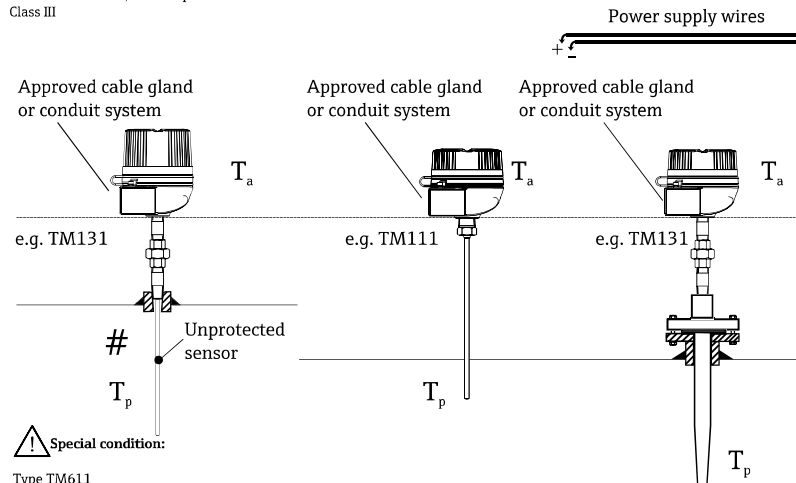


Hazardous (Classified) Location  
 Class I / Division 1, 2 / Groups ABCD  
 Class II / Division 1, 2 / Groups EFG  
 Class III

Nonhazardous Locations



See transmitter's power supply:  
 $U \leq 42$  VDC  
 current consumption  $\leq 30$  mA  
 For remote installation (terminal block)  
 Measuring current  $< 1$  mA  
 $\leq 50$  mW

Special condition:

Type TM611  
 - Sensors with a diameter of 3 mm or 1/8" (Insert diameter option code = A, M) shall be protected by a thermowell. (e.g. TT611)  
 - TM611 temperature sensor is to be protected by its provided coupling element, type TT611.  
 - The temperature of the optionally used TT611 coupling element does not exceed the service temperature range for following option:  
 TM611-abcd..

c	Material Coupling Element	Service temperature range
XXX	1.4404	-50°C to +450°C
999	AlSi 1MgMn	-50°C to +450°C
999	1.4529, 2.4816, 2.4819	-50°C to +450°C

Type TM111, TM112  
 - Sensors with a diameter of 3 mm or 1/8" (Insert diameter option code = A, M) shall be protected by a thermowell.

Type TM131, TM151, TM152  
 - The sensor shall be protected by the thermowell as provided or by a thermowell suitable for the final application.

Associated non-incendive power supply unit with max. electrical specifications below the characteristic values for Entity or NIFW of the assembled transmitter:

Transmitter	Ui/Vmax	Ci	Li
TMT180	30 V	144 nF	0
TMT82	30 V	0	0
TMT71, TMT72	30 V	0	0
TMT142B	30 V	5 nF	0
TMT162 HART	40 V	5.3 nF	0
TMT162 PA/FF	35 V	5 nF	10 µH
TMT84, TMT85	35 V	5 nF	10 µH
Terminal block	See table next page		
Flying leads	See table next page		

Transmitter	Rating
TMT31	10...36 V, 23mA

**Installation Notes TM111, TM611, TM112, TM131, TM151, TM152**

- CSA approved apparatus must be installed in accordance with manufacturer's instructions.
- Install per Canadian Electrical Code or National Electrical Code (NFPA 70).
- Use supply wires suitable for 5°C above surroundings.
- Keep tight while circuits are alive  
 Garder bien fermé tant que les circuits sont sous tension
- Warning: Substitution of components may impair suitability for Class I, Division 2.  
 Avertissement: La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Class I, Division 2.
- Note: Screws for securing the cover may be tightened with a maximum of 1 Nm.

**EXPLOSION PROOF**

XP  
 DIP

**Class I / Div. 1 / Groups ABCD**  
**Class I / Div. 1 / Groups BCD**  
**Class I / Div. 1 / Groups ABCD**  
**Class II / Div. 1 / Groups EFG**  
**Class III**

**DUST IGNITION PROOF**

- All conduits must be assembled with a minimum of five full threads engagement.
- A seal shall be installed within 18" of the enclosure  
 Un scellement doit être installé à moins de 18" du boîtier.
- The flameproof joints are not intended to be repaired.
- For options with enclosure, type TA30H, the cylindrical process connection joint has a minimal length of 13.9 mm in which the maximum gap of 0.10 mm must be kept.
- The cylindrical process connection joint has a minimal length of 28 mm in which the maximum gap of 0.15 mm must be kept.
- For Class II Extension and/or Thermowell must be used to maintain CSA enclosure 4X rating.
- Class II use a dust tight seal.
- Enclosures must be CSA approved, for appropriate area classification.

**NONINCENDIVE**

**Class I / Div. 2 / Groups ABCD**

- Intrinsic safety barrier not required.
- Warning: Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.  
 Avertissement : Risque d'explosion - Ne pas débrancher tant que le circuit est sous tension, à moins qu'il s'agisse d'un emplacement non dangereux.
- Warning: Substitution of components may impair suitability for Class I, Division 2.  
 Avertissement: La substitution de composants peut rendre ce matériel inacceptable pour les emplacements de Class I, Division 2.
- Nonincendive field wiring installation:  
 The Nonincendive Field Wiring Circuit Concept allows interconnection of Nonincendive Field Wiring Apparatus with Associated Nonincendive Field Wiring Apparatus or Associated Intrinsically Safe Apparatus or Associated Apparatus not specifically examined in combination as a system using any of the wiring methods permitted for unclassified locations, when  $V_{oc} \leq V_{max}$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .  
 For transmitter's or sensor's Nonincendive Field Wiring parameters see table's parameters. For these current controlled circuits, the parameter  $I_{max}$  is not required and need not to be aligned with parameter  $I_{sc}$  and  $I_t$  of the Associated Nonincendive Field Wiring Apparatus or Associated Apparatus.
- Refer to the marked maximum ratings for assembled temperature transmitter's supply.



Approved <b>Pfanzelt</b>	Date (yyyy-mm-dd) <b>2018-03-21</b>	<b>10000010342</b>	Dwg.rev. <b>D</b>	Revision no. <b>-</b>	Revision date (yyyy-mm-dd) <b>2025-02-28</b>	Name <b>BK</b>	Material <b>XA01961T 71694686</b>	<b>Endress+Hauser</b>
Designed <b>Pfanzelt</b>	Date (yyyy-mm-dd) <b>2006-03-12</b>	Unit <b>TM111, TM611, TM112, TM131, TM151, TM152</b>	Scale <b>1:1</b>	Title <b>CONTROL DRAWING CSA</b>		Series		
Refer to protection notice <b>ISO 16016</b>	Edge of working parts <b>ISO 13715</b>	Geometrical tolerancing <b>ISO 2768-mH-E</b>	Part No.	Format <b>A4</b>	Object version		Sheet <b>1 of 2</b>	<b>Endress + Hauser Wetzer GmbH+Co. KG Nesselwang / Germany</b>

**Permitted ambient temperatures**

Class I, Division 1, Groups A, B, C and D;  
Class II, Div. 1 Groups E, F & G; Class III:

Type	assembled head transmitter	Temperature class/code	ambient temperature housing
TM111, TM112, TM131, TM151, TM152	TMT180	T6/T85°C	-40°C ≤ Ta ≤ +65°C
	TMT8x	T5/T100°C	-40°C ≤ Ta ≤ +80°C
	TMT7x, TMT31	T4/T135°C	-40°C ≤ Ta ≤ +85°C
	without electronic or with terminal block	T6/T85°C	-50°C ≤ Ta ≤ +70°C
		T5/T100°C	-50°C ≤ Ta ≤ +80°C
		T4/T135°C	-50°C ≤ Ta ≤ +120°C
		T3/T200°C	-50°C ≤ Ta ≤ +120°C
		T2/T300°C	-50°C ≤ Ta ≤ +120°C
		T1/T450°C	-50°C ≤ Ta ≤ +120°C

Type	assembled field transmitter	Temperature class/code	ambient temperature housing
TM1xx	TMT162	T6/T85°C	-40°C ≤ Ta ≤ +55°C
	TMT142B*	T5/T100°C	-40°C ≤ Ta ≤ +70°C
		T4/T110°C	-40°C ≤ Ta ≤ +85°C

\*The maximum ambient temperature is limited to +70 °C for the display models

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

Type	Assembled transmitter	Temperature class	Ambient temperature range housing Ta
TM111, TM611, TM112, TM131, TM151, TM152	TMT180	T6	-40°C ≤ Ta ≤ +50°C
		T5	-40°C ≤ Ta ≤ +65°C
		T4	-40°C ≤ Ta ≤ +85°C
	TMT31	T6	-40°C ≤ Ta ≤ +38°C
		T5	-40°C ≤ Ta ≤ +53°C
		T4	-40°C ≤ Ta ≤ +85°C
	TMT84, TMT85	T6	-40°C ≤ Ta ≤ +55°C
	TMT162 PA/FF	T5	-40°C ≤ Ta ≤ +70°C
	TMT142B*	T4	-40°C ≤ Ta ≤ +85°C
	TMT162 HART	T6	-50°C ≤ Ta ≤ +55°C
	TMT7x	T5	-50°C ≤ Ta ≤ +70°C
		T4	-50°C ≤ Ta ≤ +85°C
	TMT82	T6	-50°C ≤ Ta ≤ +58°C
		T5	-50°C ≤ Ta ≤ +75°C
		T4	-50°C ≤ Ta ≤ +85°C
	TMT8x, TMT7x with display	T6	-40°C ≤ Ta ≤ +55°C
		T5	-40°C ≤ Ta ≤ +70°C
		T4	-40°C ≤ Ta ≤ +85°C


\*The maximum ambient temperature is limited to +70 °C for the display models

**Permitted process temperatures**

Type	Insert diameter	Temperature class/ Maximum surface	Process temperature range for assembled head transmitter TMT180, TMT8x, TMT7x, TMT142B and TMT31	Process temperature range for assembled field transmitter TMT162
TM111	3mm (1/8")	T6 / T85°C	-50°C ≤ Tp ≤ +66°C	-50°C ≤ Tp ≤ +64°C
TM611	3mm (1/8")	T5 / T100°C	-50°C ≤ Tp ≤ +81°C	-50°C ≤ Tp ≤ +79°C
TM112	dual,	T4 / T135°C	-50°C ≤ Tp ≤ +116°C	-50°C ≤ Tp ≤ +114°C
TM131	6mm (1/4")	T3 / T200°C	-50°C ≤ Tp ≤ +181°C	-50°C ≤ Tp ≤ +179°C
TM151	dual	T2 / T300°C	-50°C ≤ Tp ≤ +276°C	-50°C ≤ Tp ≤ +279°C
TM152		T1 / T450°C	-50°C ≤ Tp ≤ +426°C	-50°C ≤ Tp ≤ +424°C
	6mm (1/4")	T6 / T85°C	-50°C ≤ Tp ≤ +73°C	-50°C ≤ Tp ≤ +71°C
		T5 / T100°C	-50°C ≤ Tp ≤ +88°C	-50°C ≤ Tp ≤ +86°C
		T4 / T135°C	-50°C ≤ Tp ≤ +123°C	-50°C ≤ Tp ≤ +121°C
		T3 / T200°C	-50°C ≤ Tp ≤ +188°C	-50°C ≤ Tp ≤ +186°C
		T2 / T300°C	-50°C ≤ Tp ≤ +283°C	-50°C ≤ Tp ≤ +286°C
		T1 / T450°C	-50°C ≤ Tp ≤ +433°C	-50°C ≤ Tp ≤ +431°C

The dependency of the ambient and process temperatures upon the temperature class for assembly without transmitter (without electronic or with terminal block):

Insert diameter	Temperature class / Maximum surface	Process temperature range
		P ≤ 50 mW
3mm (1/8"), 3mm (1/8") dual or 6mm (1/4")	T6 / T85°C	-50°C ≤ Tp ≤ +66°C
	T5 / T100°C	-50°C ≤ Tp ≤ +81°C
	T4 / T135°C	-50°C ≤ Tp ≤ +116°C
	T3 / T200°C	-50°C ≤ Tp ≤ +181°C
	T2 / T300°C	-50°C ≤ Tp ≤ +276°C
	T1 / T450°C	-50°C ≤ Tp ≤ +426°C
6mm (1/4")	T6 / T85°C	-50°C ≤ Tp ≤ +73°C
	T5 / T100°C	-50°C ≤ Tp ≤ +88°C
	T4 / T135°C	-50°C ≤ Tp ≤ +123°C
	T3 / T200°C	-50°C ≤ Tp ≤ +188°C
	T2 / T300°C	-50°C ≤ Tp ≤ +283°C
	T1 / T450°C	-50°C ≤ Tp ≤ +433°C

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Volume (mm³)	Designed	Date (yyyy-mm-dd)	2006-03-12	Unit	TM111, TM611, TM112, TM131, TM151, TM152	Scale	1:1	Title	CONTROL DRAWING CSA	Series		Objekt version	Sheet	
Refer to protection notice ISO 16016	Edge of working parts ISO 13715	Geometrical tolerancing ISO 2768-mH-E	Part No.	Format	A4	Title		XP, NI, DIP		Objekt version	Sheet	2 of 2		Endress + Hauser Wetzler GmbH+Co. KG Nesselwang / Germany