

# TUTSN-P

## 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 <sup>2</sup>
	Tensile forces	< 5 N
Self-heating	≤ 0,5 K/mW in air flow 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
<b>TUTSN-P500-150</b>	PT500	< 300 mm	150 mm
<b>TUTSN-P500-250</b>	PT500	> 300 mm	250 mm
<b>TUTSN-P1K0-150</b>	PT1000	< 300 mm	150 mm
<b>TUTSN-P1K0-250</b>	PT1000	> 300 mm	250 mm

### Area of use

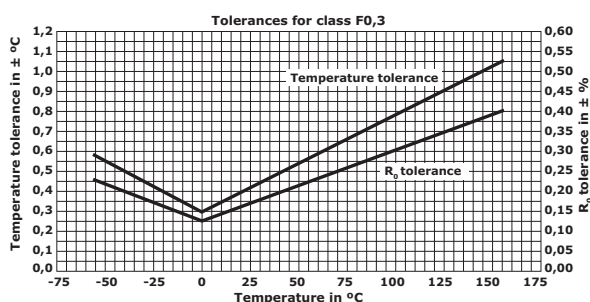
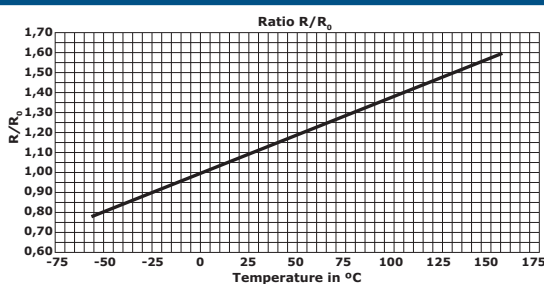
- HVAC applications for temperature measurements
- Non-corrosive, dry environment only

### Standards

- IEC 60751 /DIN EN 60751
- 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-P

Temperature probe

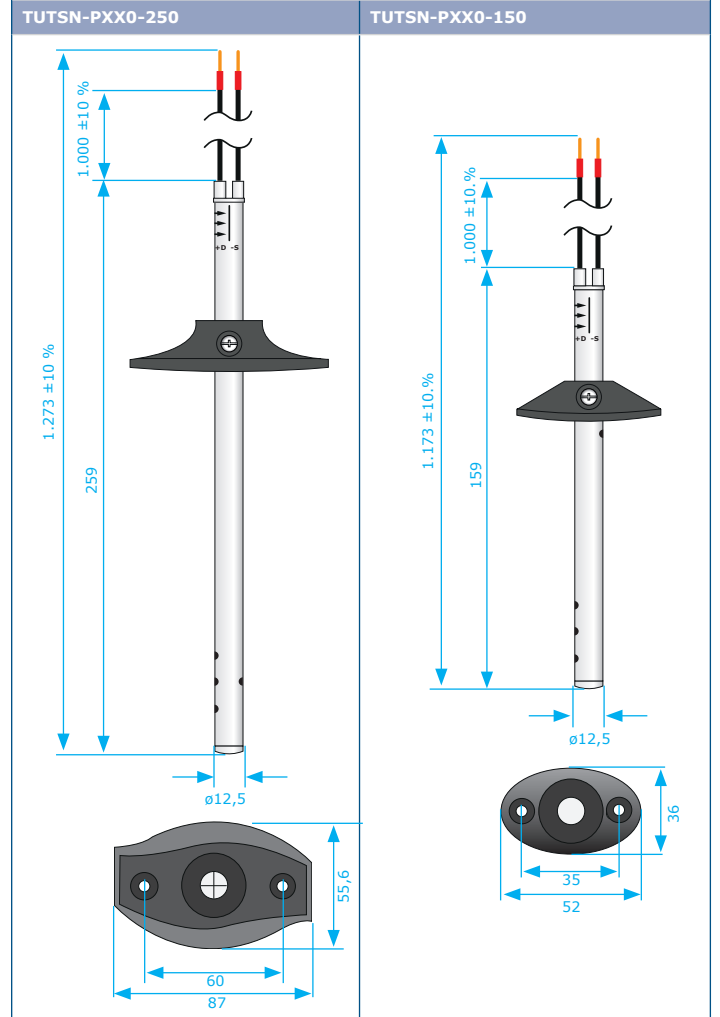
## Nominal resistance values

Temp. °C	R/R0 ratio	Class F0.3		
		R0 500 Ω	R0 1.000 Ω	T <sub>tol.</sub> °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

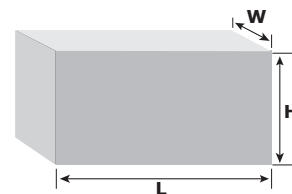
## Global trade item numbers (GTIN)

Packaging	Unit	Box
<b>TUTSN-P1K0-150</b>	05401003017081	05401003503157
<b>TUTSN-P1K0-250</b>	05401003017098	05401003503164
<b>TUTSN-P500-150</b>	05401003017104	05401003503171
<b>TUTSN-P500-250</b>	05401003017111	05401003503188

## Dimensions



## Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
<b>TUTSN-PXX0-150</b>	Bag (1 pc.)	170	53	36	0,067 kg	0,071 kg
	Carton (15 pc.)	495	185	87	1,005 kg	1,215 kg
	Box (180 pcs.)	580	370	500	6,03 kg	8,28 kg
<b>TUTSN-PXX0-250</b>	Bag (1 pc.)	170	53	36	0,05 kg	0,052 kg
	Carton (10 pc.)	495	185	87	0,5 kg	0,67 kg
	Box (120 pcs.)	590	380	505	3,00 kg	5,01 kg