

Model T3000

Resistance Temperature Transmitters

Description

The T3000-series is a robust temperature transmitter using a RTD (resistance temperature detector) as the sensing element. This RTD is a Pt100 which is a temperature sensitive platinum with a resistance of 100Ω at 0°C, and the resistance changes proportionally according to the measuring temperature.

This series is designed for directly screw-fitting onto vessels or pipelines in order to have a simple installation into the process control system.

The T3000-series have four different types. Type a, T3000(a), is the most simple-structure one. Type b has an extension neck which make this type able to measure the media with higher temperature than the type a does.

Type c and type d are developed from the type a and type b respectively. These two types have a stainless-steel protection sleeve over the insertion probe, so the interchangeable insertion probe can be dismounted from the protection sleeve even when the transmitter has been installed in field. This enables inspecting, maintaining, or replacing the transmitter while the plant is running.

Thanks to various constructions and possibility of customized the insertion probe length, the neck length, and threads of mechanical interface, the 3000T-series can meet different needs in the respective application.



Features

- measuring range: -200 ~ +800°C
- accuracy: 0.15%fs
- interchangeable insertion probe of type c and d
- robust housing

Applications

- process control
- machine building
- chemical industry
- food and beverage industry

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Technical Data

Parameters	Units	Specifications	Notes
pressure medium		gases or liquids	1
measuring range	°C	-200 ~ +800	2
temperature sensor		Pt100	
pressure resistance	bar	600	
output signal	mA	4~20 (standard)	
	Ω	resistance output available on request	
accuracy	%fs	±0.15	3
power supply (Vs)	Vdc	24Vdc typical, $16 < V_s \leq 36$	
load resistance for current loop	Ω	$\leq (V_s - 16V) / 0.02A$	
medium temperature range	°C	-200 ~ +800	4
operating temperature range	°C	-10 ~ +60	
storage temperature range	°C	-10 ~ +70	
temperature coefficient	%fso/°C	$\leq \pm 0.0001$	
compensation		error $\leq \pm 0.5^\circ\text{C}$ at $25 \pm 10^\circ\text{C}$	
response time	ms	≤ 300	5
span adjustment	%fs	≤ 10	
zero adjustment	%fs	≤ 5	
output ripple of 4~20mA	%fs	≤ 0.3	
open circuit protection	mA	> 22	
mechanical interface		refer to Options of Dimensions on the 4th page	
electrical interface		terminal connections (standard)	
		customized interface available on request	
wetted parts material		stainless steel	
electronic housing material		aluminum alloy	
environment protection		IP65 (standard), IP66	

General conditions for measurements: ambient temp. = $25^\circ\text{C} \pm 1^\circ\text{C}$, humidity = 20~95%RH.

- Notes:
1. The pressure medium should be compatible with wetted parts material and pressure diaphragm.
 2. Type a and type c are not suitable for applications which has media temperature over 80°C . For such a case, type b and type d with a proper length of the extension neck are suitable.
 3. "fs" refers to full scale pressure or rated pressure.
 4. Including non-linearity, hysteresis and repeatability.
 5. Response time for a 0 bar to fs step change, 10% to 90% rise time.

The listed specifications and dimensions are subject to change without prior notice.

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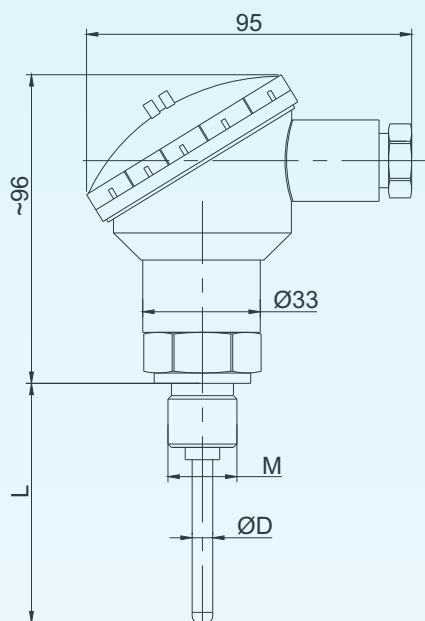
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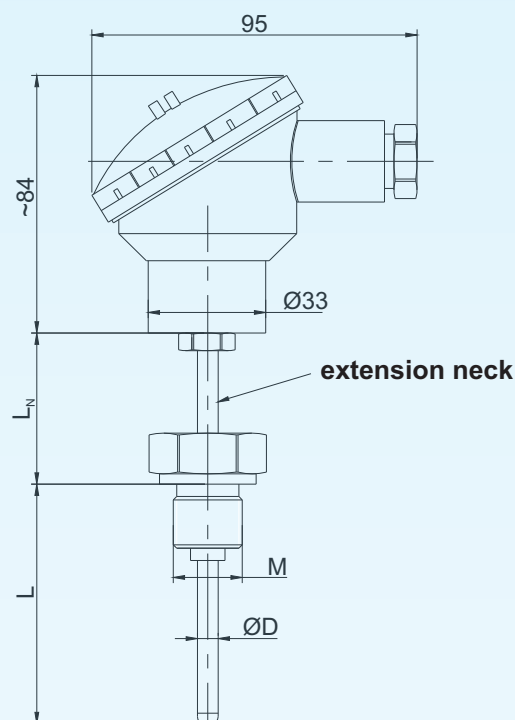
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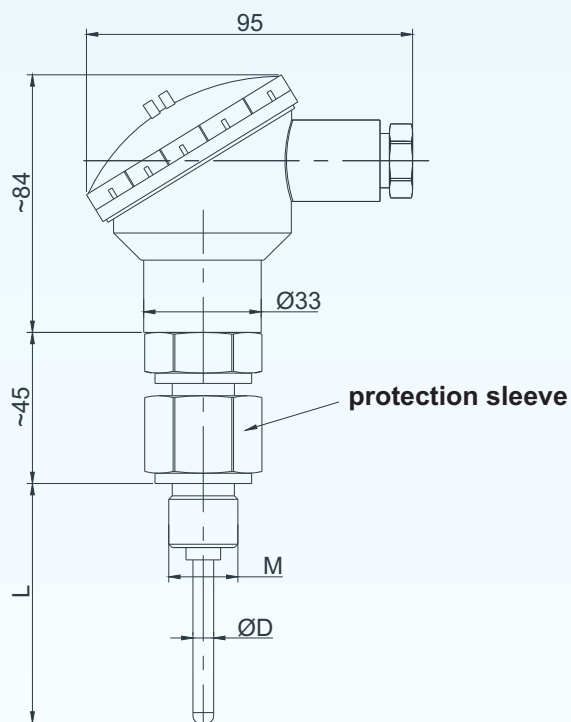
Dimensions



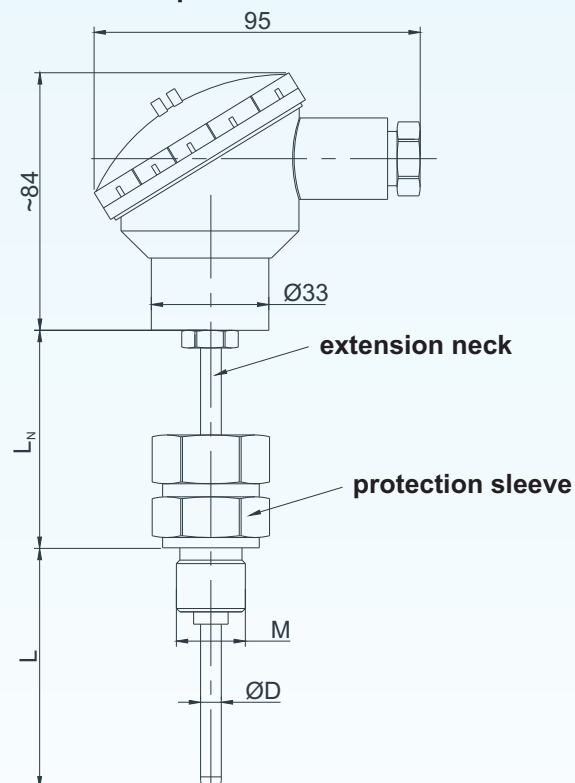
**type a: without extension neck
and protection sleeve**



**type b: with extension neck
but without protection sleeve**



**type c: without extension neck
but with protection sleeve**



**type d: with both extension neck
and protection sleeve**

Notes: 1. All dimensions are in mm.
2. "L" can not be over 2000mm.

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Options of Dimensions

Items	Indications in Drawing	Options
diameter of insertion probe or protection sleeve	D	6mm
		8mm
		10mm
		customized diameter
length of insertion probe or protection sleeve	L	customized length
length of extension neck	L _N	customized length
mechanical interface	M	G1/2-B
		G1/4-A
		G3/8-A
		R1/4
		1/4-18NPT
		M20x1.5
		1/8-27NPT
		R3/8
		R1/2
		3/8-18NPT
		1/2-14NPT
		customized threads available on request

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Ordering Information

position (pos.) 1: models										
T3000(a): type a			T3000(b): type b			T3000(c): type c			T3000(d): type d	
pos. 2: measuring range										
(-200/+800)°C (standard)										
(Tmin/Tmax)°C: fill in the minimum measuring temperature (Tmin) and the maximum measuring temperature (Tmax).										
Tmin ≥ -200°C; Tmax ≤ +800°C.										
pos. 3: output signal										
4/20mA (standard)					R: resistance output					
pos. 4: accuracy										
0.15%fs										
pos. 5: diameter of insertion probe or protection sleeve										
6: 6mm (standard)			8: 8mm			10: 10mm				
customized diameter available on request										
pos. 6: length of insertion probe or protection sleeve										
customized length (in mm): ≤ 2000mm										
e.g., 500: 500mm										
pos. 7: mechanical interface										
G1/2-B (standard)					M20x1.5					
G1/4-A					1/4-18NPT					
G3/8-A					1/8-27NPT					
R1/4					3/8-18NPT					
R3/8					1/2-14NPT					
R1/2					customized threads available on request					
pos. 8: length of extension neck of type b and d										
customized length (in mm)										
e.g., 300: 300mm										
pos. 9: electrical interface										
T: terminal connections										
customized interface is available on request										
pos. 10: environment protection										
IP65 (standard)					IP66					
pos. 11: customized specifications										
“(*)” is necessary only if any customized parameter is required, otherwise it is neglectable.										
pos.1	pos. 2	pos. 3	pos. 4	pos. 5	pos. 6	pos. 7	pos. 8	pos. 9	pos. 10	pos. 11

Examples of Ordering Code

- type a:

T3000(a)-(0/600)°C-4/20mA-0.15%fs-6-500-(G1/2-B)-T-IP65

- type d:

T3000(d)-(0/600)°C-4/20mA-0.15%fs-6-600-(M20x1.5)-300-T-IP65

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