



No. TSD 43.015	
Rev.	Date
D	6/10/08

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**INSTALLATION AND MAINTENANCE MANUAL**  
**FOR**  
**UNIVERSAL INPUT TEMPERATURE TRANSMITTER**  
**MODEL HPTI**  
**(CONAX TECHNOLOGIES P/N 318549)**

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DATE 3/7/97

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DATE 3/7/97

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REVISION RECORD				
Revision	Affected Paragraphs	Brief Description of Revision	Date	Approval Signature
Orig.	All	Original Release per E.O. QP-1422	3/6/97	<u>P.Calabrese</u>
A	5.0, 7.0 & Appendix A	Revised per E.O. QP-1708	10/12/98	<u>P.Calabrese</u>
B	5.0	Revised per E.O. QP-2985	1/4/01	<u>R.Crawford</u>
C	5.0	Revised per E.O. QP-6481	1/20/06	<u>G. Barnhard</u>
D	All	Revised per E.O. QP-8607	6/10/08	<u>G. Barnhard</u>

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## APPENDIX

- A ILLUSTRATIONS (3 pages total)

## 1.0 SCOPE

This manual provides basic ordering information and specifications for Universal Input Temperature Transmitter, Model HPTI, Conax P/N 318549-xxx.

## 2.0 APPLICABLE DOCUMENTS

- 2.1 Conax Sales Order.
- 2.2 Customer purchase order (specified in Conax sales order).

## 3.0 GENERAL DESCRIPTION

The HPTI is a low cost, isolated temperature transmitter designed to fit in a standard Conax Model T11 terminal head. Unique design features enable a single transmitter to be used for measurements of Pt-100 RTDs, Thermocouple or milli-volt signal levels. When used in the Thermocouple mode, the HPTI accepts all known Thermocouple types.

The HPT is constructed of an upper and lower section. The lower section contains the signal conditioning electronics, while the upper half contains the “personality” components that determine the input sensor type and measurement range. The two halves snap together to form a small cylindrical unit.

## 4.0 SPECIFICATIONS

Isolation (I/O):	500 VDC or peak AC.
Output Span :	4-20 mA, limiting @ <28 mA
Input:	RTD: Pt-100, 2 or 3 wire configuration TC: All known types
Input Span:	RTD: 20°C min., 500°C max. TC: 10 mv min.
Adjustability:	±25% for both zero and span.
Burnout Detection:	Upscale (standard).
Supply Voltage:	10-40 VDC polarity protected.

Maximum Load:	$R_{max} = (V_{supply} - 10V) / 20 \text{ mA}$	
Ambient Temp.:	-20 to +70°C	
Humidity:	0-95% RH, Non-condensing	
Linearity:	RTD: Better than $\pm 0.1\%$ of span referred to sensor temperature. TC/mV: Better than $\pm 0.1\%$ of span referred to mV input level.	
Stability: (zero and span)	Pt-100 (100°C span):	0.02% of span/°C
	TC/mV (25mV input):	0.02% of span/°C
T/C CJC:	<0.05°C/°C of ambient temp.	

## 5.0 INSTALLATION

The HPTI may be mounted using the two mounting holes .165 inch dia. and 1.30 inches apart.

Wiring instructions for the HPTI are:

- Connect the positive supply voltage to terminal 5.
- Connect the negative supply voltage to terminal 6.

### **Pt-100 RTD:**

For 3 Wire:

- Connect single lead to terminal 2.
- Connect dual leads to terminal 3 and 4.

For 2 Wire:

- Connect one lead to terminal 2.
- Connect one lead to terminal 4.
- Connect jumper wire between terminals 3 and 4.

### **TC:**

- Connect negative lead to terminal 2.
- Connect positive lead to terminal 3.

## 6.0 CALIBRATION AND OPERATION

The HPTI has been factory calibrated prior to shipment. If trimming is required, access to the zero and span potentiometer (pot) is provided without disassembling the HPTI housing.

The following procedure is provided with the assumption the HPTI has been properly ranged at the factory.

- 1) Connect a (Pt-100 or TC) simulator to the HPTI as indicated in Para. 5.0 above.
- 2) Connect a digital current meter to the output loop.
- 3) Set the minimum input signal level on the simulator and adjust the zero pot until the output current reads 4.00 mA.
- 4) Set the maximum input signal level on the simulator and adjust the span pot until the output current reads 20.00 mA.
- 5) Repeat steps 3 and 4 until no further adjustment is needed.

## 7.0 RANGE CHANGES

As stated above the HPTI has been factory calibrated prior to shipment. However, if it becomes necessary to change the operating range of the unit, the following calculations will provide the proper resistor values for the new range.

Pt-100 RTD Mode: HPTI-RTD

$$T(\text{in}) = T_s - T_z$$

where,

$T_s$  (temperature at high end of range).

$T_z$  (temperature at low end of range).

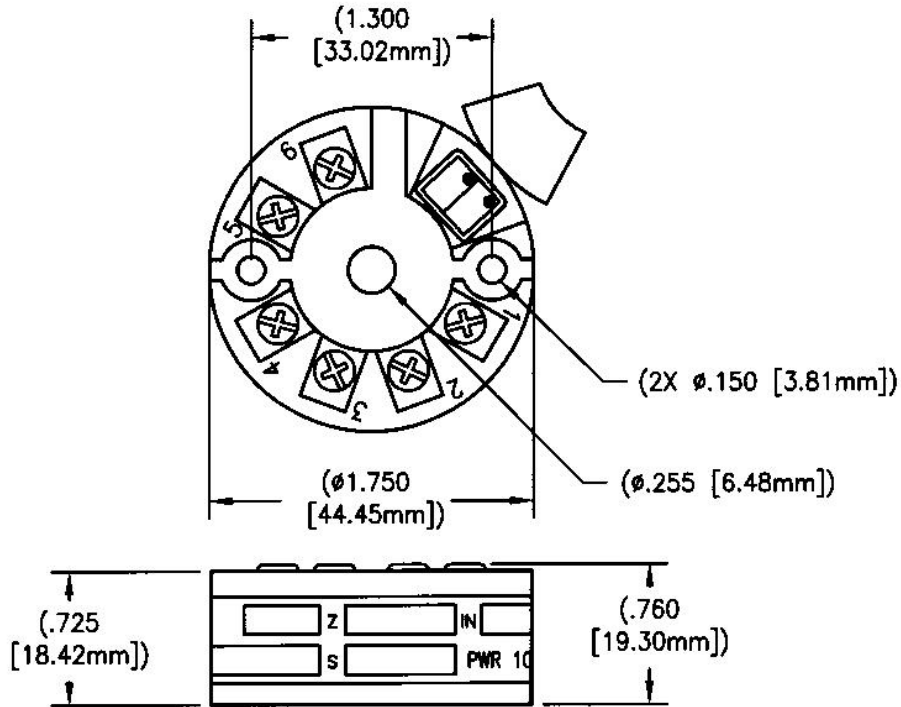
$R_b$  (ohms) = Value of the Pt-100 RTD at low end of range.



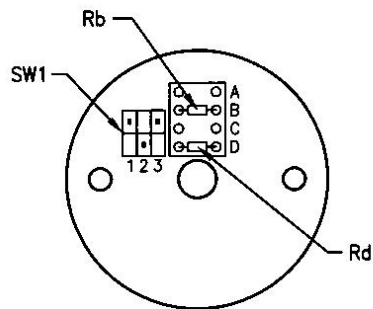
**APPENDIX A**  
**ILLUSTRATIONS**



HTPI DIMENSIONS

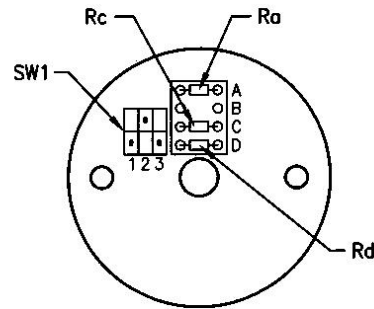


RTD CONFIGURATION



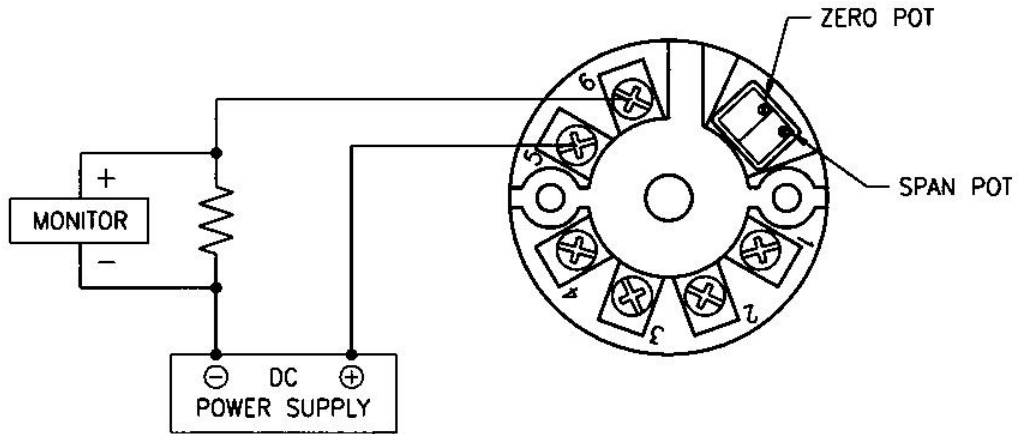
BOTTOM VIEW

TC CONFIGURATION

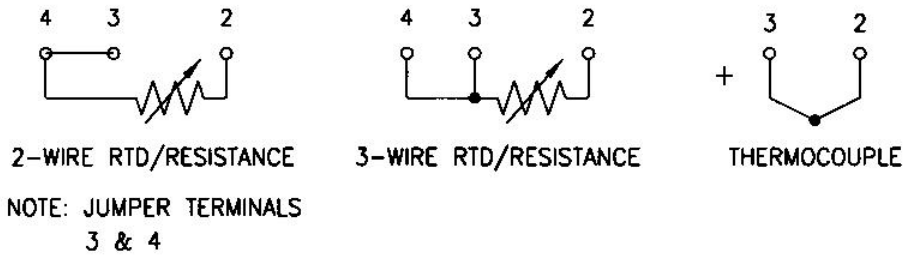


BOTTOM VIEW

SAMPLE LOOP SHOWING THE HTPI



SENSOR CONNECTIONS



GALVANIC ISOLATION

