sensor assembly iTHERM, type TM111- or TM112- aabcddeefghhiiijkkllmmnnooppqrrsstuuvv</p> <p>Where aa = approval option = CE hh = transmitter option = 0A, 1A, 2C, 2D*, 2F*, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C, 7A* ii = terminal head option = A1, A2, D1, H1, H2, H3, H4, F1*, F3*, F5*, F7* ll = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341 * only applicable for TM112</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option ii = A1, A2, D1, H1, H2, H3, H4, F1, F3, F5, F7
Temp. code and ambient temperature	See Table 4, 5, 6 below

Product	<p>Temperature sensor assembly iTHERM, type TM131-aabcddeefghijklmmnnooppqrrsstuuvwxxxyzz, type TM151-aabcddeefghijklmmnnooppqrrsstuuvwxxxyzz, type TM152-aabcddeefghijklmmnnooppqrrsstuuvwxxxyzz</p> <p>Where</p>
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	aa = approval type = CE ll = transmitter option = 0A, 1A, 2C, 2D, 2E, 2F, 2G, 3A, 3C, 3D, 3F, 3F, 3I, 4A, 4C, 5A, 5B, 5C, 6B, 6C, 7A mm = terminal head option = A1, A2, D1, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6 pp = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL Intrinsically safe when installed per drawing 10000010341
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Maximum Working Pressure (only for the assembly with Dual seal design)	200 bar when option c = H for TM131 and TM151
Enclosure Rating	Type 4X, IP6x when option mm = A1, A2, D1, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 4, 5, 6 below.

Product	Temperature sensor assembly iTHERM, type TM611- aabccdddefgghhijklmmnnooppqrrsstuuvw Where aa = approval type = CE b = thermometer design = A gg = transmitter option = 0A, 1A, 2C, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C hh = terminal head option = A1, A2, D1, H1, H2, H3, H4, H5, H6 mm = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL Intrinsically safe when installed per drawing 10000010341
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option hh = A1, A2, D1, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 4, 5, 6 below.

Conditions of Acceptability:

1. If the mounting head of the Temperature Sensor is made of Aluminum it must be installed such that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.
2. Circuits of versions of the following temperature sensors and inserts shall be connected to ground (for details, the instruction manual provided with the equipment):
 - a. - Type TS111, TS212 with diameter 3mm, single or dual

b. - Type TS111, TS212 with diameter 6mm dual

3. For thermometers with two mounted head transmitters, the allowed ambient temperature is 12K lower than each head transmitter’s certified ambient temperature.
4. For thermocouple inserts, the maximum surface temperature is equal to the process temperature.
5. For the dual seal version of TM131, the process temperature shall not bring the whole assembly of pressure switch/secondary seal and head transmitters beyond a range of ambient temperature between - 20°C to +80°C therefore the pressure switch/secondary seal should be installed with a minimum required length of extension neck of 100mm above the process mounting flange.
6. The correlation of the ambient and process temperature to maximum surface temperature is described in the following tables:

For assemblies with transmitters:

Table 4

Type	Assembled transmitter	Maximum surface temperature	Ambient temperature range housing Ta		
TM111 TM611 TM112 TM131 TM151 TM152	TMT84, TMT85, TMT162 PA/FF, TMT8x, TMT7x with display, TMT142 HART	85°C	-40°C ≤ Ta ≤ +55°C		
		100°C	-40°C ≤ Ta ≤ +70°C		
		135°C	-40°C ≤ Ta ≤ +85°C		
	TMT71, TMT72, TMT162 HART	TMT71, TMT72, TMT162 HART	85°C	-50°C ≤ Ta ≤ +55°C	
			100°C	-50°C ≤ Ta ≤ +70°C	
			135°C	-50°C ≤ Ta ≤ +85°C	
		TMT82	TMT82	85°C	-50°C ≤ Ta ≤ +58°C(*)
				100°C	-50°C ≤ Ta ≤ +75°C(*)
				135°C(*)	-50°C ≤ Ta ≤ +85°C(*)
		TMT86	TMT86	85°C	-52°C ≤ Ta ≤ +55°C
				100°C	-52°C ≤ Ta ≤ +70°C
				135°C	-52°C ≤ Ta ≤ +85°C
TM411 TM412	TMT84, TMT85, TMT162 PA/FF, TMT8x, TMT7x with display, TMT181, TMT182	85°C	-40°C ≤ Ta ≤ +55°C		
		100°C	-40°C ≤ Ta ≤ +70°C		
		135°C	-40°C ≤ Ta ≤ +85°C		
	TMT71, TMT72, TMT162 HART	TMT71, TMT72, TMT162 HART	85°C	-50°C ≤ Ta ≤ +55°C	
			100°C	-50°C ≤ Ta ≤ +70°C	
			135°C	-50°C ≤ Ta ≤ +85°C	
	TMT82	TMT82	85°C	-50°C ≤ Ta ≤ +58°C	
			100°C	-50°C ≤ Ta ≤ +75°C	
			135°C	-50°C ≤ Ta ≤ +85°C	
	TMT86	TMT86	85°C	-52°C ≤ Ta ≤ +55°C	



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	100°C	-52°C ≤ Ta ≤ +70°C
	135°C	-52°C ≤ Ta ≤ +85°C

Note: (*) The maximum ambient temperature range(Ta) with dual seal version TM131 should not exceed the range of -20°C to+80°C.

Table 5

Type	Assembled transmitter	Insert diameter	Maximum surface temperature	Process temperature range Tp	
TM111	TMT8x	3mm (1/8"),	85°C	-50°C ≤ Tp ≤ +66°C	(64°C)*
TM611	TMT7x		100°C	-50°C ≤ Tp ≤ +81°C	(79°C)*
TM112	TMT162	3mm (1/8")	100°C	-50°C ≤ Tp ≤ +116°C	(114°C)*
TM131	TMT142		135°C	-50°C ≤ Tp ≤ +146°C	(146°C)*
TM151	TMT18x	dual, 6mm (1/4")	165°C	-50°C ≤ Tp ≤ +71°C	(71°C)*
TM152 (for TM411 only)	TM41x		100°C	-50°C ≤ Tp ≤ +86°C	(86°C)*
TM412	TM41x only)	dual 6mm (1/4")	135°C	-50°C ≤ Tp ≤ +121°C	(121°C)*
			165°C	-50°C ≤ Tp ≤ +151°C	(153°C)*

*Maximum process temperature when sensor is supplied with TMT162

For assemblies without transmitters:

Table 6

Insert diameter	Maximum surface temperature	Maximum allowed process temperature (sensor) Tp (process)				
		Pi ≤ 50 mW	Pi ≤ 100 mW	Pi ≤ 200 mW	Pi ≤ 500 mW	Pi ≤ 650 mW
3mm (1/8"), 3mm (1/8") dual or 6mm	85°C	66°C	55°C	36°C	-17°C	-27°C
	100°C	81°C	70°C	51°C	-2°C	-12°C
	135°C	116°C	105°C	86°C	33°C	23°C
	165°C	146°C	133°C	105°C	23°C	-18°C



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(1/4") dual						
6mm (1/4")	85°C	73°C	68°C	60°C	38°C	28°C
	100°C	88°C	83°C	75°C	53°C	43°C
	135°C	123°C	118°C	110°C	88°C	78°C
	165°C	188°C	183°C	175°C	153°C	143°C

Insert diameter	Maximum surface temperature	Maximum allowed process temperature (sensor) Tp (process)			Ambient temperature (housing), Ta (ambient)**
		Pi ≤ 750 mW	Pi ≤ 800 mW	Pi ≤ 1000 mW	
		3mm (1/8"), 3mm (1/8") dual or 6mm (1/4") dual	85°C	-40°C	
	100°C	-25°C	-33°C		-40°C ≤ Ta ≤ +81°C
	135°C	10°C	2°C	-30°C	-40°C ≤ Ta ≤ +116°C
	165°C	-46°C	-59°C	-114°C	-40°C ≤ Ta ≤ +130°C
6mm (1/4")	85°C	21°C	17°C	1°C	-40°C ≤ Ta ≤ +73°C
	100°C	36°C	32°C	16°C	-40°C ≤ Ta ≤ +88°C
	135°C	71°C	67°C	51°C	-40°C ≤ Ta ≤ +123°C
	165°C	52°C	45°C	16°C	-40°C ≤ Ta ≤ +130°C

** The ambient temperature at the terminal head may be directly influenced by the process temperature, but is restricted to the range -40° C ... +130°C, besides for types TA30A, TA30D and TA30H with a restricted range -50°C ... +130°C.

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CLASS 2258 83 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non-Incendive Systems – For Hazardous Locations – Certified to U.S. standards

Ex ia [ia Ga] IIC T6...T4 Gb:

Class I, Zone 1, AEx ia [ia Ga] IIC T6...T4 Gb:

Class I, Division 2, Groups A, B, C, and D:



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Product	<p>Temperature sensor assembly, model TM411- aabcddeefghhiiijkkllmmnnnooppqrrsstuuvwxyzz112233445566</p> <p>Where aa = approval type = CE pp = transmitter option = 2C, 3E, 6B, 6C qq = terminal head option = A2, R2, R4 zz = second transmitter =NJ, NK, NN, NO</p> <p>Intrinsically safe when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	Refer to Table 7 & 8 below

Product	<p>Temperature sensor assembly, model TM412- aabcddeefghhiiijkkllmmnnnooppqrrsstuuvwxyzz112233445566</p> <p>Where aa = approval type = CE nn = transmitter option = 2C, 3E, 6B, 6C o = terminal head option = B, F, H ww= second transmitter = NJ, NK, NN, NO</p> <p>Intrinsically safe when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	Refer to Table 7 & 8 below

Product	<p>Temperature sensor assembly iTHERM, type TM111- or TM112- aabcddeefghhiiijkkllmmnnnooppqrrsstuuvv</p> <p>Where aa = approval type = CE hh = transmitter option = 2C, 2D*, 2F*, 3A, 6B, 6C, 7A* ii = terminal head option = A2, E3, H2, H4, R2, R4, F1*, F3*, F5*, F7* ll = second transmitter = GC, GD, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341 *only applicable for TM112</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option ii = A2, H2, H4, F1, F3, F5, F7



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Temp. code and ambient temperature	Refer to Table 7 & 8 below
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Product	<p>Temperature sensor assembly iTHERM, type TM131-aabcddeefgghijklmmnnooppqrrsstuuvwxyz, type TM151-aabcddeefgghijklmmnnooppqrrsstuuvwxyz, type TM152-aabccddeefgghijklmmnnooppqrrsstuuvwxyz</p> <p>Where aa = approval type = CE ll = transmitter option = 2C, 3A, 6B, 6C mm = terminal head option = A2, E3, H2, H4, H5, H6, R2, R4 pp = second transmitter = GC, GD, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Maximum Working Pressure (only for the assembly with Dual seal design)	200 bar when option c = H for TM131 and TM151
Enclosure Rating	Type 4X, IP6x when option mm = A2, H2, H4, H5, H6
Temp. code and ambient temperature	Refer to Table 7 & 8 below

Product	<p>Temperature sensor assembly iTHERM, type TM611-aabccdddefgghijklmmnnooppqrrsstuuvw</p> <p>Where aa = approval type = CE b = thermometer design = A gg = transmitter option = 0A, 1A, 2C, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C hh = terminal head option = A2, E3, H2, H4, H6, R2, R4 mm = second transmitter = GC, GD, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option hh = A2, H2, H4, H6
Temp. code and ambient temperature	Refer to Table 7 & 8 below

Conditions of Acceptability:

1. If the mounting head of the Temperature Sensor is made of Aluminum it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.
2. From the safety point of view, the circuit of versions of the following temperature sensors and inserts shall be connected to ground (for details, the instruction manual, provided with the equipment, shall be observed):
 - a. - Type TS111, TS212 with diameter 3mm, single or dual
 - b. - Type TS111, TS212 with diameter 6mm dual
3. For thermocouple inserts, the temperature class T6...T1 are equal to the process temperature.
4. For thermometers with two mounted head transmitters, the allowed ambient temperature is 12K lower than each head transmitter's certified ambient temperature.
5. For the dual seal version of TM131, the process temperature shall not bring the whole assembly of pressure switch/secondary seal and head transmitters beyond a range of ambient temperature between -20°C to +80°C therefore the pressure switch/secondary seal should be installed with a minimum required length of extension neck of 100mm above the process mounting flange.
6. The correlation of the ambient and process temperature to maximum surface temperature is described in the following tables:

For assemblies with transmitters:

Table 7

Type	Assembled transmitter	Temperature class	Ambient temperature range housing Ta
TM111 TM611 TM112	TMT7x, TMT86 with display	T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
TM131 TM151 TM152	TMT71, TMT72	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
	TMT86	T6	$-52^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-52^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-52^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
TM411 TM412	TMT7x, TMT86 with display	T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
	TMT71, TMT72,	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$



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	TMT86	T6	$-52^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$
		T5	$-52^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$
		T4	$-52^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$

Table 8

Type	Assembled transmitter	Insert diameter	Temperature class	Process temperature range T_p
TM111	TMT7x, TMT86	3mm (1/8"), 3mm (1/8") dual, 6mm (1/4") dual	T6	$-50^{\circ}\text{C} \leq T_p \leq +66^{\circ}\text{C}$
TM611			T5	$-50^{\circ}\text{C} \leq T_p \leq +81^{\circ}\text{C}$
TM112			T4	$-50^{\circ}\text{C} \leq T_p \leq +116^{\circ}\text{C}$
TM131			T3	$-50^{\circ}\text{C} \leq T_p \leq +181^{\circ}\text{C}$
TM151			T2	$-50^{\circ}\text{C} \leq T_p \leq +276^{\circ}\text{C}$
TM152			T1	$-50^{\circ}\text{C} \leq T_p \leq +426^{\circ}\text{C}$
TM411		6mm (1/4")	T6	$-50^{\circ}\text{C} \leq T_p \leq +73^{\circ}\text{C}$
TM412			T5	$-50^{\circ}\text{C} \leq T_p \leq +88^{\circ}\text{C}$
			T4	$-50^{\circ}\text{C} \leq T_p \leq +123^{\circ}\text{C}$
			T3	$-50^{\circ}\text{C} \leq T_p \leq +188^{\circ}\text{C}$
			T2	$-50^{\circ}\text{C} \leq T_p \leq +283^{\circ}\text{C}$
			T1	$-50^{\circ}\text{C} \leq T_p \leq +433^{\circ}\text{C}$

Class I, Division 2, Groups A, B, C, and D:

Product	Temperature sensor assembly, model TM411- abcdefghijklmnopqrstuvwxyzaaac
	Where aa = approval type = CN pp = transmitter option = 1A, 2A, 2B, 2E, 2H, 2I, 3A, 3B, 3C, 3D, 4A, 5A, 6B, 6C qq = terminal head option = A1, A2, D1, P1, R1, R2, R3, R4 zz = second transmitter = NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO
	Non-incendive when installed per drawing 10000005723
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	See Table 9, 10, & 11 below.



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Product	<p>Temperature sensor assembly, model TM412- abcdefghijklmnopqrstuvwxyzaa</p> <p>Where aa = approval type = CN nn = transmitter option = 1A, 2A, 2B, 2E, 2H, 2I, 3A, 3B, 3C, 3D, 3F, 3G, 4A, 5A, 6B, 6C o = terminal head option = A, B, C, D, E, F, G, H, J, M, K, L zz = second transmitter = NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NN, NO</p> <p>Non-incendive when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X/6P when option o = J
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Product	<p>Temperature sensor assembly, model TM411- abcdefghijklmnopqrstuvwxyzaaabac</p> <p>Where aa = approval type = CC pp = transmitter option = 1A, 2C, 2H, 2I, 3E, 6B, 6C qq = terminal head option = A1, A2, D1, P1 R1, R2, R3, R4 zz = second transmitter = NJ, NK, NN, NO</p> <p>Non-incendive when installed per drawing 10000005723</p>
Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Product	<p>Temperature sensor assembly, model TM412- abcdefghijklmnopqrstuvwxyzaa</p> <p>Where aa = approval type = CC nn = transmitter option = 1A, 2C, 2H, 2I, 3E, 6B, 6C o = terminal head option = A, B, C, D, E, F, G, H, K, L zz = second transmitter = NJ, NK, NN, NO</p> <p>Non-incendive when installed per drawing 10000005723</p>
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Electrical Rating	8-30Vdc, 4-20mA, PA/FF output
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Product	<p>Temperature sensor assembly iTHERM, type TM111- or TM112-aabccddeeffghhijjkkllmmnnooppqrrsstuuvv</p> <p>Where aa = approval type = CE hh = transmitter option = 0A, 1A, 2C, 2D*, 2F*, 3A, 3C, 3D, 4A, 5A, 6B, 6C, 7A* ii = terminal head option = A1, A2, A3, D1, E2, E3, H1, H2, H3, H4, P1, R1, R2, R3, R4, R5, R6, F1*, F3*, F5*, F7* ll = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341 * only applicable for TM112</p>
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Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option ii = A1, A2, D1, H1, H2, H3, H4, F1, F3, F5, F7
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Product	<p>Temperature sensor assembly iTHERM, type TM131-aabcddeeffghhijjkkllmmnnooppqrrsstuuvvwwxyyzz, type TM151-aabcddeeffghhijjkkllmmnnooppqrrsstuuvvwwxyyzz, type TM152-aabcddeeffghhijjkkllmmnnooppqrrsstuuvvwwxyyzz</p> <p>Where aa = approval type = CE ll = transmitter option = 0A, 1A, 2D, 2E, 2F, 2G, 3C, 3D, 3F, 4A, 4C, 5A, 5B, 5C, 6B, 6C mm = terminal head option = A1, A2, A3, D1, E2, E3, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6, P1, R1, R2, R3, R4 pp = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341</p>
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Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Maximum Working Pressure (only for the assembly with Dual seal design)	200 bar when option c = H for TM131 and TM151



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Enclosure Rating	Type 4X, IP6x when option mm = A1, A2, D1, F1, F2, F3, F4, F5, F6, F7, F8, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Product	<p>Temperature sensor assembly iTHERM, type TM611-aabcccddefgghhijklmmnnooppqrrsstuuvvww</p> <p>Where</p> <p>aa = approval type = CE</p> <p>b = thermometer design = A</p> <p>gg = transmitter option = 0A, 1A, 2C, 3A, 3C, 3D, 3F, 3I, 4A, 5A, 6B, 6C</p> <p>hh = terminal head option = A1, A2, A3, D1, E2, E3, H1, H2, H3, H4, H5, H6, P1, R1, R2, R3, R4, R5, R6</p> <p>mm = second transmitter = GC, GD, GE, GF, GG, GH, GK, GL</p> <p>Intrinsically safe when installed per drawing 10000010341</p>
Electrical Rating	9-30Vdc, 4-20mA, PA/FF output
Enclosure Rating	Type 4X, IP6x when option hh = A1, A2, D1, H1, H2, H3, H4, H5, H6
Temp. code and ambient temperature	See Table 9, 10, & 11 below.

Conditions of Acceptability:

1. If the mounting head of the Temperature Sensor is made of Aluminum it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.
2. From the safety point of view, the circuit of versions of the following temperature sensors and inserts shall be connected to ground (for details, the instruction manual, provided with the equipment, shall be observed):
 - a. - Type TS111, TS212 with diameter 3mm, single or dual
 - b. - Type TS111, TS212 with diameter 6mm dual
3. For thermocouple inserts, the temperature class T6...T1 are equal to the process temperature.
4. For thermometers with two mounted head transmitters, the allowed ambient temperature is 12K lower than each head transmitter's certified ambient temperature.
5. For the dual seal version of TM131, the process temperature shall not bring the whole assembly of pressure switch/secondary seal and head transmitters beyond a range of ambient temperature between - 20°C to +80°C therefore the pressure switch/secondary seal should be installed with a minimum required length of extension neck of 100mm above the process mounting flange.

6. The correlation of the ambient and process temperature to maximum surface temperature is described in the following tables:

For assemblies with transmitters:

Table 9

Type	Assembled transmitter	Temperature class	Ambient temperature range housing Ta	
TM111 TM611 TM112 TM131 TM151 TM152	TMT84, TMT85, TMT162 PA/FF, TMT8x, TMT7x with display, TMT142 HART	T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$	
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$	
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
	TMT71, TMT72, TMT162 HART	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$	
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$	
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
		TMT82	T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +58^{\circ}\text{C} (*)$
			T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +75^{\circ}\text{C} (*)$
			T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C} (*)$
	TMT86	T6	$-52^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$	
		T5	$-52^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$	
		T4	$-52^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
	TM411 TM412	TMT84, TMT85, TMT162 PA/FF, TMT8x, TMT7x with display, TMT181, TMT182	T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$
			T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$
			T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
TMT71, TMT72, TMT162 HART		T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$	
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$	
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
TMT82		T6	$-50^{\circ}\text{C} \leq \text{Ta} \leq +58^{\circ}\text{C}$	
		T5	$-50^{\circ}\text{C} \leq \text{Ta} \leq +75^{\circ}\text{C}$	
		T4	$-50^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
TMT180		T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +50^{\circ}\text{C}$	
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +65^{\circ}\text{C}$	
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
TMT31		T6	$-40^{\circ}\text{C} \leq \text{Ta} \leq +35^{\circ}\text{C}$	
		T5	$-40^{\circ}\text{C} \leq \text{Ta} \leq +50^{\circ}\text{C}$	
		T4	$-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	
TMT86		T6	$-52^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$	
		T5	$-52^{\circ}\text{C} \leq \text{Ta} \leq +70^{\circ}\text{C}$	
		T4	$-52^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	



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Note: (*) The maximum ambient temperature range(Ta) with dual seal version TM131 should not exceed the range of -20°C to+80°C.

Table 10

Type	Assembled transmitter	Insert diameter	Temperature class	Process temperature range Tp	
TM111	TMT8x	3mm (1/8"),	T6	-50°C ≤ Tp ≤ +66°C	(64°C)*
TM611	TMT7x		T5	-50°C ≤ Tp ≤ +81°C	(79°C)*
TM131	TMT162	3mm (1/8") dual,	T4	-50°C ≤ Tp ≤ +116°C	
TM411	TMT142			(114°C)*	
TM412	TMT31(for TM41x only)	6mm (1/4") dual	T3	-50°C ≤ Tp ≤ +181°C	(179°C)*
			T2	-50°C ≤ Tp ≤ +276°C	(279°C)*
			T1	-50°C ≤ Tp ≤ +426°C	(427°C)*
	TMT18x (for TM41x only)	6mm (1/4")	T6	-50°C ≤ Tp ≤ +73°C	(71°C)*
			T5	-50°C ≤ Tp ≤ +88°C	(86°C)*
			T4	-50°C ≤ Tp ≤ +123°C	(121°C)*
			T3	-50°C ≤ Tp ≤ +188°C	(186°C)*
			T2	-50°C ≤ Tp ≤ +283°C	(286°C)*
T1	-50°C ≤ Tp ≤ +433°C	(431°C)*			

*Maximum process temperature when sensor is supplied with TMT162

Note: The maximum process temperature for the model with dual seal version TM131 should not exceed +400°C.

For assemblies without transmitters:

Table 11

Insert diameter	Temperature class	Maximum allowed process temperature (sensor) Tp (process)				
		Pi ≤ 50 mW	Pi ≤ 100 mW	Pi ≤ 200 mW	Pi ≤ 500 mW	Pi ≤ 650 mW
3mm (1/8"), 3mm (1/8") dual or 6mm (1/4") dual	T6	66°C	55°C	36°C	-17°C	-27°C
	T5	81°C	70°C	51°C	-2°C	-12°C
	T4	116°C	105°C	86°C	33°C	23°C
	T3	181°C	170°C	151°C	98°C	88°C
	T2	276°C	265°C	246°C	193°C	183°C
	T1	426°C	415°C	396°C	343°C	333°C



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6mm (1/4")	T6	73°C	68°C	60°C	38°C	28°C
	T5	88°C	83°C	75°C	53°C	43°C
	T4	123°C	118°C	110°C	88°C	78°C
	T3	188°C	183°C	175°C	153°C	143°C
	T2	283°C	278°C	270°C	248°C	238°C
	T1	433°C	428°C	420°C	398°C	388°C

Insert diameter	Temperature class	Maximum allowed process temperature (sensor) T _p (process)			Ambient temperature (housing), T _a (ambient)**
		P _i ≤ 750 mW	P _i ≤ 800 mW	P _i ≤ 1000 mW	
3mm (1/8"), 3mm (1/8") dual or 6mm (1/4") dual	T6	-40°C			-40°C ≤ T _a ≤ +66°C
	T5	-25°C	-33°C		-40°C ≤ T _a ≤ +81°C
	T4	10°C	2°C	-30°C	-40°C ≤ T _a ≤ +116°C
	T3	75°C	62°C	30°C	-40°C ≤ T _a ≤ +130°C
	T2	320°C	312°C	280°C	-40°C ≤ T _a ≤ +130°C
	T1	170°C	162°C	130°C	-40°C ≤ T _a ≤ +130°C
6mm (1/4")	T6	21°C	17°C	1°C	-40°C ≤ T _a ≤ +73°C
	T5	36°C	32°C	16°C	-40°C ≤ T _a ≤ +88°C
	T4	71°C	67°C	51°C	-40°C ≤ T _a ≤ +123°C
	T3	136°C	127°C	111°C	-40°C ≤ T _a ≤ +130°C
	T2	231°C	227°C	211°C	-40°C ≤ T _a ≤ +130°C
	T1	381°C	377°C	361°C	-40°C ≤ T _a ≤ +130°C

** The ambient temperature at the terminal head may be directly influenced by the process temperature, but is also restricted to the allowed range of installed terminal head as follows:



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Option Terminal head		Ta
TM41x	TM1x1	
A, C	A1, D1, H1, H3	-50°C ... +130°C
E, G, K, L	A3, E2	-40°C ... +130°C
D	P1	-40°C ... +100°C

APPLICABLE REQUIREMENTS

CSA C22.2 No. 94.2-15 <i>Second Edition</i>	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
CAN/CSA C22.2 No. 60079-0:19	Explosive atmospheres – Part 0: Equipment – General requirements
CAN/CSA-C22.2 No. 60079-11:14 <i>Sixth Edition</i>	Explosive Atmospheres – Part 11: Equipment protection by intrinsic safety "i"
CSA C22.2 No. 213-17	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
ANSI/UL 50E-15 <i>Second Edition</i>	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 61010-1 <i>Third Edition</i>	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
ANSI/UL 60079-0-2020 <i>Seventh Edition</i>	Explosive atmospheres – Part 0: Equipment – General requirements
ANSI/UL 60079-11:13	Electrical apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"
ANSI/UL 121201-2017 <i>Ninth Edition</i>	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
ANSI/UL 122701:2017	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
CAN/CSA C22.2 No.60079-40:20	Explosive atmospheres – Part 40: Requirements for Process Sealing Between Flammable Process Fluids and Electrical Systems

The following standards were applied to models TM411 & TM412 only:

ANSI/UL 913-2018 <i>Eighth Edition</i>	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III, Division 1, Hazardous (Classified) Locations
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The following standards were applied to enclosure Type rating TA30A, TA30D only:

CAN/CSA C22.2 No. 94.2:20 <i>Third Edition</i>	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 50E-2020 <i>Third Edition</i>	Enclosures for Electrical Equipment, Environmental Considerations



Certificate: 2692515
Project: 80220665

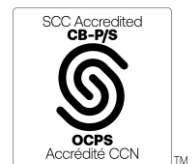
Master Contract: 200600
Date Issued: 2024-09-17

MARKINGS

Refer to Report 2692515.

Notes:

Products certified under Class C225804, C225884 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca





Supplement to Certificate of Compliance

Certificate: 2692515

Master Contract: 200600

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80220665	2024-09-17	Update to cCSAus Report # 2692515 for intrinsically safe and non-incendive Model TM Series Temperature Sensor assemblies for addition of terminal head option (field transmitter TMT162) to the listing of thermometer TM412, and addition of thermometer type TM611.
80187255	2023-11-21	Update to cCSAus report # 2692515 for intrinsically safe and non-incendive Thermometers iTHERM Type TM41x and TM1x1 series for addition of head transmitter type TMT31 from CSA Report 80107564 Edition 1 and TMT86 from CSA Report 70187832 Edition 6, addition of thermometer type TM112, TM151 and TM152 and new construction of thermowell based on the acceptance of IECEx Test Report DE/EPS/ExTR18.0076/04, and update to CAN/CSA C22.2 No. 60079-0:19/ ANSI/UL 60079-0-2020 Seventh Edition.
80059317	2023-02-13	Update to cCSAus report 2692515 for intrinsically safe temperature sensor assemblies for the addition of a new model with a dual seal option.
80076522	2021-06-28	Update to cCSAus report # 2692515 (last complete report 70195912) for intrinsically safe Temperature sensor assembly TM Series for addition of CSA certified transmitter TMT 142 HART7 into the temperature assembly TM131.
70195912	2019-10-04	Variation to the CofC 2692515. Addition of additional models TM111-*** and TM131-***, certifying all models according the CAN/CSA-C22.2 No. 60079-15:12 and an additional service line for the US approval.
2692515	2014-02-27	Original certification of the TM411 and TM412 Temperature Sensor Assemblies for Class I, Div. 1 and Div. 2, Gr. A, B, C and D, Class II, Div. 1, Gr. E, F and G and Ex ia IIC T6...T4 Ga based on various IECEx reports.