

Hazardous (Classified) location electronic
 Class I / Division 1 / Groups ABCD
 Class I / Zone 1 / Ex ia IIC Gb / AEx ia IIC Gb
 Class II / Division 1 / Groups EFG
 Class III / Division 1 / Hazardous Locations
 Class II / Zone 21 / Ex ia IIC Db / AEx ia IIC Db

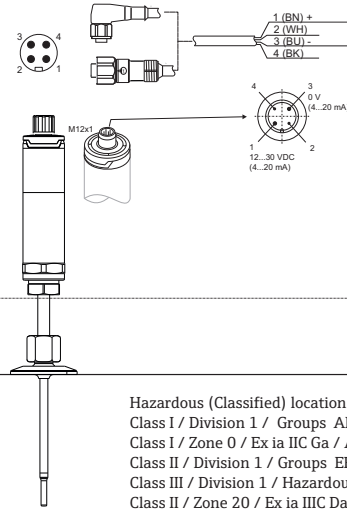
Nonhazardous Locations



Avoiding electrostatic charge on the M12 connector!

e.g. TM371

Ta
 (see thermal data)



Power supply
 CSA certified Associated Apparatus or supply with suitable barrier with suitable electrical specifications from table below

Hazardous (Classified) location process
 Class I / Division 1 / Groups ABCD
 Class I / Zone 0 / Ex ia IIC Ga / AEx ia IIC Ga
 Class II / Division 1 / Groups EFG
 Class III / Division 1 / Hazardous Locations
 Class II / Zone 20 / Ex ia IIC Da / AEx ia IIC Da

Tp (see thermal data)

Local potential equalization

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

Installation Notes TM371, TM372

General

- 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.
- 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.

INTRINSICALLY SAFE

Ex ia IIC T6...T1 Ga/Gb

Class I, Zone 0/1 AEx ia IIC T6...T1 Ga/Gb

Intrinsic Safe for Class I, Division 1, Groups A, B, C, D

DUST IGNITION PROOF

Ex ia IIIC T85°C...T165°C Da/Ex ia IIIC T135°C Db

Zone 20/21 AEx ia IIIC T85°C...T165°C Da/AEx ia IIIC T135°C Db

Class II, Division 1, Groups E, F and G, Class III

- CSA approved associated apparatus or barrier is required.
- Warning: Substitution of components may impair intrinsic safety.
 Avertissement : La substitution de composants peut compromettre la sécurité intrinsèque.
- 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 CSA/UL 60079-26.
- The thermowell is not isolated to the metallic enclosure in conformance with CSA/UL 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:
 $C_c = 200pF/m$ and $L_c = 1\mu H/m$.
- Without any thermowell (option b = 0) install the thermometer in a partition wall and process connection as required in standard CSA/UL 60079-26 in reference to its ultimate application.
- With a provided thermowell (option b = 1, 2, 3) also install a process connection with a tight joint of at least IP67 (according to IEC 60529) between one hazardous zone area to the other as required in CSA/UL 60079-26 in reference to its ultimate application



	Approved Pfanzelt	Date (yyyy-mm-dd) 2022-05-13	Drawing No. 10000013282	Dwg.rev. -	Revision no. -	Revision date (yyyy-mm-dd) -	Name -	Material 71606925 XA02869T/09/EN/01.22	Endress+Hauser
Volume (mm³)	Designed Pfanzelt	Date (yyyy-mm-dd) 2022-05-12	Unit TM371, TM371	Scale 1:1	Title CONTROL DRAWING CSA Ex ia IIC, Ex ia IIIC		Series		
Refer to protection notice ISO 16016	Edge of working parts ISO 13715	Geometrical tolerancing ISO 2768-mH-E	Part No. -	Format A4	Objekt version	Sheet 1 of 2	Endress + Hauser Wetzler GmbH+Co. KG Nesselwang / Germany		

NONINCENDIVE Field WIRING

- CSA approved associated apparatus or barrier is required.
- Warning: Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous.
- 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 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.

CONDITIONS OF ACCEPTABILITY

- The above model is permanently connected, Output of power supply below the limits of clause 6.3.1 and 9.4, max. 30 Vdc, supplied by an external certified power source, not part of this investigation. The DC output of this separately certified power source shall be below the limits of clause 6.3.1 of IEC 61010-1:2010), Pollution Degree 2. Mode of operation: Continuous.
- From the safety point of view, the thermometer shall be considered to be connected to earth (for details see first page of Control drawing).
- 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.
- When installing the product within two different Zones (Zone 0/1 or Zone 20/21) containing parts with different EPLs i.e. either Ga/Gb or Da/Db, a thermowell as a partition wall (with a thickness at least 1mm) for the Zone 0 installation and a process connection with a tight joint of at least IP67 (according to IEC 60529) has to be installed between one hazardous zone area to the other as required in IEC 60079-26:2014.
- The temperature class of the transmitter and temperature sensor is dependent on the ambient temperature and the process temperature (see Thermal data).


Thermal data:

Type	Temperature class	Ambient temperature range housing Ta
TM371,	T6	$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$
TM372	T5	$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$
	T4	$-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$

Type	Insert diameter	Process temperature range Tp	Temperature class
TM371,	3mm,	$-50^{\circ}\text{C} \leq T_p \leq +75^{\circ}\text{C}$	T6
TM372	6mm	$-50^{\circ}\text{C} \leq T_p \leq +90^{\circ}\text{C}$	T5
		$-50^{\circ}\text{C} \leq T_p \leq +125^{\circ}\text{C}$	T4
		$-50^{\circ}\text{C} \leq T_p \leq +190^{\circ}\text{C}$	T3
		$-50^{\circ}\text{C} \leq T_p \leq +285^{\circ}\text{C}$	T2
		$-50^{\circ}\text{C} \leq T_p \leq +435^{\circ}\text{C}$	T1

Type	Ambient temperature range housing Ta	Maximum surface temperature housing
TM371,	$-40^{\circ}\text{C} \leq T_a \leq +55^{\circ}\text{C}$	T135°C
TM372	$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$	T135°C
	$-40^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$	T135°C

Type	Insert diameter	Process temperature range Tp	Maximum surface temperature sensor
TM371,	3mm,	$-50^{\circ}\text{C} \leq T_p \leq +75^{\circ}\text{C}$	T85°C
TM372	6mm	$-50^{\circ}\text{C} \leq T_p \leq +90^{\circ}\text{C}$	T100°C
		$-50^{\circ}\text{C} \leq T_p \leq +125^{\circ}\text{C}$	T135°C
		$-50^{\circ}\text{C} \leq T_p \leq +150^{\circ}\text{C}$	T165°C

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