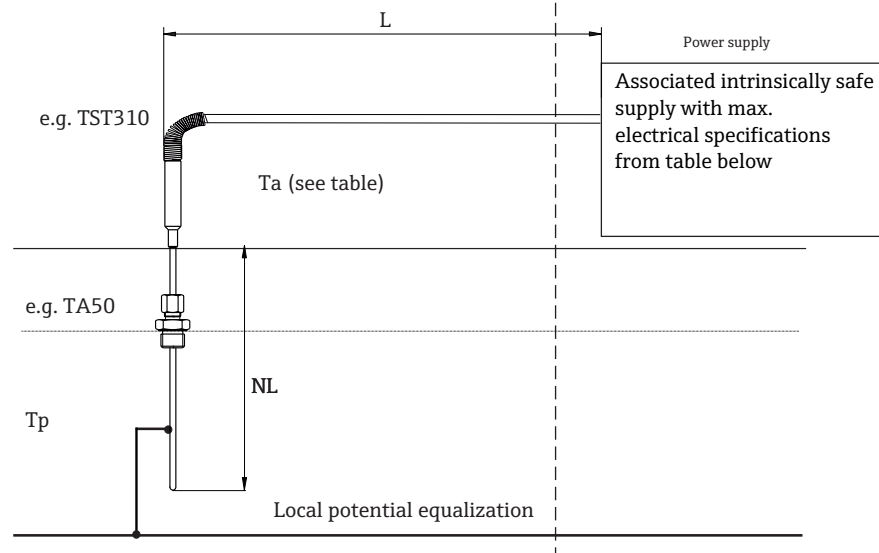


Hazardous area

Non-hazardous area



Associated intrinsically safe supply with max. electrical specifications below the characteristic values:

Ui	Ii	Pi	Ci	Li
30 V	140 mA	1000 mW	See tables below	

Sensor type	Insertion Length NL		Connection		Length Extension L	
	C _i /F/m	L _i /H/m	C _i /F	L _i /H	C _i /F/m	L _i /H/m
Single	2,00E-10	1,00E-06	2,50E-11	1,25E-07	2,00E-10	1,00E-06
Dual	4,00E-10	2,00E-06	5,00E-11	2,50E-07	4,00E-10	2,00E-06

Calculation formula for cable thermometer:

$$C_i = C_{i \text{ Sensor length NL}} \times NL + C_{i \text{ Connection}} + C_{i \text{ Cable L}} \times L$$

$$L_i = L_{i \text{ Sensor length NL}} \times NL + L_{i \text{ Connection}} + L_{i \text{ Cable L}} \times L$$

DEKRA 12ATEX0161 X, IECEx DEK 12.0049X

Applied standards: ATEX: EN IEC 60079-0 : 2018
EN 60079-11 : 2012
EN 60079-26 : 2015

IECEx: IEC 60079-0 : 2017
IEC 60079-11 : 2011
IEC 60079-26 : 2014

Safety instructions:

General

- 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 cable sensor 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 (e.g. TA50, TA60, TA70) 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.

Table ambient temperature Ta:

Material	Max. temperature
Connection cable / sheath insulation	
PVC / PVC	80°C
PTFE / silicone	180°C
PTFE / PTFE	200°C

	Approved Pfanzelt	Date (yyyy-mm-dd) 2022-06-28	Drawing No. 10000013391	Dwg. rev. -	Revision no. -	Revision date (yyyy-mm-dd) -	Name -	Material 71602051	Endress+Hauser
Volume (mm³)	Designed Pfanzelt	Date (yyyy-mm-dd) 2022-06-27	Unit TST310	Scale 1:1	Title Safety Instructions XA02908T/09/EN/01.22			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 1 of 2	

Endress + Hauser Wetzlar
GmbH+Co. KG Nesselwang / Germany

Safety instructions:

Intrinsic safety

- Comply with the installation and safety instructions in the Operating Instructions.
- Install the cable sensor according to the manufacturer's instructions and any other valid standards and regulations (e.g. IEC 60079-14).
- Install the cable sensor in a thermometer/enclosure suitable for its marking with a IP rating of at least IP20 according to IEC 60529.
- 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 cable sensors with 3mm diameter is not isolated to the metallic sheath in conformance with EN/IEC 60079-11 chapter 6.3.13.
- For cable sensors with 3 mm diameter must be connected to the local potential equalization.
- For cable sensors with 3 mm diameter an intrinsically safe supply with galvanic isolation must be used.

Safety Instructions:

Zone 0

- Install cable sensor in a grounded metallic connection head or grounded housing.
- Only operate devices in potentially explosive vapour/air mixtures under atmospheric conditions:
 - $273^{\circ}\text{C} \leq T_a \leq$ see table
 - $0.8 \text{ bar} \leq p \leq 1.1 \text{ bar}$
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, according to EN 1127-1, the cable sensor may be operated under other atmospheric conditions in accordance with the manufacturer's specifications.
- Associated apparatus with galvanic isolation between the intrinsically safe and non-intrinsically safe circuits are preferred.

Safety Instructions:

Specific conditions of use

- For Temperature Sensors Type TST310-..., if intended for use in explosive gas atmospheres where the use of apparatus of Equipment Protection Level Ga is required, electrostatic charges on the cable shall be avoided.

Safety Instructions:


Partition wall

- Install the sensor in a partition wall which is in compliance with EN/IEC 60079-26 in reference to its ultimate application.

The dependency of the ambient and process temperatures upon the temperature class for cable sensor:

Insert diameter	Temperature class/ Maximum surface temperature	Maximum allowed process temperature (sensor) Tp (process) from -273°C to				
		Pi ≤ 50 mW	Pi ≤ 100 mW	Pi ≤ 200 mW	Pi ≤ 500 mW	Pi ≤ 650 mW
3mm	T1	426°C	415°C	396°C	343°C	333°C
	T2	276°C	265°C	246°C	193°C	183°C
	T3	181°C	170°C	151°C	98°C	88°C
	T4	116°C	105°C	86°C	33°C	23°C
	T5	81°C	70°C	51°C	-2°C	-12°C
	T6	66°C	55°C	36°C	-17°C	-27°C

Insert diameter	Temperature class/ Maximum surface temperature	Maximum allowed process temperature (sensor) Tp (process) from -273°C to			Ambient temperature (cable), Ta (ambient)
		Pi ≤ 750 mW	Pi ≤ 800 mW	Pi ≤ 1000 mW	
3mm	T1	320°C	312°C	280°C	-273°C ≤ Ta ≤ see table
	T2	170°C	162°C	130°C	
	T3	75°C	62°C	30°C	
	T4	10°C	2°C	-30°C	
	T5	-25°C	-33°C		
	T6	-40°C			

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Volume (mm³)	Designed Pfanzelt	Date (yyyy-mm-dd) 2022-06-27	Unit TST310	Scale 1:1	Title Safety Instructions XA02908T/09/EN/01.22			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 2 of 2		Sheet 2 of 2