

Temperature sensors of machinery and device parts **TOPWO-2, TTJWO-2, TTKWO-2**

Technical description

Measuring range / sensing element		
(-50 ÷ 400) °C	Pt100	class B
(-40 ÷ 400) °C	J, K	class 2
Sheath		
– material: steel 1.4541		
– diameter [mm]: $\varnothing 5$		
– length [mm]: 10		
– spring diameter [mm]: $\varnothing 5$		
– spherical tip (K), flat (P) or conical		
– bayonet handle with connector - nickel-plated brass		
Lead wire		
– Cu wire or thermocouple wire: 2x0,22 mm ²		
– fiberglass insulation with metal braid		
– flexible protective hose, stainless $\varnothing 7/\varnothing 5$ mm		
– measuring junction for TC: insulated SO		
– length $L_p = 1,5m$ (standard)		
– wires resistance Cu $\sim 0,14 \Omega/m \sim 0,36 \text{ }^\circ\text{C}$		
Options		
– Pt500, Pt1000, Ni100, Ni1000		
– measuring junction for TC: grounded SP		
– 3-, 4-wire connection for RTD		
– Pt100: class A (-30 ÷ 300) °C, class AA (0 ÷ 150) °C; TC: class 1		
– other threads - inch: G $\frac{1}{2}$; G $\frac{3}{8}$ metric: M12x1,25; M12x1,5; M12x1,75; M16x1,5		

Response time T05/T09

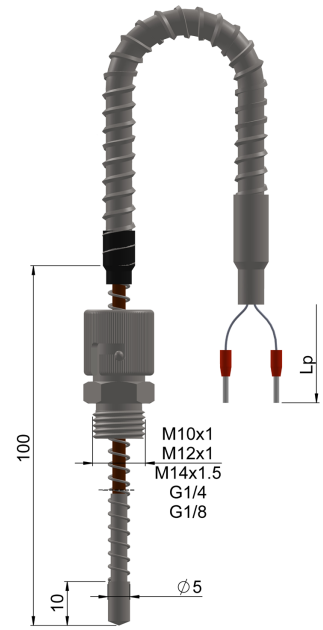
Sensor type	$\varnothing 9$	$\varnothing 11$
Pt	$\leq 33/\leq 95$	$\leq 40/\leq 120$
J, K insulated junction	$\leq 22/\leq 62$	$\leq 27/\leq 90$
J, K grounded junction	$\leq 3/\leq 8$	$\leq 6/\leq 15$

Resistors tolerance acc. to PN-EN 60751

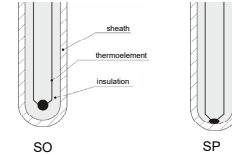
Class	Wire wound resistor	
	Range [°C]	Tolerance [°C]
AA	(-50÷250)	$\pm(0,1+0,0017 \cdot t)$
A	(-100÷450)	$\pm(0,15+0,002 \cdot t)$
B	(-196÷600)	$\pm(0,3+0,005 \cdot t)$

Tolerance for thermocouples class acc to. PN-EN 60584

Thermocouple	Class 1		Class 2	
	Range [°C]	Tolerance [°C]	Range [°C]	Tolerance [°C]
J Fe-CuNi	(-40÷375) (375÷750)	$\pm 1,5$ $\pm 0,004 t $	(-40÷333) (333÷750)	$\pm 2,5$ $\pm 0,0075 t $
K NiCr-NiAl	(-40÷375) (375÷1000)	$\pm 1,5$ $\pm 0,004 t $	from (-40÷333) (333÷1200)	$\pm 2,5$ $\pm 0,0075 t $



Types of measuring hot junction



Ordering code

Temperature sensor	T	...	WO-2	-
Resistor Pt	OP									
Thermocouple Fe-CuNi	TJ									
Thermocouple NiCr-NiAl	TK									
Tip: flat							P			
Tip: spherical							K			
Tip: conical							S			
Thread dimension							G$\frac{1}{2}$; M10x1*			
Resistor type							Pt100*			
Junction insulated from the sheath		for					SO			
Junction grounded		TC					SP			
Resistor class									A, B*	
Thermocouple class									1, 2	
Measuring circuit for RTD									2, 3, 4	
Cable length L_p [m]										1,5m*

* or others acc. to requirements

Ordering example

TTJWO-2-K-M12x1-SO-2-1,5m single thermocouple sensor Fe-CuNi, class 2, with thread M12x1, isolated junction, lead wire length $L_p = 1,5m$

TOPWO-2-P-M10x1-2-2m single sensor Pt100, class B, with thread M10x1, lead wire length $L_p = 2m$