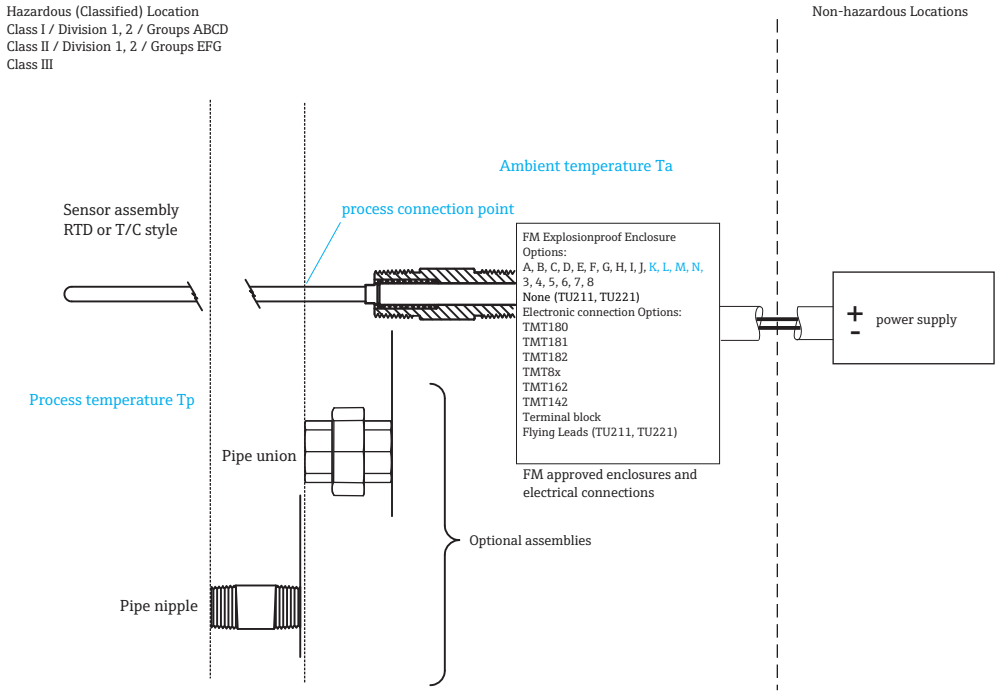

It shall be verified, taking into account the worst case process and ambient temperatures, that the temperature of the enclosure at the process connection point does not exceed the ambient temperature range of the assembly.

FM Explosion-proof approved temperature sensor assemblies
and accessory hardware for the following locations:

Type	Hazardous location
T15/T55 with enclosures C, D, E, F	Class I / Div. 1 / Groups BCD Class II, III / Div. 1 / Groups EFG
T15/T55 with enclosures A, B, G, H, I, J, K, L, M, N, 3, 4, 5, 6, 7, 8	Class I / Div. 1 / Groups ABCD Class II, III / Div. 1 / Groups EFG

Installation Notes for T15, T55, TU221, TU211

- FM Approved Apparatus must be installed in accordance with manufacturer's instructions.
- Install per National Electrical Code (NFPA 70).
- Use supply wires suitable for 5°C above surroundings.
- Keep tight when circuits alive.
- Warning: Substitution of components may impair suitability for Class I, Division 2.

FM APPROVED

EXPLOSION PROOF **XP** **Class I / Div. 1 / Groups ABCD**
DUST IGNITION PROOF **DIP** **Class II, III / Div. 1 / Groups EFG**

- For TMT162 & TMT142 Field transmitters only for Group A, seal all conduits within 18 inches of enclosure; otherwise, conduit seal not required for compliance with NEC 501.15(A)(1).
- For all other enclosures seal all conduits within 18 inches of enclosure.
- All conduits must be assembled with a minimum of five full threads engagement.
- For Class II Extension and/or thermowell must be used to maintain enclosure 4X rating.
- Following Sensor options shall be protected by a thermowell:
  T15- abcdefg...

g	Sensor Type:
S	1 Pt100 TF StrongSens, 3 wire, class A, -50/500°C, vibration resistant until 60g
T	1 Pt100 TF StrongSens, 4 wire, class A, -50/500°C, vibration resistant until 60g
U	1 Pt100 TF StrongSens, 3 wire, class AA, -50/500°C, vibration resistant until 60g
V	1 Pt100 TF StrongSens, 4 wire, class AA, -50/500°C, vibration resistant until 60g

- Enclosures must be FM approved, for appropriate area classification (TU211, TU221).
- Class II use a dust tight seal.

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

- Depending on location install per National Electrical Code (NEC) using wiring methods described in article 500 through article 510.
  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.
- 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 Voc ≤ Vmax, Ca ≥ Ci + Ccable, La ≥ Li + Lcable.
- Refer to the enclosed control drawing for Transmitter's Nonincendive Field Wiring parameters.
- Optional terminal block's Nonincendive Field Wiring parameters are as follows:
  Ui or Vmax ≤ 10 V

  Ii or Imax = see following note below
  For these current controlled circuits, the parameter Imax is not required and need not to be aligned with parameter Isc and It of the Associated Nonincendive Field Wiring Apparatus or Associated Apparatus.

- Refer to the marked maximum ratings for assembled temperature transmitter's supply.

	Approved	Date (yyyy-mm-dd)		Dwg.rev.	Revision no.	Revision date (yyyy-mm-dd)	Name	Material	
	Pfanzelt	2006-11-27	16 01 00 120	B	W18N20	2019-04-12	MP	71540231 XA02349T/09/EN/01.20	Endress+Hauser
Volume (mm³)	Designed	Date (yyyy-mm-dd)	Unit	Scale	Title			Series	
	Pfanzelt	2006-05-16	T15, T55, TU221, TU211	1:1	CONTROL DRAWING FM XP, NI, DIP			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				1 of 2	Endress + Hauser Wetzer GmbH+Co. KG Nesselwang / Germany

Thermal data

The relation between electrical connection, temperature class, maximum surface temperature, ambient temperature range and process temperature range is shown in the following table.

Electrical connection	Temperature class	Maximum surface temperature	Ambient temperature range	Process temperature range sensor type	
				dual	single
Terminal block	T6	T85 °C	-50 °C to +80 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-50 °C to +95 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-50 °C to +100 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-50 °C to +100 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-50 °C to +100 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-50 °C to +100 °C	-50 °C to +415 °C	-50 °C to +428 °C
Flying leads or Transmitter TMT82 TMT84 TMT85 TMT180, TMT181, TMT182	T6	T85 °C	-40 °C to +70 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-40 °C to +80 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-40 °C to +85 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-40 °C to +85 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-40 °C to +85 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-40 °C to +85 °C	-50 °C to +415 °C	-50 °C to +428 °C
Transmitter TMT162 TMT142	T6	T85 °C	-40 °C to +55 °C	-50 °C to +55 °C	-50 °C to +68 °C
	T5	T100 °C	-40 °C to +70 °C	-50 °C to +70 °C	-50 °C to +83 °C
	T4	T135 °C	-40 °C to +85 °C	-50 °C to +105 °C	-50 °C to +118 °C
	T3	T200 °C	-40 °C to +85 °C	-50 °C to +170 °C	-50 °C to +183 °C
	T2	T300 °C	-40 °C to +85 °C	-50 °C to +265 °C	-50 °C to +278 °C
	T1	T450 °C	-40 °C to +85 °C	-50 °C to +415 °C	-50 °C to +428 °C