

Temperature switch for monitoring of process temperatures

Thermophant T TTR31



€ 169.-
11-35 pcs.

Complete product information:
www.e-direct.endress.com/ttr31

- High reproducibility and long-term stability
- Stainless steel housing 316L
- Fast response times without reduced tip

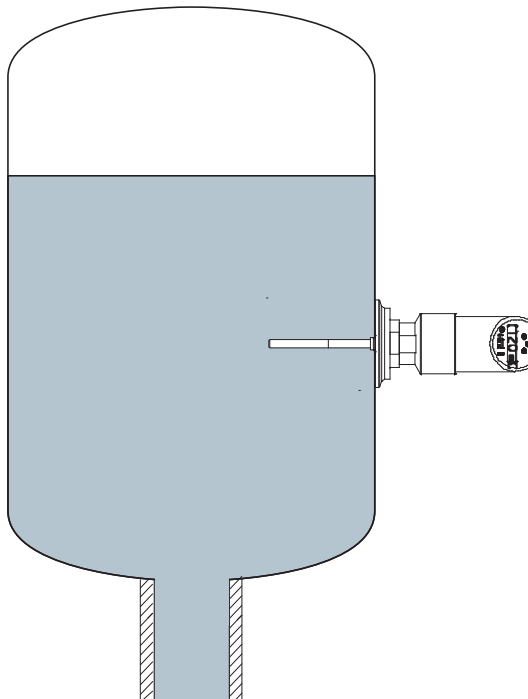
i Specs at a glance:

- **Temperature range:**
-50 to +150 °C (-58 to 302 °F)
- **Display:**
4 digit, 14 segments display with color change
- **Immersion length:**
50 mm, 100 mm, 200 mm (1.97", 3.94", 7.87")
- **Response time:**
<1.0 s (T₅₀); <2.0 s (T₉₀)
- **Sensor:**
Ø 6 mm (0.24")
- **Accuracy:**
<0.1 %

Application The Thermophant T TTR31 is a temperature switch for the monitoring, display and control of process temperatures and is available with a wide range of process connections.

Function A platinum sensor located at the measuring tip changes its resistance value depending on the temperature. This resistance value is recorded electronically. The conversion of the resistance value into a temperature measurement signal is defined by the international standard IEC 751.

Application example



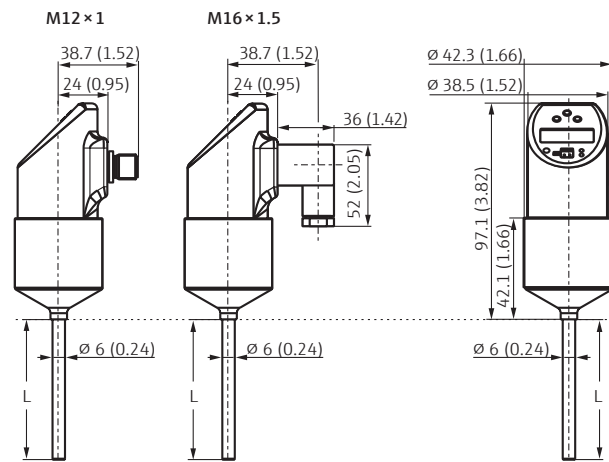
The Thermophant detects the temperature in the vessel and monitors the compliance with limit values.

Technical data

Supply voltage	
Supply voltage	12 to 30 V DC (reverse polarity protection)
Current consumption	Without load <60 mA, reverse polarity protection
Output	
Output signal	1 or 2 × PNP or PNP with 4 to 20 mA
Voltage drop PNP	≤2 V
Overload protection	Automatic testing of switching current
Performance characteristics	
Reference conditions	According to DIN IEC 60770/61003
Measured error	Electronics max. 0.2 K or 0.16 % sensor Class A
Long-term drift	≤0.1 % per year
Sensor response time	T ₅₀ = <1.0 s; T ₉₀ = <2.0 s
Analog output	Non-linearity ≤0.2 %
Sensor	
Sensing element	1 × Pt100, four-wire
Tolerance	Class A to IEC 751
Medium temperature	-50 to +150 °C (-58 to 302 °F)
Diameter	6 mm (0.24")
Operating conditions	
Ambient temperature	-40 to +85 °C (-40 to +185 °F)
Protection	IP 65 (complete housing)
EMC	Interference emiss. as per IEC 61326 Series, class B electrical equipment, interference immunity as per IEC 61326 Series, app. A (indust. use) and NAMUR Recomm. NE 21
Materials	
Process connection and protection pipe	316L/R _a ≤0.8 µm; housing 316L
Operation	
Operating elements	3 buttons or PC and software
Approvals	
Desina compliant	

Dimensions in mm (inches)

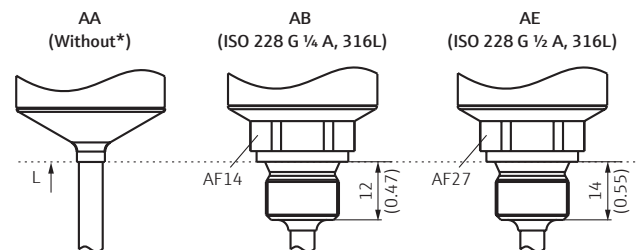
Housing



L = sensor length 50 mm / 100 mm / 200 mm (1.97"/3.94"/7.87")

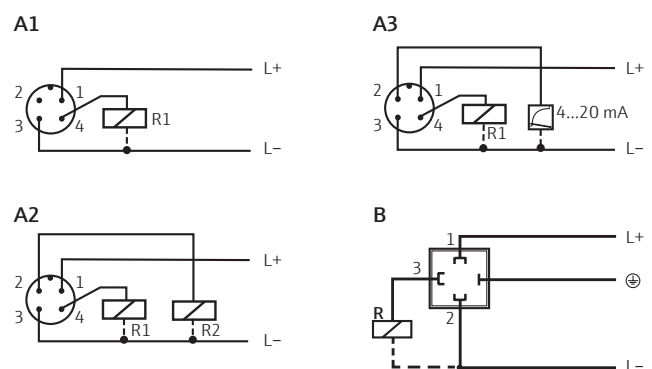
Installation according to instruction manual.

Process connections



* For mounting with welding boss or compression fitting: L ≥ 100 mm (3.94")

Electrical connection



DC Voltage version with M12 connector

- A1: 1 × PNP switch output
- A2: 2 × PNP switch output
- A3: PNP switch output with additional analog output

DC Voltage version with M16×1.5 connector

- B: 1 × PNP switch output

Price table

Insertion length

Code	Length
1B	50 mm (1.97")
2C	100 mm (3.94")

Thermophant T TTR31				Order no.	Price/pcs. in €		
Output	Length	Plug	Process Connection		1 to 3	4 to 10	11 to 35
1 × PNP	100 mm	M12×1**	Without	TTR31-A1A111AA2CAB	192.-	179.-	169.-
		M16×1.5	Without	TTR31-A2A111AA2CAB	192.-	179.-	169.-
	50/100 mm	M12×1**	G¼ A, 316L	TTR31-A1A111AB <input type="checkbox"/> AB	197.-	184.-	174.-
		M16×1.5	G¼ A, 316L	TTR31-A2A111AB <input type="checkbox"/> AB	197.-	184.-	174.-
		M12×1**	G½ A, 316L	TTR31-A1A111AE <input type="checkbox"/> AB	197.-	184.-	174.-
		M16×1.5	G½ A, 316L	TTR31-A2A111AE <input type="checkbox"/> AB	197.-	184.-	174.-
	200 mm	M12×1**	Without	TTR31-A1A111AA2EAB	201.-	187.-	177.-
		M16×1.5	Without	TTR31-A2A111AA2EAB	201.-	187.-	177.-
		M12×1**	G¼ A, 316L	TTR31-A1A111AB2EAB	206.-	191.-	181.-
		M16×1.5	G¼ A, 316L	TTR31-A2A111AB2EAB	206.-	191.-	181.-
		M12×1**	G½ A, 316L	TTR31-A1A111AE2EAB	206.-	191.-	181.-
		M16×1.5	G½ A, 316L	TTR31-A2A111AE2EAB	206.-	191.-	181.-
2 × PNP	100 mm	M12×1**	Without	TTR31-A1B111AA2CAB	209.-	194.-	184.-
		M12×1**	G¼ A, 316L	TTR31-A1B111AB <input type="checkbox"/> AB	214.-	199.-	188.-
	50/100 mm	M12×1**	G½ A, 316L	TTR31-A1B111AE <input type="checkbox"/> AB	214.-	199.-	188.-
		M12×1**	Without	TTR31-A1B111AA2EAB	218.-	202.-	191.-
		M12×1**	G¼ A, 316L	TTR31-A1B111AB2EAB	223.-	207.-	196.-
		M12×1**	G½ A, 316L	TTR31-A1B111AE2EAB	223.-	207.-	196.-
1 × PNP with analog output	100 mm	M12×1**	Without	TTR31-A1C111AA2CAB	248.-	230.-	218.-
		M12×1**	G¼ A, 316L	TTR31-A1C111AB <input type="checkbox"/> AB	253.-	235.-	222.-
	50/100 mm	M12×1**	G½ A, 316L	TTR31-A1C111AE <input type="checkbox"/> AB	253.-	235.-	222.-
		M12×1**	Without	TTR31-A1C111AA2EAB	256.-	238.-	225.-
		M12×1**	G¼ A, 316L	TTR31-A1C111AB2EAB	261.-	243.-	230.-
		M12×1**	G½ A, 316L	TTR31-A1C111AE2EAB	261.-	243.-	230.-

* Please enter code for insertion length. ** Please order cable and plug separately.

Accessories	Order no.	Price/pcs. in €
Welding boss with sealing taper	51004751	46.32
Compression Fitting TA50 6mm; G1/2"; PTFE	TA50-HP	56.44
5 m cable with M12×1 plug	51005148	9.56
Configuration kit, USB connection	TXU10-AA	99.23
Straight plug, without cable (self wired)	52006263	15.32
Angled plug, without cable (self wired)	51006327	10.11
Power supply 24 V DC, for DIN rail	RNB130-A1A	135.50

Prices are applicable for Latvia until 30.09.2019, in Euro per unit. At Endress+Hauser sales and delivery terms excluding value added tax (VAT), cost of packing and dispatch. Delivery times: 48 hours or 5 working days – please check www.e-direct.endress.com for exact delivery times. Endress+Hauser retains the right to change or modify pricing at any time. Prices can be verified prior to ordering on www.e-direct.endress.com.



Complete product information:
www.e-direct.endress.com/ttr31

More products to complete
your measuring point ...



Point level switch
Liquiphant FTL31



Pressure switch
Ceraphant PTC31B



Flow switch
Flowphant T DTT31