

Hazardous (Classified) Location  
 IS / Class I / Division 1 / Groups ABCD  
 Class I, Zone 0, IIC  
 NI / Class I / Division 2 / Groups ABCD

Nonhazardous Locations

**Installation Notes TMT121, TMT127, TMT128**



- FM approved apparatus must be installed in accordance with manufacturer's instructions.
- Use supply wires suitable for 5°C above surroundings.
- Stating that only simple apparatus should be terminated to the sensor connection.  
 Simple apparatus is defined as a device that will neither generate nor store more than 1.2V, 0.1A, 0.25mW or 20µJ. Examples are Thermocouples or RTDs.

**INTRINSICALLY SAFE**

**IS / Class I / Div. 1 / Groups ABCD**

- Installation should be in accordance with ANSI/ISA RP 12.6.01 "Installation of Intrinsically safe systems for Hazardous (classified) locations" and the National Electrical Code (ANSI/NFPA 70).
- FM Approved Associated Apparatus must meet the following parameters:

$$U_o \leq U_i \quad I_o \leq I_i \quad P_o \leq P_i \quad C_a \geq C_i + C_{cable} \quad L_a \geq L_i + L_{cable}$$

Transmitter entity parameters are as follows:

$$U_i \text{ or } V_{max} \leq 30 \text{ V DC} \quad C_i = 0$$

$$I_i \text{ or } I_{max} \leq 100 \text{ mA} \quad L_i = 0$$

$$P_i \leq 750 \text{ mW}$$

- The configuration of the transmitter TMT121 is only permitted in non-hazardous locations.
- The voltage of the "tools" used for configuration should not exceed  $U_m = 30 \text{ V}$ . This can be achieved e.g. by a battery powered laptop. An approved adapter with barrier (e.g. TMT181A) has to be used for configuration using a PC with mains connection ( $U_m < 253\text{V}$ ).
- Warning: Substitution of components may impair intrinsic safety.

**NONINCENDIVE**

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

- Intrinsic safety barrier is not required.  $V_{max} \leq 35 \text{ V DC}$ .
- Warning: Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- Transmitter provides nonincendive field wiring to the Thermocouple/RTD
- 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  $V_{oc} \leq V_{max}$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .

Transmitter Nonincendive Field Wiring parameters are as follows:

$$U_i \text{ or } V_{max} \leq 30 \text{ V DC} \quad C_i = 0 \quad L_i = 0$$

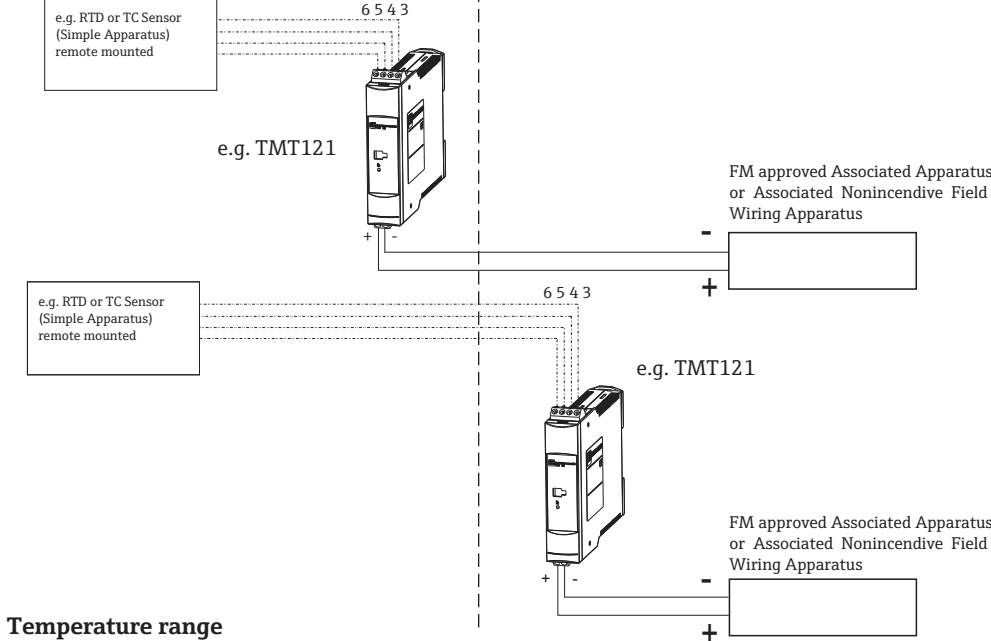
$$I_i \text{ or } I_{max} = \text{see following note below}$$

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.

**Functional ratings**

These ratings do not supersede Hazardous Location values

$$U_{nom} \leq 35 \text{ V DC} \quad I_{nom} \leq 4 \text{ to } 20 \text{ mA}$$



**Temperature range**

T4 -40°C ... +85°C

T5 -40°C ... +65°C

T6 -40°C ... +50°C

**INTRINSICALLY SAFE**

**IS Class I / Div. 1 / Groups ABCD**

**NONINCENDIVE, FIELD WIRING**

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

Sensor circuits (Terminals 3...6)

$$U_o \text{ or } V_{oc} \text{ or } V_t = 4.4 \text{ V} \quad I_o \text{ or } I_{sc} = 2.2 \text{ mA} \quad P_o = 2.4 \text{ mW}$$

$$\text{Group A, B resp. IIC} \quad C_o \text{ or } C_a = 100 \mu\text{F} \quad L_o \text{ or } L_a = 100 \text{ mH}$$

$$\text{Group C resp. IIB} \quad C_o \text{ or } C_a = 1000 \mu\text{F} \quad L_o \text{ or } L_a = 100 \text{ mH}$$

$$\text{Group D resp. IIA} \quad C_o \text{ or } C_a = 1000 \mu\text{F} \quad L_o \text{ or } L_a = 100 \text{ mH}$$

|                                         |                                    |                                          |                             |               |                                    |                                          |                |                                              |                                                                |
|-----------------------------------------|------------------------------------|------------------------------------------|-----------------------------|---------------|------------------------------------|------------------------------------------|----------------|----------------------------------------------|----------------------------------------------------------------|
|                                         | Approved<br>Pfanzelt               | Date (yyyy-mm-dd)<br>2001-12-04          | Drawing No.<br>14 10 01 111 | Dwg.rev.<br>A | Revision no.<br>W15105             | Revision date (yyyy-mm-dd)<br>2015-01-08 | Name<br>MP     | Material<br>71540279<br>XA02299T/09/EN/01.20 | <b>Endress+Hauser</b>                                          |
| Volume (mm³)                            | Designed<br>Pfanzelt               | Date (yyyy-mm-dd)<br>2001-12-04          | Unit<br>iTEMP TMT121(7)(8)  | Scale<br>1:1  | Title<br><b>CONTROL DRAWING FM</b> |                                          | Series         |                                              |                                                                |
| Refer to protection notice<br>ISO 16016 | Edge of working parts<br>ISO 13715 | Geometrical tolerancing<br>ISO 2768-mH-E | Part No.<br>-               | Format<br>A4  |                                    |                                          | Objekt version | Sheet<br>1 of 1                              | Endress + Hauser Wetzer<br>GmbH+Co. KG<br>Nesselwang / Germany |