

TRANSPAK™

Isolated, Universal 2-Wire Transmitter
for Thermocouple, Pt-100 RTD & mV

MODEL T280

Installation and Calibration Instructions

Your Model T280-xxxx came from the factory pre-configured for the type and range printed on the label. The unit is completely re-configurable if the application demands changing the unit. Re-configuring requires changing 1/4Watt, 1% resistors that have a temperature coefficient of ± 50 ppm or better. When selecting the value, pick the standard resistor value that is closest to your calculated value. If you are not re-configuring the unit, skip to the **WIRING INSTRUCTIONS** section and proceed with your installation.

TYPE AND RANGE SELECTION

Pt-100 RTD mode:

From the factory, a unit set for RTD mode is configured for a 3-wire RTD. If 2-wire support is needed, simply connect a wire jumper between terminals 3 and 4.

T_H = Temperature at high end of range

T_L = Temperature at low end of range

$T_{IN} = (T_H - T_L)$

$R_b(\Omega)$ = Value of Pt-100 RTD at low end of range, in Ohms (Refer to an ITS-90 RTD Temperature vs. Resistance Table located on our website.)

Example: Low end of range = $0^\circ\text{C} = 100 \Omega$, so $R_b = 100\Omega$

For the range to be in $^\circ\text{C}$: $R_d(\text{k} \Omega) = 0.133 \times T_{IN}$

For the range to be in $^\circ\text{F}$: $R_d(\text{k} \Omega) = 0.074 \times T_{IN}$

Set SW1: 1 & 3 = ON; 2 = OFF

Thermocouple Mode:

Select R_a according to the values in Table 1.

Table 1

TC Type	$R_a (\Omega)$	$V_{CJ} (\text{mV})$
B	Open	0
E	374	16.6
J	442	14.0
K	562	11.1
L	422	14.7
N	845	7.35
R	3,830	1.63
S	3,830	1.63
T	562	11.1

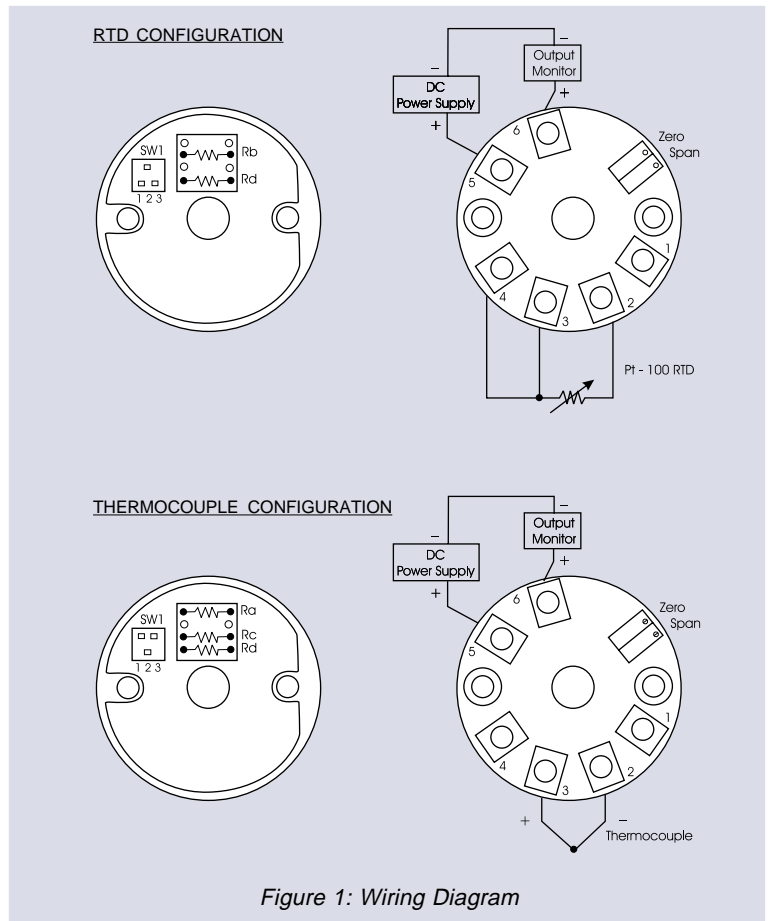


Figure 1: Wiring Diagram

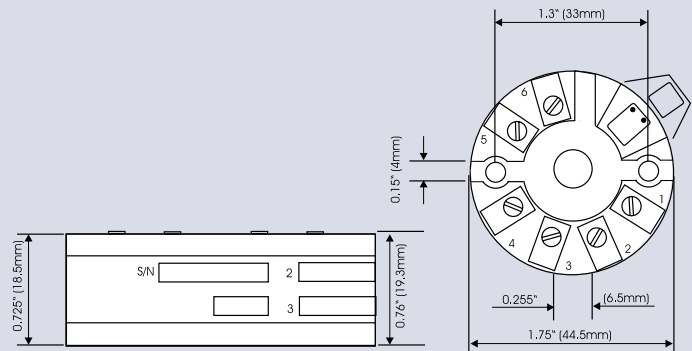


Figure 2: Dimensions

V_H = TC voltage at high end in mV
 V_L = TC voltage at low end in mV
 $V_{IN} = V_H - V_L$ (mV)

R_d (k Ω) = 0.51 x V_{IN}
 R_c (k Ω) = 250/($V_L + V_{Cl}$)

Set SW1: 2 = ON; 1 & 3 = OFF

Millivolt Mode:

Ra is open just as the B thermocouple in Table 1.

Rd & Rc are set the same as above, with a maximum high end of 100mV.

WIRING INSTRUCTIONS

1. Connect the input signal wires according to the interconnection diagram shown in Figure 1.

2. Connect the output signal wires to the controller or digital indicator with a power supply to create an output loop as shown in Figure 1. Observe proper polarity.

3. Physical dimensions for mounting are in Figure 2.

CALIBRATION AND ADJUSTMENT

1. Connect the appropriate sensor simulator to the T280 according to the wiring diagram. Connect the output to a power supply and current indicator observing proper polarity. Allow 15 minutes for warm-up.

2. Set the input to the desired minimum signal and adjust the ZERO pot until the current indicator reads 4mA.

3. Set the input to the desired maximum signal and adjust the SPAN pot until the current indicator reads 20mA.

4. Repeat steps 2 and 3 until no further adjustments are necessary.

SPECIFICATIONS

Input Thermocouple: B, E, J, K, L, N, R, S, T
 RTD: Pt-100, 2- or 3-wire
 mV: 100mV max.
Input Span Thermocouple: 5mV min. span
 RTD: 20°C min. 500°C max.
 mV: 5mV min. span
Adjustability: ±15% for both zero & span
Output Span: 4-20mA, limiting @ <28mA
Burnout Detection: Upscale
Linearity Thermocouple/mV: Better than ±0.1% of span, referred to mV input level
 RTD: Better then ±0.1% of span, referred to sensor temperature

Stability Thermocouple/mV: 0.02% of span/°C (25mV input)
 RTD: 0.02% of span/°C (100°C span)
 T/C CJC: <0.05°C/°C of ambient temperature
Isolation 1000VDC
Supply Voltage 10 to 40VDC polarity protected
Maximum Load $R_{max} = (V_{supply} - 10V)/20mA$
Operating temperature -20°C to +70°C
Humidity 0 to 95% RH, non-condensing
Agency Approvals CE Compliance per EMC directive 89/3/36 EEC
 Operation under software control

FACTORY ASSISTANCE:

For additional information on calibration, operation and installation please contact Action's Technical Services Group.

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