


Safety Instructions

iTEMP TMT71, TMT72, TMT82, TMT84, TMT85

ATEX: II 3G: Ex ic IIC T6...T4 Gc



Document: XA01155T

Safety instructions for electrical apparatus for explosion-hazardous areas according to Directive 2014/34/EU (ATEX) →  2

iTEMP TMT71, TMT72, TMT82, TMT84, TMT85

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About this document



This document has been translated into several languages. Legally determined is solely the English source text.

Associated documentation

This document is an integral part of the following Operating Instructions:

- TMT71:
Operating Instructions: BA01927T
Brief operating instructions: KA01414T
Technical information: TI01393T
- TMT72:
Operating Instructions: BA01854T
Brief operating instructions: KA01414T
Technical information: TI01392T
- TMT82:
Operating Instructions: BA01028T
Brief operating instructions: KA01095T
Technical information: TI01010T
- TMT84:
Operating Instructions: BA00257R
Brief operating instructions: KA00258R
Technical information: TI00138R
- TMT85:
Operating Instructions: BA251R
Brief operating instructions: KA00252R
Technical information: TI00134R

All documentation is available in:

- *W@M Device Viewer*: Enter the serial number from the nameplate in the (www.endress.com/deviceviewer): all data relating to the device and an overview of the Technical Documentation supplied with the device are displayed.
- *Endress+Hauser Operations App*: Enter the serial number on the nameplate or scan the 2-D matrix code (QR code) on the nameplate with the *Endress+Hauser Operations App*: all the information about the device and the technical documentation pertaining to the device is displayed.
- In the Download Area of the Endress+Hauser web site: www.endress.com → Download.

Supplementary documentation

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available: In the download area of the Endress+Hauser website: www.endress.com → Download → Advanced → Documentation code: CP00021Z

Certificates**Declaration of Conformity**

Declaration number: EC_00187

Affixing the certificate number certifies conformity with the following standards (depending on the device version).

ATEX:

- EN 60079-0: 2012 + Cor. 2013
- EN 60079-11: 2012

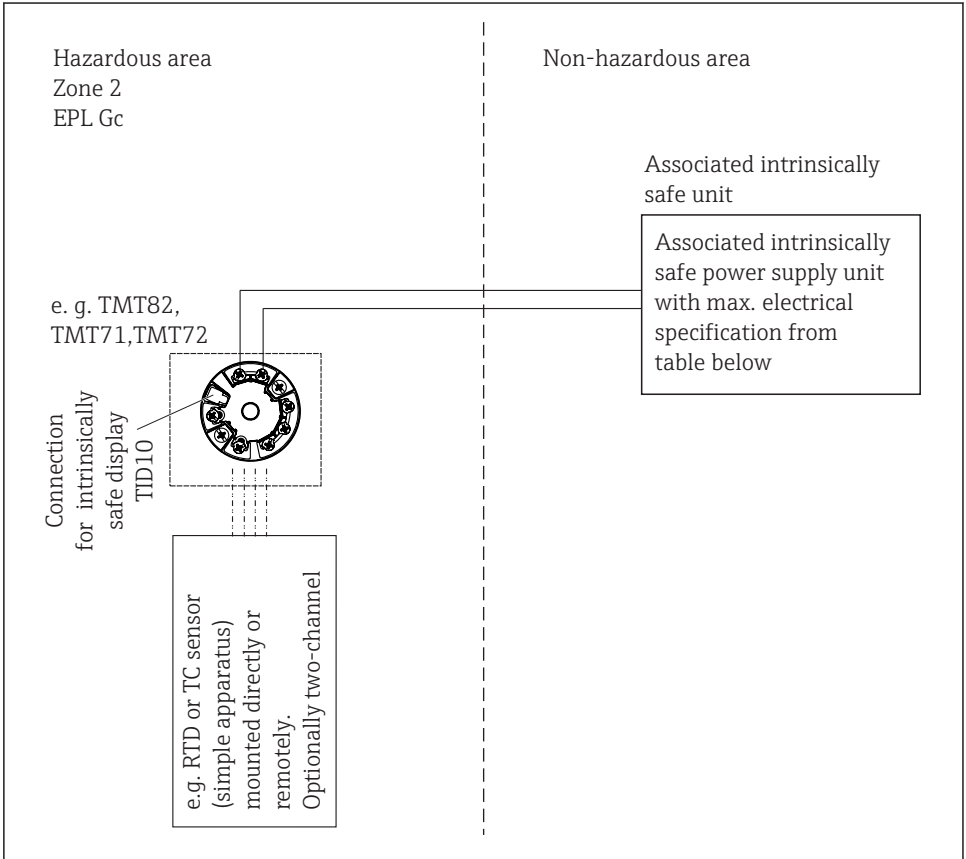
**Manufacturer
address**

Endress+Hauser Wetzler GmbH + Co. KG


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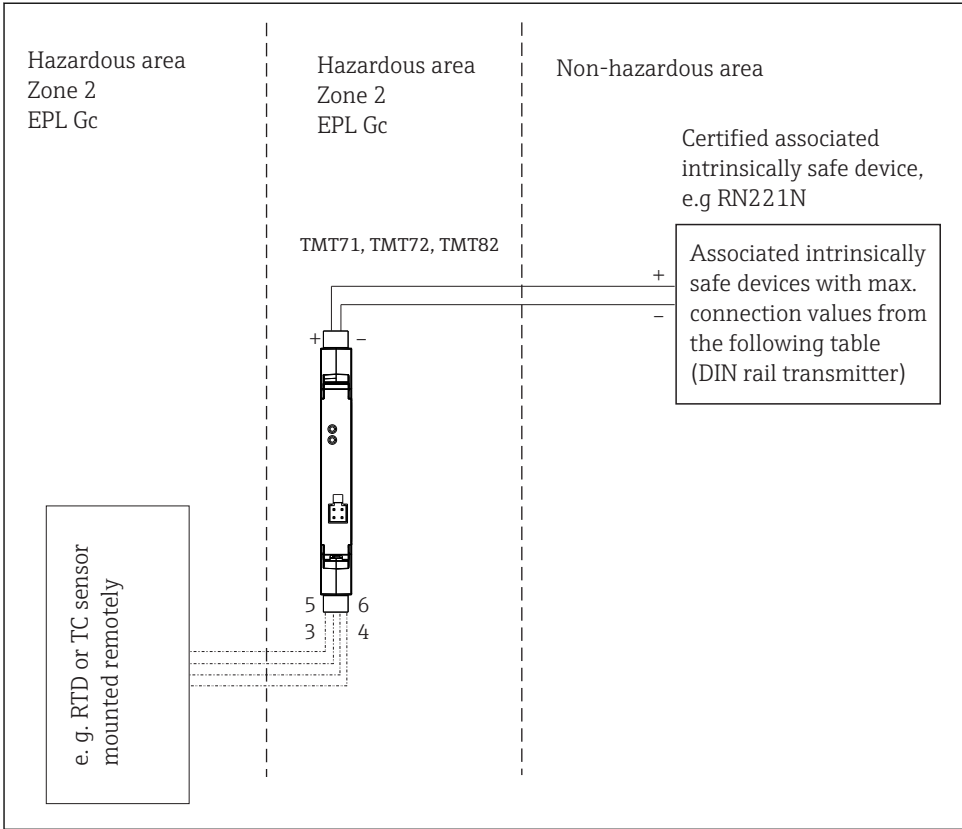
D-87484 Nesselwang or www.endress.com

Safety instructions



A0026834-EN

 1 Installation of the head transmitter



Safety instructions: Installation

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and any other valid standards and regulations (e.g. IEC/EN 60079-14).
- An enclosure shall be provided meeting the requirements of IP20 in accordance with IEC/EN 60529 or greater according to the intended use and environmental conditions.
- The device is only suitable for connection to certified, intrinsically safe equipment with explosion protection of at least Ex ic.
- If the conditions $U_i > U_o$, $(I_i > I_o)$, $C_a > C_i + C_{\text{cable}}$ and $L_a > L_i + L_{\text{cable}}$ are met, the energy-limited installation concept (Ex ic) allows energy-limited devices or associated energy-limited devices to be connected according to the entity concept.

- Observe the pertinent guidelines when interconnecting intrinsically safe circuits (e.g. IEC/EN 60079-14, Proof of Intrinsic Safety).
- The device (terminal head) must be connected to the potential matching line.
- The transmitter must be installed and maintained so, that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron/steel is excluded.

Safety instructions: head transmitter

The device (terminal head) must be connected to the potential matching line.

Safety instructions: DIN rail transmitter

On installation please make sure that the spacing between the intrinsically safe and non-intrinsically safe circuits is at least 50 mm.

Temperature tables

Category	Type of protection	Type (order code)
II 3G	Ex ic IIC T6...T4 Gc	TMT82-xxA1xxxxxxxx
		TMT82-xxA2xxxxxxxx
		TMT84-xxA1xxxxxxxx
		TMT84-xxA2xxxxxxxx
		TMT85-xxA1xxxxxxxx
		TMT85-xxA2xxxxxxxx
		TMT7x-xxx1xxxx
		TMT7x-xxx2xxxx
TMT7x-xxx3xxxx		

Type (order code)	Temperature class	Ambient temperature
TMT82-xxA1xxxxxxxx TMT82-xxA2xxxxxxxx without display	T6	-40 °C ≤ Ta ≤ +58 °C
	T5	-40 °C ≤ Ta ≤ +75 °C
	T4	-40 °C ≤ Ta ≤ +85 °C
TMT84-xxA1xxxxxxxx TMT84-xxA2xxxxxxxx TMT85-xxA1xxxxxxxx TMT85-xxA2xxxxxxxx without display	T6	-40 °C ≤ Ta ≤ +55 °C
	T5	-40 °C ≤ Ta ≤ +70 °C
	T4	-40 °C ≤ Ta ≤ +85 °C
TMT82-xxA1xxxxxxxx	T6	-40 °C ≤ Ta ≤ +55 °C

Type (order code)	Temperature class	Ambient temperature
TMT82-xxA2xxxxxxxxxx with display (TID10)	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
TMT84-xxA1xxxxxxxxxx TMT84-xxA2xxxxxxxxxx TMT85-xxA1xxxxxxxxxx TMT85-xxA2xxxxxxxxxx with display (TID10)	T6	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
TMT7x-xxx1xxxx Head transmitter without display	T6	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
TMT7x-xxx1xxxx Head transmitter with display (TID10)	T6	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$
	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$
TMT7x-xxx2xxxx TMT7x-xxx3xxxx DIN rail transmitter	T6	$-50\text{ °C} \leq T_a \leq +43\text{ °C}$
	T5	$-50\text{ °C} \leq T_a \leq +58\text{ °C}$
	T4	$-50\text{ °C} \leq T_a \leq +85\text{ °C}$

Electrical data

Type	Electrical data									
TMT82 HART® order code: TMT82-xxA1xxxxxxxxxx TMT82-xxA2xxxxxxxxxx	<p>Supply (terminal + and -)</p> <p>$U_i \leq 42\text{ V}_{DC}$ $I_i = \text{not applicable (current-controlled circuit)}$ $P_i = \text{not applicable}$ $C_i = \text{negligible small}$ $L_i = \text{negligible small}$</p> <p>Sensor circuit (terminal 3 to 7)</p> <p>$U_o \leq 7.6\text{ V}_{DC}$ $I_o \leq 13\text{ mA}$ $P_o \leq 24.7\text{ mW}$</p> <p>Max. connection values</p> <table> <tr> <td>Ex ic IIC</td> <td>$L_o = 10\text{ mH}$</td> <td>$C_o = 1\text{ }\mu\text{F}$</td> </tr> <tr> <td>Ex ic IIB</td> <td>$L_o = 50\text{ mH}$</td> <td>$C_o = 4.5\text{ }\mu\text{F}$</td> </tr> <tr> <td>Ex ic IIA</td> <td>$L_o = 50\text{ mH}$</td> <td>$C_o = 6.7\text{ }\mu\text{F}$</td> </tr> </table>	Ex ic IIC	$L_o = 10\text{ mH}$	$C_o = 1\text{ }\mu\text{F}$	Ex ic IIB	$L_o = 50\text{ mH}$	$C_o = 4.5\text{ }\mu\text{F}$	Ex ic IIA	$L_o = 50\text{ mH}$	$C_o = 6.7\text{ }\mu\text{F}$
Ex ic IIC	$L_o = 10\text{ mH}$	$C_o = 1\text{ }\mu\text{F}$								
Ex ic IIB	$L_o = 50\text{ mH}$	$C_o = 4.5\text{ }\mu\text{F}$								
Ex ic IIA	$L_o = 50\text{ mH}$	$C_o = 6.7\text{ }\mu\text{F}$								
TMT71, TMT72 Order option: TMT7x-xxx1xxxx (head transmitter), TMT7x-xxx2xxxx,	Power supply									

Type	Electrical data		
TMT7x-xxx3xxxx (DIN rail transmitter)	(terminals + and -)	$U_i \leq 30 V_{DC}$ $I_i \leq 100 \text{ mA}$ $P_i = 800 \text{ mW (head)}$ $P_i = 700 \text{ mW (DIN rail)}$ $C_i = \text{negligibly small}$ $L_i = \text{negligibly small}$	
	Sensor circuit (terminal 3 to 6)	$U_o \leq 4.3 V_{DC}$ $I_o \leq 4.8 \text{ mA}$ $P_o \leq 5.2 \text{ mW}$	
	Max. connection values		
	Ex ic IIC	$L_o = 50 \text{ mH}$	$C_o = 3 \mu\text{F}$
	Ex ic IIB	$L_o = 100 \text{ mH}$	$C_o = 18 \mu\text{F}$
Ex ic IIA	$L_o = 100 \text{ mH}$	$C_o = 48 \mu\text{F}$	

Type	Electrical data		
TMT84 PROFIBUS® PA order code: TMT84-xxA1xxxxxxxxxx TMT84-xxA2xxxxxxxxxx TMT85 FOUNDATION Fieldbus™ order code: TMT85-xxA1xxxxxxxxxx TMT85-xxA2xxxxxxxxxx	Supply (terminal + and -)	FISCO: $U_i \leq 17.5 V_{DC}$ $I_i = \text{not applicable}$ (current-controlled circuit) $C_i \leq 5 \text{ nF}$ $L_i = \text{negligible small}$	or: $U_i \leq 32 V_{DC}$ $I_i \leq 11 \text{ mA}$
		Applicable for connection to a Fieldbus system according to FISCO-model	
	Sensor circuit (terminal 3 to 7)	$U_o \leq 7.2 V_{DC}$ $I_o \leq 25.9 \text{ mA}$ $P_o \leq 46.7 \text{ mW}$	
	Max. connection values		
	Ex ic IIC	$L_o = 20 \text{ mH}$	$C_o = 0.97 \mu\text{F}$
Ex ic IIB	$L_o = 50 \text{ mH}$	$C_o = 4.6 \mu\text{F}$	
Ex ic IIA	$L_o = 100 \text{ mH}$	$C_o = 6 \mu\text{F}$	



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