

Resistance Transmitter v5 RT243

DESCRIPTION

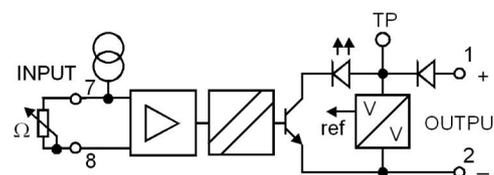
The RT243 applies a constant current to a resistance device. On change of resistance value the voltage drop across the resistance device will change and becomes the input signal. The RT243 is ideal for in field enclosures or as a space saver in larger control cabinets. Standard output is 4 - 20mA with a minimum supply voltage of 6.3V. This enables the RT243 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 input is isolated from the output as standard. Base calibration is set with 2 metal film resistors on the input card. This input card consists basically of a precision current source adjustable by a 15-turn potentiometer located on the input card. A buffer amplifier is used to condition the input voltage to the uniform card output of 0 - 1V. 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: 0.106 kg.
- Calibration accuracy: <0.5%.
- Linearity: <0.5%.
- Protection class: IP40 (IP65 refer to RT543).
- Ambient operating range: -20...+70°C.
- Temperature drift error: <0.5% within operating range (not taking account of input lead resistance).
- 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.
- Response time: 0.5 sec to T₉₀.
- Optional internal offset adjust: ±50% typical.
- Front Zero adjust: +20% / -10% typical.
- Front Span adjust: ±25% typical.
- Input range: 50Ω up to 10kΩ.
- Excitation current: 0.6mA max.
- Input/output isolation: >2kV r.m.s.
- 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 = 0 - 1mA. | } 3 - wire | *) 7 = 0 - 5V min. supply 10.5Vdc. | } 0V Ref. |
| *) 4 = 0 - 10mA. | | *) 8 = 0 - 10V min. supply 15.5Vdc. | |
| *) 5 = 0 - 20mA. | | *) 9 = Other (Specify). | |

Input Span:

- | | |
|-------------------------------|-------------------------------|
| 1 = 0 - 200 Ω (100 - 300 #). | 6 = 0 - 3.5k Ω (2k8 - 4k3 #). |
| 2 = 0 - 500 Ω (250 - 750 #). | 7 = 0 - 5k Ω (4k2 - 5k7 #). |
| 3 = 0 - 1k Ω (500 - 1k5 #). | 8 = 0 - 10k Ω (5k - 12k9 #). |
| 4 = 0 - 1.5k Ω (1k - 2k5 #). | *) 9 = Other (Specify). |
| 5 = 0 - 2.5k Ω (1k8 - 3k4 #). | |

Action:

- 1 = Direct. *) 2 = Reverse.

Options:

- 0 = None.
 *) 1 = Output ramp.
 *) 2 = Offset inputs up to 100% of span.
 *) 9 = Other (Specify).

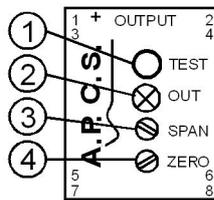
= Indicates span range that can be achieved for the specified input using an internal adjustment.

*) = Price Extra.

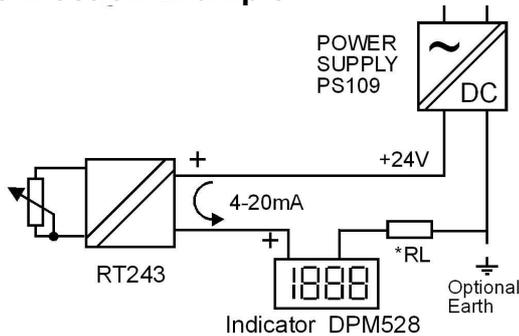
Refer to CP24301 for the internal adjustment procedure if required.

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 Example



NOTE: RL is input load of PLC, VSD, or other process instrument.

Connection Diagrams

