

## 7. Specifications

@Vnom : 24 VDC, Tambient = 25°C  
Span nom. : RTD (Pt100) = 100°C

Output :	4-20mA two wire
Power Supply :	9-36 VDC, polarity protected
Supply Voltage Effect :	±0.02 % / V
Open Circuit Detection :	Up scale, greater than 23mA, limited to 40mA.
Load Capability :	$R_{max.} = (V_{supply} - 9V) / 20mA$
Zero Drift :	±0.05% / °C
Span Drift :	±0.05% / °C
Ambient Operating Temperature :	-40 to +70 °C (-40 to +158°F)
Storage Temperature :	-40 to +100 °C (-40 to +212°F)
Zero and Span Adjustment :	20 turn potentiometer ± 25% for zero and span
Input :	RTD Pt-100 ( $\alpha=0.00385$ )
Linearity to Temperature :	±0.1% or better
Sensor Lead 3-wire Compensation:	0.01 °C/Ohm, 500 Ohm max.
Excitation Current :	0.8 mA

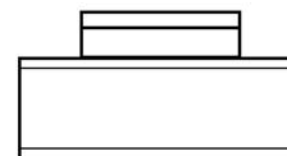
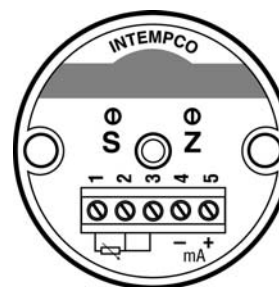
## 8. Notes



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RT810-EN-M-15062004

## INTEMPCO's RT810 Temperature Transmitter



## INSTRUCTION MANUAL

### 1. Description

The RT810 transmitters feature linearized output to temperature for RTD's. It is factory calibrated and designed for highest performance and lowest cost. The wide temperature range and stocked availability make RT810 an excellent choice for temperature signal transmission. A linearized output for RTD's is a unique performance feature of these transmitters.

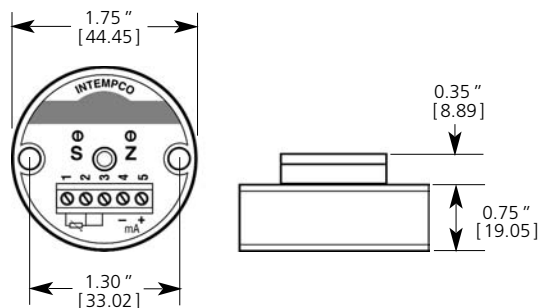
### 2. Note

Prior to unpacking and installation, please read the operating instructions and follow them carefully. These units are to be used, serviced, and repaired only by individuals who are familiar with the operating instructions and the applicable regulations for operational safety and accident prevention.

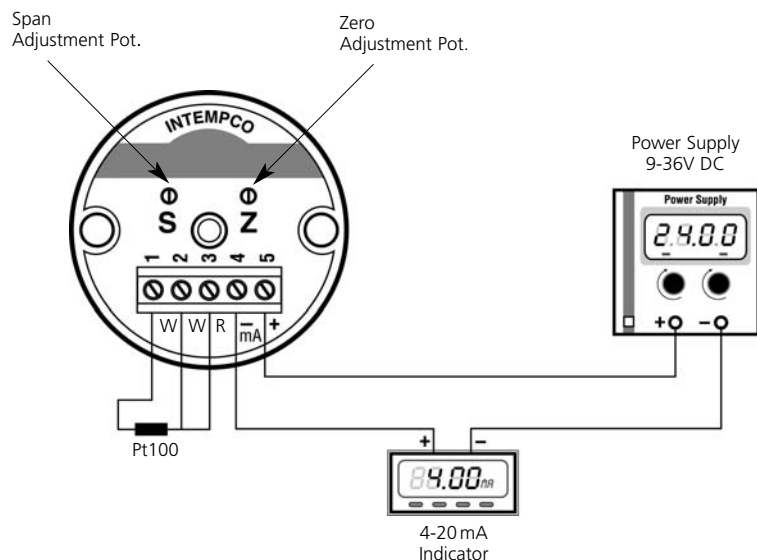
### 3. Control of Units

The units are calibrated and checked before shipment and shipped in good conditions. If you detect a visible defect on the unit, we recommend that you carefully check the packing material. In the event of a defect, please immediately notify the mail service/freight forwarder, as they are responsible for shipping damage.

## 4. Dimensions



## 5. Electrical Connections



The diagram above represents the connection method to provide the 4-20 mA with a current loop output. In most cases, the RT810 would take the form of a 3 wire output probe assembly. The output loop, the indicator and the transmitter are powered by a 9 to 36 VDC power supply. The indicator could be replaced by a controller, a data logger, etc.

**Note :** Transmitters are protected against reverse connections, incorrect connections of the output wires result in a near zero current flow in the loop.

## 6. Calibration Instructions

The RT810 comes factory calibrated. If you need to re-calibrate the unit, you will require the following equipment :

- 9-36 VDC Power Supply with a milliamp indicator or a loop-powered calibrator.
- A temperature bath.
- A standard reference temperature sensor.
- Test leads.

### 2 Point Calibration, Min. & Max. (Example : 0-100°C range)

1. Connect the RT810 as per the wiring diagram. (5)
2. Set the temperature bath to the minimum range of the RT810 transmitter, Ex.: 0°C = 4.00 mA
3. With the temperature standard, verify the bath temperature and, if required, calculate the corresponding current output for the RT810.
4. Immerse the RT810 probe in the temperature bath. Make sure the output stabilizes. With ZERO pot. adjust current output to 4.00mA or the corresponding current output.
5. Set the temperature bath to maximum range of the RT810 transmitter, Ex.: 100°C = 20.00 mA
6. With the temperature standard, verify the bath temperature and, if required, calculate the corresponding current output for the RT810.
7. Immerse the RT810 probe in the temperature bath. Make sure the output stabilizes. With the SPAN pot. adjust current output to 20.00 mA or the corresponding current output.
8. Repeat steps 2 to 7 until required accuracy is reached. This step is necessary because of the small interaction between Zero and Span.

### Single Point Calibration (Example : 0-100°C range)

In some cases, a single point calibration is sufficient especially when a process is at a fixed set point.

1. With a temperature standard, verify the correct process temperature and compare it to the RT810 reading.
2. If the temperature reading is below the mid-point of the RT810 range, use the ZERO pot. to obtain the correct reading.
3. If the temperature reading is above the mid-point of the RT810 range, use the SPAN pot. to obtain the correct reading.