THERMOCONT TSP

Encapsulated Temperature Sensors

The wide range of **THERMOCONT** temperature sensors covers almost all demands in the area of industrial temperature measurement. The numerous versions and multiple kinds of applicable probes make **THERMOCONT** a suitable choice for all industries.

The **THERMOCONT TSP** sensors are installed in various kinds of mediums *(e.g., liquids, gas, fumes)* inside pipes, tanks and furnaces. PFA-coated probe versions having a steel flange with a PTFE-insert can be used in chemical and petrochemical applications where aggressive mediums could damage the steel probes. The shock-proof stainless steel construction includes the inner and external *(double)* tube and the welded flange.

FEATURES

- Single or dual Pt100 sensor versions
- 2 or 4-wire types
- Double sensor protection tube
- Fast response sensor version
- Plastic-coated or stainless steel protection tub
- Up to 3 m (9.8 ft) insertion length
- Vibration-resistant version
- Explosion-proof variants
- Can be mounted to special technological places, tanks, tubes, furnaces or boilers
- Special versions for unique applications

APPLICATIONS

- Temperature measurement of liquids, gases, vapors
- Coated version for temperature measurement in aggressive media
- Construction Materials
- Chemical Industry
- Food & Beverage
- Oil Industry
- Metallurgy
- Recycling

CERTIFICATES

- ATEX (Ex ia G / Ex d G / Ex d ia G)

TSP
– standard
temperature sensor

TECHNICAL DATA

		THERMOCONT T			
		Standard [TSP]	**Vibration-resistant [TSV]**	**Fast response [TSG]**	**Plastic-coated [TPP]**
Sensor	Accuracy class [1]	"A" or "B" accuracy class in accordance to EN 60751			
	Type	Single or dual		Single-sensor only	Single or dual
	Vibration resistance	–	EN 60751.4.4.2	–	
	Grounding	Ground-independent			
	Material of inner protective tube	A38			
Head	Housing material	Painted EN AC 44100 aluminum			
	Cable gland	M20×1.5 plastic			
	Cable	Ø6…Ø12 mm (0.236…0.472"), see "Ex Information"			
	Electrical connection	Terminal with fixing screw			
External Protection	Material	1.4571 stainless steel			PFA / (PTFE / PVDF)
	Probe length	60…3000 mm (2.4"…10 ft)			
	Process connection	As per order code			
General data	Range	−50…+600 °C (−58…+1112 °F)			−50…+200 °C (−58…+392 °F)
	Medium pressure	25 bar (363 psi) at +20 °C (+68 °F); 16 bar (232 psi) at +400 °C (752 °F)			1 bar (14.5 psi)
	Time-constant	< 3 min		< 20 s	4.5 min
	Ambient temperature	−20…+80 °C (−4…+176 °F), see "Ex Information"			
	Grounding	External, grounding screw on the housing			
	Electrical protection	Class III			
	Ingress protection	IP65			
	Ex marking	See "Ex information" for TS / TP types table			
	Ex Information				

[1] In standard temperature ranges *(below +400 °C [+752 °F])*, the margin of error for class "A" resistance temperature sensors is below ±1 °C *(±1.8 °F)*; in the case of class "B" temperature sensors, it is ±2.3 °C *(±39.4 °F)* maximum.

Temperature Classes					
T6	**T5**	**T4**	**T3**	**T2**	**T1**
Ambient temperature from −20 °C (−4 °F)					
+65 °C (+149 °F)	+70 °C (+158 °F)		+80 °C (+176 °F)		
Process temperature from −20 °C (−4 °F)					
+85 °C (+185 °F)	+100 °C (+212 °F)	+135 °C (+275 °F)	+200 °C (+392 °F)	+300 °C (+572 °F)	+450 °C (+842 °F)

5 YEARS WARRANTY

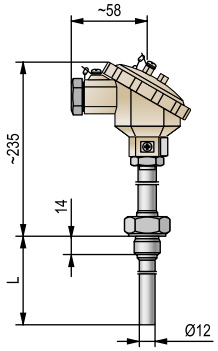
TEMPERATURE MEASUREMENT

NIVELCO

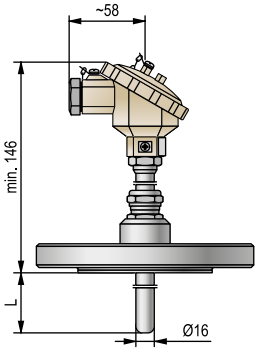
Ex INFORMATION

	TSG–□□□–□ Ex	TP□–□□□–□ Ex	TS□–□□□–□ Ex (except: TSG)
Ex marking (ATEX)	⟨Ex⟩ II 1 G Ex ia IIC T6…T1 Ga	⟨Ex⟩ II 1 G Ex ia IIB T6…T1 Ga ⟨Ex⟩ II 1/2 G Ex d ia IIB T6…T1 Ga/Gb	⟨Ex⟩ II 1 G Ex ia IIC T6…T1 Ga
Intrinsic safety data	U_{imax} = 30 V; I_{imax} = 100 mA; P_{imax} = 750 mW; C_i = 0 nF; L_i = 0 mH	U_{imax} = 30 V; I_{imax} = 140 mA; P_{imax} = 1 W; C_i = 0 nF; L_i = 0 mH	U_{imax} = 30 V; I_{imax} = 100 mA; P_{imax} = 750 mW; C_i = 0 nF; L_i = 0 mH
Ex marking (ATEX)		⟨Ex⟩ II 2 G Ex d IIB T6…T1 Gb	⟨Ex⟩ II 2 G Ex d IIB T6…T1 Gb
Intrinsic safety data		U_{imax} = 30 V; I_{imax} = 140 mA	
Ex marking (ATEX)			⟨Ex⟩ II 1/2 G Ex d ia IIB T6…T1 Ga/Gb
Intrinsic safety data			U_{imax} = 30 V; I_{imax} = 140 mA; P_{imax} = 1 W; C_i =0 nF; L_i =0 mH
Electrical protection	Class III		
Ingress protection	IP67		
Electrical connection	Wire cross section: 0.5…1.5 mm² (AWG20…16)		
Housing	Painted aluminum *(EN AC 43100)*		
Cable length	**Ex ia:** Ø6…Ø12 mm (0.236…0.472"); **Ex d, Ex d ia:** Ø7…Ø12 mm (0.275…0.472")		

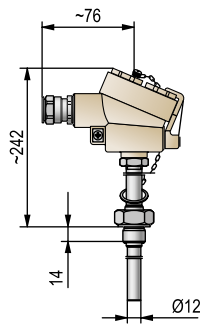
DIMENSIONS



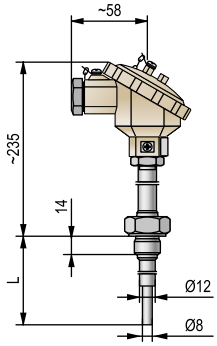
TSP / TSV–□□□



TPP–□□□



TSP / TSV–□□□–8 Ex
TSP / TSV–□□□–9 Ex



TSG–□□□

ORDER CODES *(NOT ALL COMBINATIONS AVAILABLE)*

Encapsulated temperature sensor

THERMOCONT T□□–□□□–□ [1]

Version	Code
1.4571 (stainless steel)	S
PFA/(PTFE or PVDF)-coated stainless steel [2]	P

Sensor / Version	Code
Pt100	P
Pt100 / Shock-proof	V
Pt100 / Fast response [3]	G
Pt100 / Shock-proof, dismountable [4]	B

Process connection [5]	Code
Flange DN25 PN25, KO35	0
M20×1.5 external thread	1
½" BSP	2
½" NPT	3
⅜" BSP	4
Flange DN40 PN25/16, A38	5
Flange DN50 PN25/16, A38	6
Flange DN80 PN25/16, A38	7
Flange DN100 PN25, A38	8
Flange DN150 PN25, A38	9

Pt100 Sensor	Code
Class "A"	1
Class "B"	2
Class "A", dual	4
Class "B", dual	5
Class "B" + 4-wire	6
Class "A" + 4-wire	7

Code	Probe length [5]		Code
0	60 mm (2.4")	1000 mm (39.4")	5
1	160 mm (6.3")	1500 mm (59.1")	6
2	250 mm (9.8")	2000 mm (78.7")	7
3	400 mm (15.7")	2500 mm (98.4")	8
4	500 mm (19.7")	3000 mm (118")	9

Ex certificate	Code
–	0
Ex ia G	7
Ex d ia G	8
Ex d G	9

[1] The order code of an Ex version product should end in "Ex".
[2] Only with flange and M20×1.5 or ½" process connection.
[3] Only Ex ia version is available.
[4] Ex version available soon.
[5] On request: other process connections and probe lengths.

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