

TUTSN

Temperature probe

The TUTSN passive temperature probes feature an outstanding stability of the temperature characteristics in ducts due to the platinum sensor element used. The sensor element is built-in in a plastic tube housing. These temperature probes have a positive temperature coefficient of resistance: when the temperature rises, the resistance rises. They are easy to install and are compatible with most common temperature control systems.

Key features

- Positive temperature coefficient
- Long-term stability
- Wide measurement range
- Easy installation
- Article versions for different duct diameters

Technical specifications

Temperature measurement range	-50—80 °C	
Measurement current (DC)	0,1—0,3 mA (PT500) 0,1—0,4 mA (PT1000)	
Tolerance class	F0.3	
Flying leads	Length	1,0 m
	Cross section	0,5 mm ²
	Tensile forces	< 5 N
Self-heating	≤ 0,5 K/mW in air low 1 m/s	
Protection standard	IP30 (according to EN 60529)	
Installation temperature	> -5 °C	
Ambient conditions	Temperature	-50—80 °C
	Rel. humidity	< 95 % rH (non-condensing)



Article codes

	Temperature sensor	Duct diameter	Plastic tube length
TUTSN-P500-150	PT500	< 300 mm	150 mm
TUTSN-P500-250	PT500	> 300 mm	250 mm
TUTSN-P1K0-150	PT1000	< 300 mm	150 mm
TUTSN-P1K0-250	PT1000	> 300 mm	250 mm

Area of use

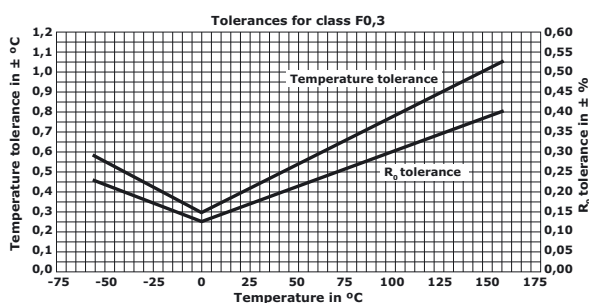
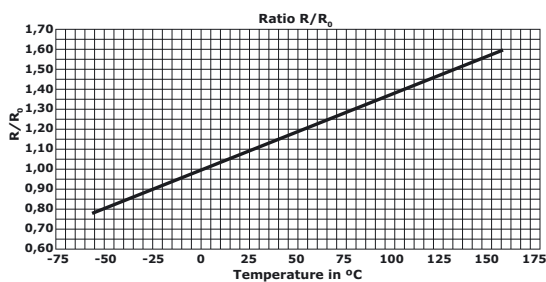
- HVAC applications for temperature measurements
- Non-corrosive, dry environment only

Standards

- IEC 60751 / DIN EN 60751
- WEEE Directive 2012/19/EU
- RoHs Directive 2011/65/EU



Resistance and tolerance values



Functional performance

Temperature / resistance relationships

- For the temperature range: -55—0 °C
 $R_T = R_0 \times (1 + A \times T + B \times T^2 + C \times (T - 100 \text{ °C}) \times T^3)$
 - For the temperature range: 0—80 °C
 $R_T = R_0 \times (1 + A \times T + B \times T^2)$
- Where
 R_T : Resistance as a function of temperature
 R_0 : Nominal resistance value at 0 °C
 T : Temperature in °C
- Coefficients according to EN 60751
 $A = 3,9083 \times 10^{-3} \text{ °C}^{-1}$
 $B = -5,775 \times 10^{-7} \text{ °C}^{-2}$
 $C = -4,183 \times 10^{-12} \text{ °C}^{-4}$

Sensor tolerance values equation (according to EN 60751)

- Class F0.3
 $\Delta T_{F0.3} = \pm (0,30 + 0,005 \times |T|)$

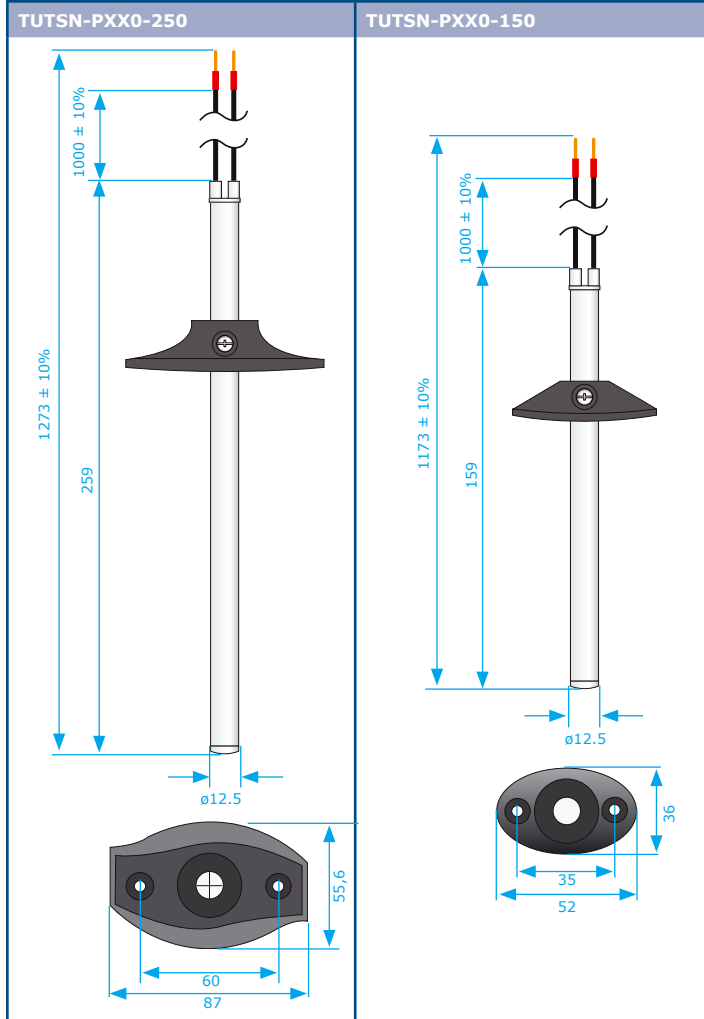
TUTSN

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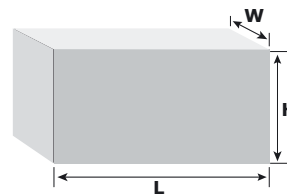
Nominal resistance values

Temp. °C	R/R0 ratio	Class F0.3		
		R0 500 Ω	R0 1.000 Ω	T _{tol.} °C
-55	0,78379	391,59	783,19	± 0,58
-50	0,80306	391,59	803,06	± 0,55
-45	0,82290	401,53	822,90	± 0,53
-40	0,84271	411,45	842,71	± 0,50
-35	0,86248	421,35	862,48	± 0,48
-30	0,88222	431,24	882,22	± 0,45
-25	0,90192	441,11	901,92	± 0,43
-20	0,92160	450,96	921,60	± 0,40
-15	0,94124	470,62	941,24	± 0,38
-10	0,96086	480,43	960,86	± 0,35
-5	0,98044	490,22	980,44	± 0,33
0	1,00000	500,00	1000,00	± 0,30
5	1,01953	509,76	1019,53	± 0,33
10	1,03903	519,51	1039,03	± 0,35
15	1,05849	529,25	1058,49	± 0,38
20	1,07794	538,97	1077,94	± 0,40
25	1,09735	548,67	1097,35	± 0,43
30	1,11673	558,36	1116,73	± 0,45
35	1,13608	568,04	1136,08	± 0,48
40	1,15541	577,70	1155,41	± 0,50
45	1,17470	587,35	1174,70	± 0,53
50	1,19397	596,99	1193,97	± 0,55
55	1,21321	606,60	1213,21	± 0,58
60	1,23242	616,21	1232,42	± 0,60
65	1,25160	625,80	1251,60	± 0,63
70	1,27075	635,38	1270,75	± 0,65
75	1,28987	644,94	1289,87	± 0,70
80	1,30897	654,48	1308,97	± 0,73

Dimensions



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
TUTSN-PXX0-150	Bag (1 pc.)	170	53	36	0,34 kg	0,51 kg
	Carton (15 pc.)	495	185	87	5,1 kg	7,78 kg
	Box (180 pcs.)	580	370	500	6,12 kg	94,46kg
TUTSN-PXX0-250	Bag (1 pc.)	170	53	36	0,37 kg	0,54 kg
	Carton (10 pc.)	495	185	87	5,1 kg	5,53 kg
	Box (120 pcs.)	590	380	505	44,4 kg	67,46 kg