

RTD Temperature Transmitter v5 RTDT225

DESCRIPTION

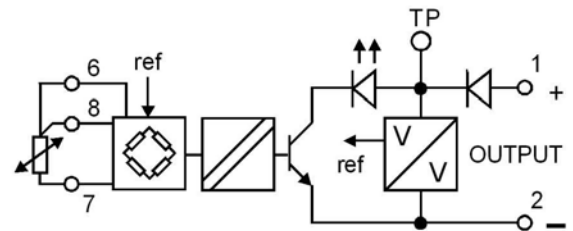
The RTDT225 is a RTD temperature transmitter that features input output isolation. Standard output is 4 - 20mA with a minimum supply voltage of 6.3V. This enables the RTDT225 to be used in 12V battery supply systems or in automotive applications. Other factory set output configurations are 10 - 50mA loop powered and 0 - 10mA, 0 - 20mA or voltage output in 3-wire connection up to 40Vdc. Double surge protection is standard with all Series 200 loop powered transmitters to prevent failure due to spikes induced by DC switched inductive loads. The RTDT225 accepts inputs from any type of resistance bulb with a signal swing of 7Ω up to 230 Ω. In the case of the popular industry standard Pt100 this would represent a temperature span from 15°C up to 650°C. The RTD is wired in 3-wire fashion to avoid errors caused by lead resistance changes. 2-wire connection can be used with a short lead length or under constant temperature conditions. Lead calibration resistors are not required as the front accessible span and offset trimmers can be used for final system calibration. Sensor excitation current is as low as 0.35mA preventing self-heating of the sensor. Lead breakage will cause the output to increase to maximum (Downscale burnout optional). For inputs starting below or above 0°C (example 50...150°C) a 15-turn balance potentiometer located on the input card is used for suppression or elevation. The RTDT225 is linearised to within 0.5% for Pt100 inputs. Differential inputs from 2x Pt100 sensors can only be connected in 2-wire mode. Lead balance errors can be avoided by using approximately even cable run length and same type of cable. Bipolar temperature differences (example Δt =-10...+10°C) are calibrated with the 0-point at mid-scale output (12mA). Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments. A front mounted L.E.D. and a test socket verify module function and assist in calibration checks without disconnection of output wires.



General Specifications

Size:	23.5W x 71.5H x 109D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS.
Connection:	Screw terminals.
Weight:	0.100 kg.
Protection class:	IP40.
Calibration accuracy:	<0.2% of range.
Linearity:	<0.5% all ranges.
Ambient operating temperature range:	-20...+70°C.
Temperature drift error:	0.02% / °C within operating range.
Supply voltage:	6.3 - 40V continuous (50V 30 seconds).
Load for 4 - 20mA output:	$RL_{max} = \frac{SupplyVoltage - 6.3V}{0.02A} \Omega$
Load change effect:	0.1% up to RL max.
Lead length effect:	±0.3% / 100m (3-wire).
Front zero adjustment:	+20% / -10% typical.
Front span adjustment:	±25% typical.
Internal Offset Adjust:	±50%.
Input range:	7.8 Ω up to 290.3 Ω (20°C up to 850°C, Pt100). 10°C range available with reduced accuracy.
Input zero shift:	-100°C...+200°C (Pt100).
Sensor excitation:	350μA.
Input / output Isolation:	>2kV rms.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)

Block Diagram



For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

TYPE NO. DESIGNATION

Output:

1 = 4 - 20mA.	} 2 - wire.	*) 6 = 0 - 1V.	} 3 - wire		
2 = 10 - 50mA.				} 3 - wire	*) 7 = 0 - 5V min. supply 10.5 Vdc.
*) 3 = 0 - 1mA.	} 0V Ref.	*) 8 = 0 - 10V min. supply 15.5Vdc.	} 0V Ref.		
*) 4 = 0 - 10mA.				} 0V Ref.	*) 9 = Other (Specify).
*) 5 = 0 - 20mA.					

Input: (Pt100):

1 = -20...+20°C.	6 = 0 - 200°C.
2 = 0 - 20°C.	7 = 0 - 300°C.
3 = 0 - 50°C.	8 = 0 - 400°C.
4 = 0 - 100°C.	*) 9 = Other (Specify).
5 = 0 - 150°C.	

Action:

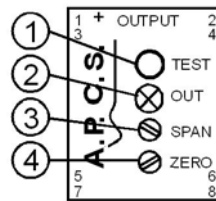
1 = Direct.	2 = Reverse.
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Options:

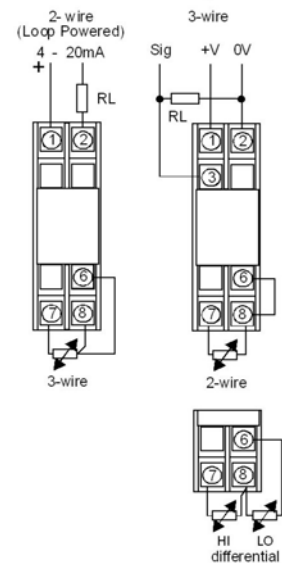
- 0 = None. *) 3 = Downscale burn out.
 - *) 1 = Differential RTD input (Specify range).
 - *) 2 = 2-Input average ([IN1+IN2] / 2). *) 9 = Other.
- *) = Price Extra.

Front Control Explanation

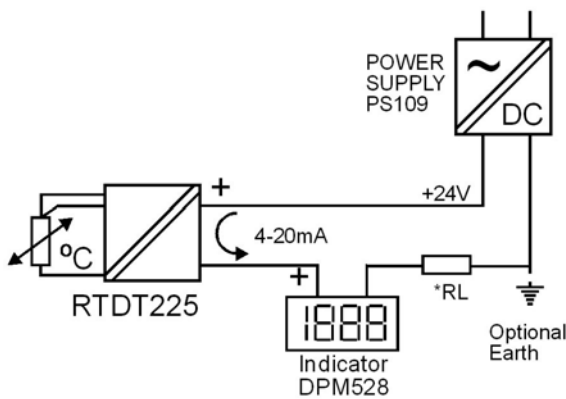
1. Test socket - output signal access with reference to terminal (1) loop Integrity is maintained when digital multimeter Rin <30 Ω is used.
2. Loop indicator - dim at 4mA, bright at 20mA.
3. SPAN (full scale) adjust 15 turn.
4. ZERO (start scale) adjust 15 turn.



Connection Diagrams



Wiring Example



* NOTE RL is input load of PLC, VSD, or other process instruments.

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