



Level



Pressure



Flow



Temperature



Liquid Analysis



Registration



Systems Components



Services



Solutions

Temperature transmitter with switch output for the safe measurement, monitoring and control of process temperatures

## Thermophant T TTR31

# E-direct

www.e-direct.us



- 3 button on-board programming
- Or setup via ReadWin®2000 configuration software
- High visibility digital display
- High reproducibility and long-term stability
- Stainless steel housing 316L

### Application

Temperature switch for the monitoring, display and control of process temperatures with threads or couplings in a range from -58 to +302 °F.

### Measurement principle

Electronic recording and conversion of input signals in industrial temperature measurement. 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.

### Process connection TTR31

Code	Version
DA	ANSI ¼" NPT, 316L
DE	ANSI ½" NPT, 316L

— please add to order code!

### Insertion length L/probe diameter D

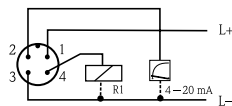
Code	Version
1B	L = 2" (50 mm), D = 0.24" (6 mm)/reduced tip (0.16"/4 mm)
2C	L = 4" (100 mm), D = 0.24" (6 mm)

— please add to order code!

<b>Output:</b> 4-20 mA with PNP switch	<b>Display:</b> 4 digit, 14 segments display with color change
<b>Immersion length:</b> 2", 4"	<b>Response time:</b> ≤ 10 s (T <sub>90</sub> )
<b>Sensor:</b> Ø 0.24"	<b>Accuracy:</b> < 0.1 %

### Electrical connection

DC Voltage version with M12x1.5 connector  
1 x PNP with 4-20 mA



# Thermophant T TTR31

## Technical data

### Supply voltage

- Power supply  $U_b$  12 - 30 VDC
- Current consumption without load < 60 mA, reverse polarity protection

### Output

- Output signal 2 x PNP
- Voltage drop PNP  $\leq 2$  V
- Overload protection automatic testing of switching current
- Input SPS  $R_i \leq 2$  k $\Omega$ ,  $I_i \geq 10$  mA

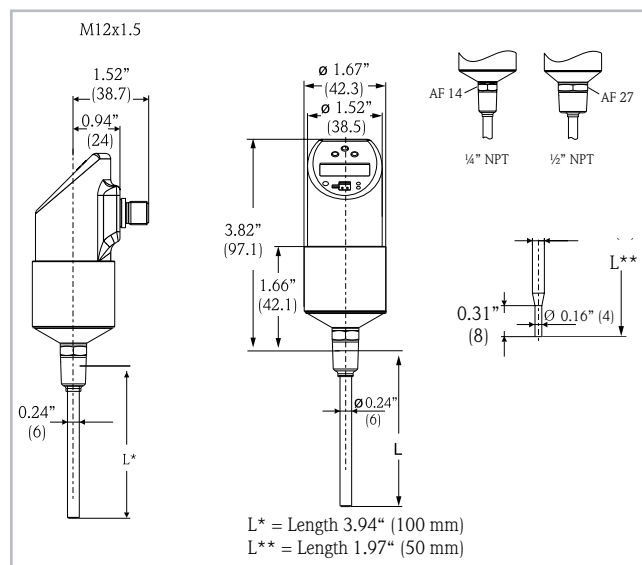
### Performance characteristics

- Reference conditions according to DIN IEC 60770/61003
- Measured error electronic max. 0.2 K or 0.16% sensor class A
- Long-term drift  $\leq 0.1$  K per year
- Sensor response time  $\leq 10$  s ( $T_{90}$ )
- Analog output switch point and display error max. +0.1%

### Operating conditions

- Ambient temperature -40 to +185 °F
- Medium temperature -58 to +302 °F
- Protection plug M12x1 connector, IP 60
- EMC interference emission as per EN 61326 class B electrical equipment; interference immunity as per EN 61326 appendix A (industrial use)

## Dimensions in inches (mm)



## Materials

Process connection and protection pipe 316L/ $R_a \leq 0.8$   $\mu$ m; Housing 316L

## Operation

- Operating elements 3 buttons or PC and ReadWin®2000 software (free download from [www.readwin2000.com](http://www.readwin2000.com))

## Certificates

SIL 2 to IEC 61508/61511 only on TTR31 with analog output

<sup>1)</sup> please insert code for process connection  
<sup>2)</sup> please insert code for insertion length

Many other models, versions and options are available. Please contact Endress+Hauser for more information.

Product	Version	Order no.	Price/piece in \$			we hereby order:	total price:
			1 to 5	6 to 15	16 to 35		
TTR31	with plug M12x1.5	TTR31-A1B112__ <sup>1</sup> __ <sup>2</sup> AB	\$317.50	\$287.00	\$258.00	pcs	\$

Accessories					
	16 ft. (5 m) cable with M12 socket	52010285		\$11.50	pcs \$
	Configuration kit, USB connection	TXU10-BA		\$185.00	pcs \$

Net excluding cost of shipping and taxes.  
Acceptance per our Standard Terms and Conditions (find at [www.e-direct.us](http://www.e-direct.us)).

**Total price:**  
FOB Greenwood, IN; shipped pre-paid; shipping charges and applicable taxes added to invoice. \$ \_\_\_\_\_

E-direct catalog (free)

**Shipping method**  Ground  Priority One Day  Priority Two Day

**E-direct**

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**Warranty** Should an instrument fail during the 1 year warranty period, a replacement unit will be provided.  
**Delivery** Shipment from receipt of order for quantities 1-3 within 2 business days.

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