

THERMOCONT TT

TEMPERATURE TRANSMITTERS



5 YEARS WARRANTY

PIVETCO

TEMPERATURE MEASUREMENT

THERMOCONT TT field devices, incorporating a Pt100 sensor, are 2-wire temperature transmitters with a 4...20 mA analog output or transmitter/indicator if equipped with a plug-in display. Intrinsically safe versions are available in standard and flame-proof housing.

The measured temperature can also be transmitted via HART®. **THERMOCONT TT** Temperature Transmitters are suitable for measuring the temperature of liquids in tanks and pipes and that of free-flowing, powdered solids and gases. Wall-mounted versions are available for ambient temperature measurement. The PFA-coated stainless steel probes can be used to measure the temperature of aggressive materials. The reinforced probe version is an ideal solution for the oil, gas, and heavy chemical industries and also an excellent choice for jobs where a robust probe is advantageous. A remote version of the transmitter is also available, which can be connected to a standard Pt100 sensor with a simple 4-wire cable.

FEATURES

- Temperature transmitting and displaying
- Measuring range: $-50...+600\text{ }^{\circ}\text{C}$ ($-58...+1112\text{ }^{\circ}\text{F}$)
- 4...20 mA output
- HART® communication
- Variety of head positions
- Stainless steel probe
- Plastic-coated version
- Flame-proof casing
- Plug-in display
- Strengthened probe version
- Ex variants
- IP65

APPLICATIONS

- For normal and hazardous mediums
- For temperature metering of liquids, vapors, gases and granules, powders
- Temperature transmitting for far distances
- Temperature metering in tanks, tubes, furnaces or boilers
- Temperature metering of halls or rooms



CERTIFICATES

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



SAP-202 display

POSITION OF THE DISPLAY



Requested head position differing from standard ("A") version must be requested in the order

TECHNICAL DATA

			Standard version [T□□, TB□]	High-temperature version [TV□, TL□]	Plastic-coated version [TR□, TW□]	Strengthened probe version [T□S, T□Z]
Measuring Range			−50...+200 °C (−58...+392 °F), T□W: −40 °C...+70 °C (−40...+158 °F)	−50...+600 °C (−58...+1112 °F) ⁽¹⁾	−50...+200 °C (−58...+392 °F)	−50...+600 °C (−58...+1112 °F) ⁽¹⁾
Insertion length			As per order code, up to 3000 mm (10 ft)			
Process connection			As per order code			
Highest process pressure			25 bar (363 psi) @ +20 °C (+68 °F), 16 bar (232 psi) @ +400 °C (+752 °F)			
Material of wetted parts ⁽²⁾			1.4571 (316Ti) stainless steel		PFA / (PTFE or PVDF)	1.4571 (316Ti) stainless steel
Probe			Class "A" or Class "B" Pt100 temperature sensor, as per order code			
Accuracy ⁽³⁾	Output current	Class "A" Pt100	± (0.3 + 0.0025 t) °C	± (1.5 + 0.004 t) °C	± (0.3 + 0.0025 t) °C	
		Class "B" Pt100	± (0.4 + 0.0055 t) °C	± (1.5 + 0.006 t) °C	± (0.4 + 0.0055 t) °C	
		Temperature error	± 0.02 °C / °C			
	Displayed current	Class "A" Pt100	± (0.2 + 0.0025 t) °C	± (1.5 + 0.004 t) °C	± (0.2 + 0.0025 t) °C	
		Class "B" Pt100	± (0.35 + 0.0055 t) °C	± (1.5 + 0.006 t) °C	± (0.35 + 0.0055 t) °C	
		Temperature error	±0.002 °C / °C			
Supply voltage			10...36 V DC; Ex: 12...30 V DC, see "Ex information"			
Output	Analog		4...20 mA			
	Digital communication		HART®			
	Output load		R _{max} = [(U _{Supply} − U _{Supply min.})/0.02 A], [Ω]			
	Display	type	SAP−202			
		resolution	0.1 °C	0.4 °C	0.1 °C	
Error indication			3.8 mA / 22 mA			
Ambient temperature			−40...+70 °C (−40...+158 °F), with display: −25...+70 °C (−13...+158 °F); see "Ex information"			
Electrical protection			Class III			
Ingress protection			IP65			
Electrical connection			Plastic or metal cable gland: M20×1.5; Cable outer diameter: Ø6...Ø12 mm (Ø276...Ø512"); / see "Ex information" Wire cross section: 0.25...1.5 mm ² (AWG20...16)			
Housing material			Painted aluminum or plastic (PBT)	Painted aluminum	Painted aluminum or plastic (PBT)	Painted aluminum
Weight	with aluminum housing		~900 g (~2 lb) + probe 500 g/m (0.33 lb/ft) (for T□W ... types ~900 g [~2 lb] total)			~1.55 kg (~3.45 lb) + probe 0.25 kg / 100 mm (1.68 lb/ft)
	with plastic housing		~500 g (~1.1 lb) + probe 500 g/m (0.33 lb/ft) (for T□W types ~500 g [~1.1 lb] total)	–	~500 g (~1.1 lb) + probe 500 g/m (0.33 lb/ft) (for T□W types ~500 g [~1.1 lb] total)	–

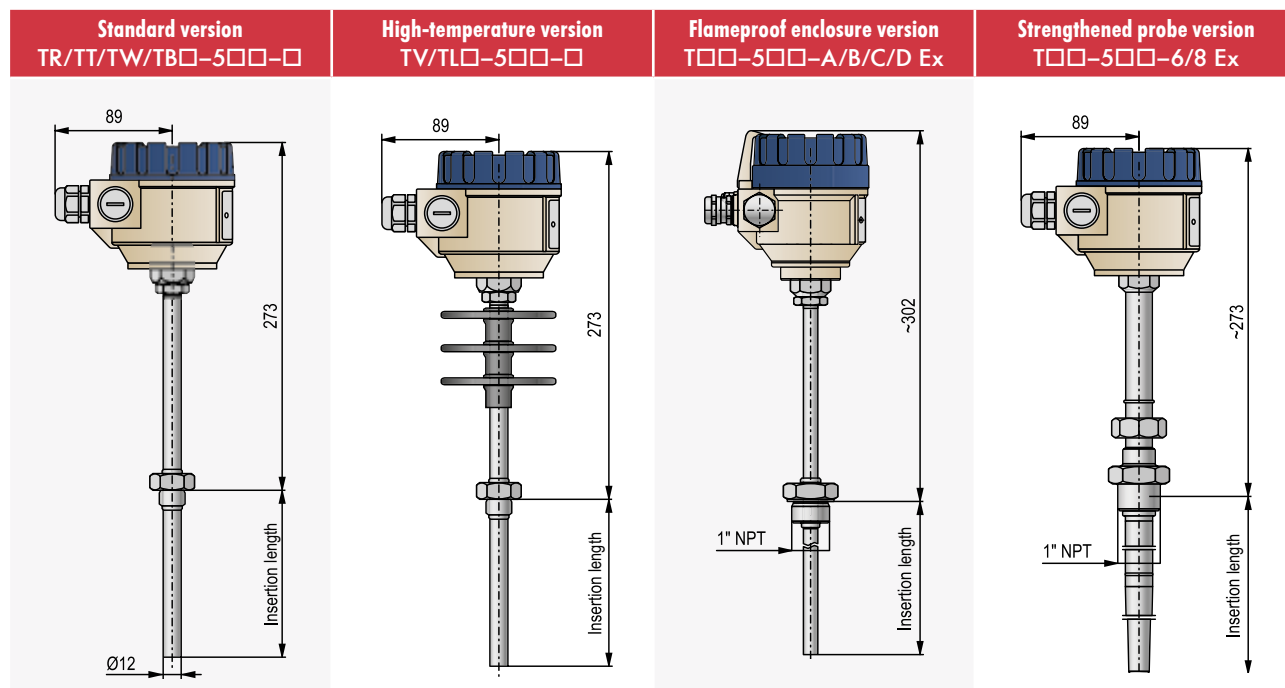
⁽¹⁾ With heatsink above +200 °C (+392 °F). ⁽²⁾ Not valid for T□W types. ⁽³⁾ t = measured temperature.

Ex INFORMATION

T□□–5□□–□ Ex				
	Protection	Intrinsic safety	Flameproof enclosure	Intrinsic safety with flameproof enclosure
Ex marking		II 1 G Ex ia IIB T6...T1 Ga	II 2 G Ex d IIB T6...T1 Gb	II 1/2 G Ex d ia IIB T6...T1 Ga/Gb
Intrinsic safety data		U _{max} = 30 V; I _{max} = 140 mA; P _{max} = 1.0 W; C _i < 14 nF; L _i < 180 µH;		U _{max} = 30 V; I _{max} = 140 mA; P _{max} = 1.0 W; C _i < 14 nF; L _i < 180 µH
Ambient temperature		−40...+75 °C (−40...+167 °F), with display −25...+75 °C (−13...+167 °F)		
Cable gland		Metal, M20×1.5, cable outer diameter: Ø6...Ø12 mm (0.236...0.472")	Ex d IIB certified metal M20×1.5, cable outer diameter: Ø9...Ø11 mm (0.354...0.433")	

	Temperature classes					
	T6	T5	T4	T3	T2	T1
Ambient temperature	+60 °C (+140 °F)	+75 °C (+167 °F)		+70 °C (+158 °F)	+60 °C (+140 °F)	+45 °C (+113 °F)
Process temperature	+80 °C (+176 °F)	+95 °C (+203 °F)	+120 °C (+248 °F)	+190 °C (+374 °F)	+290 °C (+554 °F)	+440 °C (+824 °F)

DIMENSIONS



ORDER CODES (NOT ALL COMBINATIONS AVAILABLE)

2-wire compact temperature transmitter

THERMOCONT T ■ ■ ■ ■ ■ ■ ■ ■ (1)

Version	Code	Process connection	Code	Sensor	Code	Code	Probe length	Code	Output / Ex	Code	
Transmitter, up to +200 °C (+392 °F)	T	With console for wall mounting	W	–	0	0	60 mm (2.4")	1000 mm (39.4")	5	–	2
Transmitter, up to +600 °C (+1112 °F)	V	½" BSP	C	Class "A" Pt100	1	1	160 mm (6.3")	1500 mm (59.1")	6	/ Ex ia G	6
Transmitter, up to +200 °C (+392 °F), PFA-coated	W	¾" BSP	D	Class "B" Pt100	2	2	250 mm (9.8")	2000 mm (78.7")	7	/ Ex d G	A
Transmitter with local LCD, up to +200 °C (+392 °F)	B	1" BSP	E			3	400 mm (15.7")	2500 mm (98.4")	8	/ Ex d ia G	C
Transmitter with local LCD, up to +200 °C (+392 °F), PFA-coated	R	½" NPT	H			4	500 mm (19.7")	3000 mm (118")	9	–	4
		M20x1.5	J							/ Ex ia G	8
		1" TriClamp	L							/ Ex d G	B
		1½" TriClamp	K							/ Ex d ia G	D
		2" TriClamp	N								
		DN25 Pipe coupling (DIN 11851)	O								
		DN40 Pipe coupling (DIN 11851)	P								
		DN50 Pipe coupling (DIN 11851)	R								
		DN50, PN16, 1.4571 flange + PTFE lining ⁽²⁾	F								
		2" ANSI, 1.4571 flange + PTFE lining ⁽²⁾	A								
		1" NPT ⁽³⁾	S								
		½" NPT ⁽³⁾	Z								
		Stainless steel flanges; welded ⁽⁴⁾	U								

(1) The order code of an Ex version product should end in "Ex".

(2) Only for coated probe versions.

(3) Only for strengthened probe version.

(4) MFT-□□□□-H type flanges (available from size DN15) should be ordered separately.

(5) Only for +200 °C (+392 °F) versions, not available in Ex version.

ACCESSORIES

Description	Code
Plug-in display module	SAP-202-0
HART®-USB modem	SAT-304-0
HART®-USB/Bluetooth® modem	SAT-504-■
HART®-USB/RS485 modem	SAK-305-2
HART®-USB/RS485 modem / Ex ia G	SAK-305-6

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