

Safety Instructions

iTHERM TrustSens TM371, TM372

Compact thermometer in metric style for hygienic
and aseptic applications
HART® communication

II1/2G Ex ia IIC T6...T1 Ga/Gb

II1/2D Ex ia IIIC 85 °C...450 °C Da/Db



iTHERM TrustSens TM371, TM372

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HART® communication

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About this document



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

The document translated into EU languages is available:

- In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Manuals and Datasheets -> Type: Ex Safety Instruction (XA) -> Text Search: ...
- In the Device Viewer: www.endress.com -> Product tools -> Access device specific information -> Check device features



If not yet available, the document can be ordered.

Associated documentation

This document is an integral part of the following Operating Instructions:	
TM371 <ul style="list-style-type: none"> ▪ Operating instructions: BA01581T ▪ Brief operating instructions: KA01272T 	TM372 <ul style="list-style-type: none"> ▪ Operating instructions: BA02224T ▪ Brief operating instructions: KA01563T

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
- On the CD for devices with CD-based documentation

Manufacturer address

Endress+Hauser Wetzler GmbH + Co. KG
Obere Wank 1
87484 Nesselwang, Germany

Manufacturer's certificates

IECEX certificate

Certificate number: IECEX EPS 21.0068X

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

- IEC 60079-0 : 2017
- IEC 60079-11 : 2011
- IEC 60079-26 : 2021

ATEX certificate

Certificate number: EPS 21 ATEX 1 214 X

EU declaration of conformity

Declaration number: EC_01013

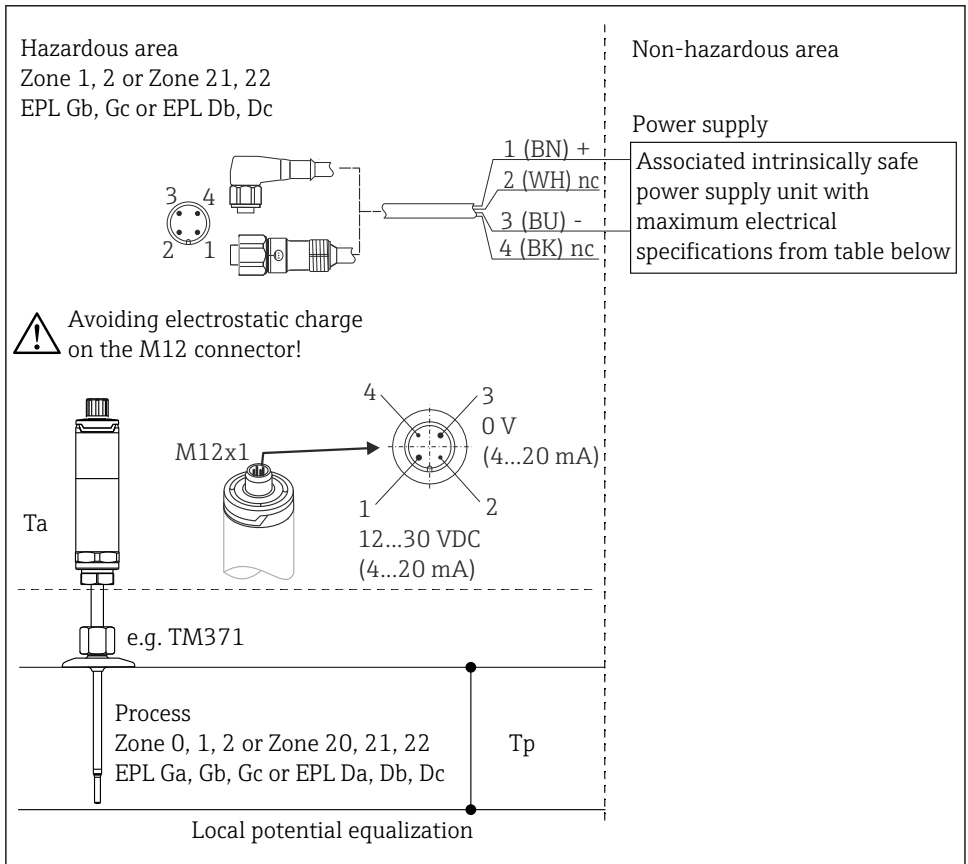
UKCA certificate

Certificate number: CML 22UKEX2331X

UKCA Declaration of conformity

Declaration number: UK_00489

Safety instructions



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**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. EN/IEC 60079-14).
- The housing of the thermometer must be connected to the local potential equalization or installed in a grounded metallic piping or tank respectively.
- It cannot be taken for granted that when using compression fittings with non-metallic olives that there is a secure grounding when installing in a metal system. This means that an additional safe connection to the local potential equalization needs to be used.

**Safety instructions:
Installation in equipment of Group III**

The thermometer 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 for intrinsic safety:
Installation**

- The type of protection changes as follows when the devices are connected to certified intrinsically safe circuits of category ib: Ex ib IIC. When connecting to an intrinsically safe ib circuit, do not operate the sensor at Zone 0 without any thermowell according to EN/IEC 60079-26.
- The thermometer is not isolated to the metallic enclosure in conformance with EN/IEC 60079-11 chapter 6.3.13.
- Associated equipment with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits is required for supplying.
- For interconnecting the thermometer with the optionally provided cable sets following parameters can be assumed: $C_c = 200 \text{ pF/m}$ and $L_c = 1 \mu\text{H/m}$.

**Safety instructions:
Partition wall**

- Install the thermometer in a partition wall which is in compliance with EN/IEC 60079-26 in reference to its ultimate application.
- The provided thermowells per option code are out of AISI 316L/1.4404 or 1.4435 with a wall thickness $\geq 1 \text{ mm}$

Safety instructions:
Special conditions

- From the safety point of view, the thermometer shall be considered to be connected to earth. For details, the instruction manual, provided with the equipment, shall be observed.
- It is not permitted to use the configuration pins 2 and 4 when the thermometer is connected to electrical supply.
- Electrostatic charge on the M12 connector shall be avoided in dust explosive atmospheres during operation and maintenance.

Temperature tables

Type	Temperature class	Ambient temperature range housing Ta	Maximum surface temperature housing
TM371 TM372	T6	$-40\text{ °C} \leq T_a \leq +55\text{ °C}$	T85 °C
	T5	$-40\text{ °C} \leq T_a \leq +70\text{ °C}$	T100 °C
	T4	$-40\text{ °C} \leq T_a \leq +85\text{ °C}$	T135 °C

Type	Insert diameter	Process temperature range Tp	Temperature class/ Maximum surface temperature sensor
TM371 TM372	3 mm 6 mm	$-50\text{ °C} \leq T_p \leq +75\text{ °C}$	T6 / T85 °C
		$-50\text{ °C} \leq T_p \leq +90\text{ °C}$	T5 / T100 °C
		$-50\text{ °C} \leq T_p \leq +125\text{ °C}$	T4 / T135 °C
		$-50\text{ °C} \leq T_p \leq +190\text{ °C}$	T3 / T200 °C
		$-50\text{ °C} \leq T_p \leq +285\text{ °C}$	T2 / T300 °C
		$-50\text{ °C} \leq T_p \leq +435\text{ °C}$	T1 / T450 °C

Connection data

Type		Electrical data
TM371 TM372	Power supply Connecting socket Pin 1(+) and 3(-)	$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 100\text{ mA}$ $P_i = 750\text{ mW}$ $P_i = 600\text{ mW}$ (for dust applications only) $C_i = \text{negligibly small}$ $L_i = \text{negligibly small}$
	Configuration Connecting socket Pin 2 and 4	$U_i \leq 30\text{ V}_{DC}$ $I_i \leq 100\text{ mA}$ $P_i = 600\text{ mW}$ (for dust applications only) $C_i = \text{negligibly small}$ $L_i = \text{negligibly small}$

Category	Type of protection (ATEX)	Type
II1/2G	Ex ia IIC T6...T4 Ga/Gb	TM371
II1/2D	Ex ia IIIC T85 °C...T450 °C Da/Db	TM372

Type of protection (IEC)	Type
Ex ia IIC T6...T1 Ga/Gb	TM371
Ex ia IIIC T85 °C...T450 °C Da/Db	TM372



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