

# Model TR48 Temperature Transmitter

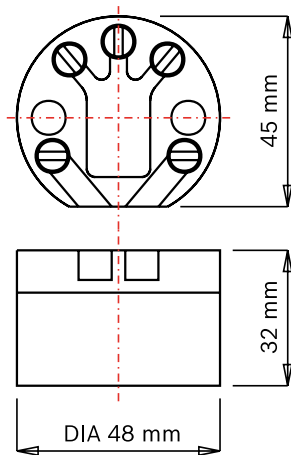


- ATEX Approval
- EExia / EExd (when fixed in H70 Head)
- Radio Frequency Immunity from 20 to 1000 MHz
- Thermocouple and RTD Inputs
- Differential Transmitters
- Open Circuit Protection
- Cold Junction Compensated

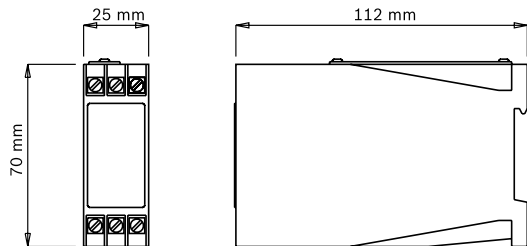
## General Description

The model TR48 temperature transmitter offers a convenient method of increased system accuracy, while reducing costs through the elimination of long runs of expensive compensating cables. The transmitter requires only two wires which carry both supply voltage and current signal, and has a high degree of immunity to interference and noise pick-up.

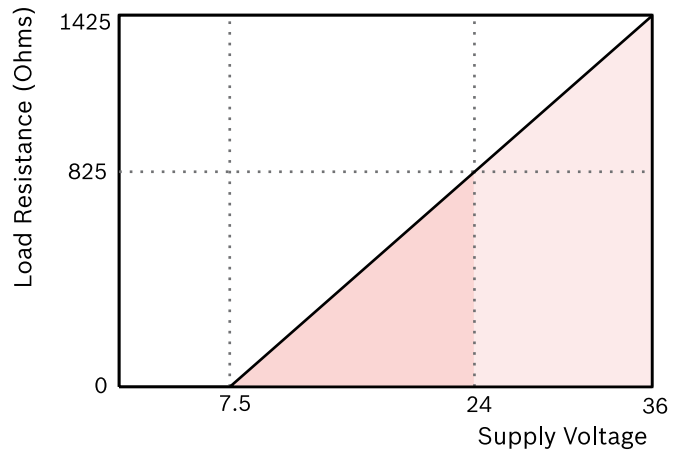
## Dimensions



## DIN Rail Mounted Version

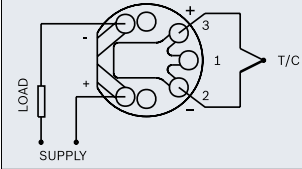
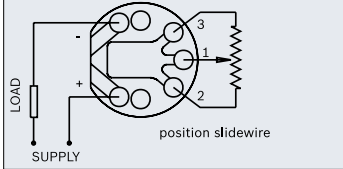
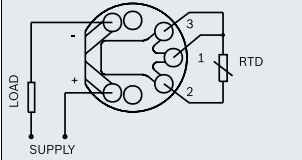
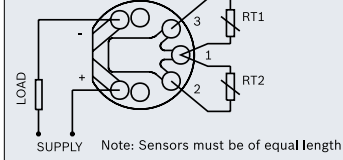


## Loop Drive Capability



The TR48 temperature transmitter is also available in a DIN rail mounted version. Manufactured to the same high specification with easily adjustable zero and span potentiometers, this model is ideal when larger numbers are required to be rack mounted.

## Wiring Details

<p><b>TR48TC Thermocouple Input</b></p> 	<p><b>TR48SW Slidewire input</b></p> 	<p>The slidewire input version of the TR48 produces a linear output proportional to the position of the wiper of a slidewire or potentiometer. This provides a convenient way of remotely indicating or controlling the position of any motorised actuator fitted with a re-transmission potentiometer.</p>
<p><b>TR48R Platinum Resistance Input</b></p> 	<p><b>TR48RD Differential Input</b></p> 	<p>Differential transmitters produce an output proportional to the difference between two precision Platinum Resistance Thermometers. A typical application might be to monitor the efficiency of a piece of plant by detecting the heat loss or gain between input and output. In such applications it is often necessary to measure very small differences. Using a differential transmitter with a span of 20°C, a resolution of 0.01°C can easily be achieved using only a low cost digital panel meter.</p>

## TR48 Specifications

Input	Thermocouple	RTD	Slidewire	Differential RTD
Output	4 to 20 mA (minimum 2.2 mA, maximum 27 mA)			
Power Supply	7.5 to 36 VDC (reverse polarity protected) 24 VDC nominal			
Ambient Temperature Range - Working	-25 to +85°C (high 125°C version available)			
Ambient Temperature Range - Storage	-55 to +125°C			
Humidity	0 to 95% Rh non-condensing			
Sensor Open Circuit Protection	Upscale standard (downscale to order)	Upscale only	N/A	Up or Down depending on which sensor fails
Cold Junction Compensation	Fitted as standard	N/A		
Linearity	Not linearised (linear to mV input)	Linear to temperature $\leq 0.05\%$	Linear to position $\leq 0.01\%$	Linear to temperature difference $\leq 0.05\%$
Zero and Span Adjustment	+10% nominal (wider spans are available)			
Turn on Time	Less than 20 ms to 1% of final reading			

## TR48 Ordering Information

Model	Input	Protection
TR48RU	PT100	Safe Area
TR48RD	2 x PT100	
TR48TCU	Thermocouple	
TR48SWU	Slidewire	
TR48R	PT100	EExia Intrinsic Safety
TR48RD	2 x PT100	
TR48TC	Thermocouple	
TR48SW	Slidewire	

### Note:

All specifications measured at mid-scale unless otherwise specified

## TR48 Performance

Accuracy	Repeatability $\pm 0.05\%$ of span
	Hysteresis $\pm 0.02\%$ of span
	Stability $\pm 0.02\%$ of span
Ambient Temperature Effect (per $^{\circ}\text{C}$ change)	Zero $\leq \pm 0.01\%$ of span
	Span $\pm 0.01\%$ of span
	CJC (TC only) $\pm 0.01^{\circ}\text{C}/^{\circ}\text{C}$
Long Term Drift	$\leq \pm 0.1\%$ of span/year
Power Supply	7.5 to 36 VDC
Power Supply Effect	$\leq \pm 0.01\%$ of span/Volt change
Output Ripple	$\leq 0.04\%$ of span RMS
CMMR	-110 db
Sensor Lead Resistance Effect (RTD)	$\leq \pm 0.001\%$ of span per Ohm. Equal change in lead resistance.
Excitation Current	0.8 mA
Sensor Lead Resistance Effect (TC)	Up to 1000 Ohm lead resistance has no measurable effect
Input Impedance	10 G Ohm
Radio Frequency Interference Effect	CE conformity per EN50081-1(1992) and EN50082-1(1992) over the frequency range 20 MHz to 1000 MHz at a field strength of 10 V/metre



### British Rotherm Company Limited

Kenfig Industrial Estate, Margam, Port Talbot SA13 2PW United Kingdom  
**Telephone** : +44 (0) 1656 740 551 **Facsimile** : +44 (0) 1656 745 915

**E-mail** : [sales@rototherm.co.uk](mailto:sales@rototherm.co.uk)

**Web Site** : [www.rototherm.co.uk](http://www.rototherm.co.uk)

[sales@thermocouple.co.uk](mailto:sales@thermocouple.co.uk)

[www.thermocouple.co.uk](http://www.thermocouple.co.uk)

