

Product Data Sheet  
225DS-24a  
03/21/03

## RTD TEMPERATURE TRANSMITTER

### 2808-41A Featuring Very Low Power Consumption

The Bristol Babcock 2808-41A is a high performance temperature transmitter featuring very low power consumption using a 1–5 V signal. The user can also select standard, 4 – 20 mA operation.

Use of both coarse and fine adjustments allows this transmitter to accurately operate over any span within the –58 to +662 degree F range.

When combined with the 2808-15A pressure temperature, 2808-16 pressure temperature with flush diaphragm and 2808-35A differential pressure transmitter, the 2808-41A is ideal for remote measurement and control installations, which use solar panels or other, alternative energy sources.

The 2808 series is excellent for remote sites such as oil & gas production wells and natural gas metering stations. These transmitters are all ideal for use with Bristol Babcock's *TeleFlow* flow computers, *TeleRTU* and *ControlWave LP* products, all of which feature low power consumption and are available with standard, battery and solar power packages.

### FUNCTIONAL SPECIFICATIONS

Sensor Type:

Resistance Temperature Detector, 100-ohm platinum bulb ( $\alpha = 0.00385S/S/^{\circ}C$ )  
Per IEC 751 Class B

Range Limits:

-50°C to +350°C (-58°F to +662°F)

Span Adjustment:

-50°C to +300°C (-58°F to +572°F) or 0°C to +350°C (+32°F to +662°F)  
Also 6:1 Turndown, e.g., 0°C to 58°C

Zero Adjustments:

-50°C to +300°C (-58°F to +572° F)



### OUTPUT SIGNAL

Range:

1-5Vdc (Load Resistance 5K-ohm to Open Circuit)  
4-20 mA nominal; 2.8 mA Min. and (23mA Max. limited)

Power Source:

6 Vdc Min. at transmitter  
42 Vdc Max. at transmitter

Voltage Effect:

$\pm 0.001\%$  of Span/Volt from 10 to 35 Vdc

Loop Resistance (4-20mA RTD):

$R_L$  (K ohm) =  $(V_s - 6) / .02$  Amps

### PERFORMANCE

Model Accuracy:

$\pm 0.15\%$  of span (when factory calibrated 1:1)  
 $\pm 0.3\%$  of span (when factory calibrated 6:1)

Linearity:

$\pm 0.05\%$  of span (Referenced to actual sensor temperature)

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**Max. Output Current (4-20mA RTD):**

23mA

**Max. Supply Current (1-5 Vdc RTD):**

2.0mA (with no load)

**Temperature Limits:**

-40 to +85 °C (-40 to +185 °F), operating.  
-55 to +100 °C (-67 to +212 °F), storage.

**RTD Input Lead Wire Effect:**

0.005°C/ohm

**Warm-up Drift:**

±0.005% of span Max. (For  $V_s = 24$  Vdc and  $R_L = 250S$ ;  
stable within 15 Seconds)

**Ambient Temperature Effect:**

±0.025°C/°C

**Humidity:**

95% RH non-condensing @ +70°C (+158°F).

**RFI Immunity:**

Meets SAMA PMC 33.1-1978 over 20-500 MHz range.

### Model Specifications

**12345678-A-B-C-D-E-F-G** ← Table Reference

**2808-41A-1 -1 -1-1 -0-1-0** ← Model Number

<b><u>A</u> = RTD MODULE</b>	<b><u>E</u> = WARNING PLATE (* = Any Selection)</b>
<b>A</b> 1 FIELD RANGABLE 100 ohm PT., Per IEC 751 Class B	<b>C D E</b> * * 0 NONE 0 1 1 RUSSIAN (Without Indication) 1 1 1 RUSSIAN (With Indication)
<b><u>B</u> = OUTPUT</b>	<b><u>F</u> = RTD OPTION (# = Any No.)</b>
<b>B</b> 1 4-20 Ma - see Table 1-2 2 1-5 Vdc - see Table 1-2	<b>D F</b> 0 0 NONE # 1 GENERAL PURPOSE RTD - see Note 2 # 2 SPRING LOADED RTD - see Note 2
<b><u>C</u> = INDICATION (# = Any No.)</b>	<b><u>G</u> = EXTENSION/THERMOWELL OPTION (# = Any No., α = 1 or 2)</b>
<b>B C</b> # 0 NONE 1 1 LOCAL DIGITAL INDICATION	<b>D F G</b> 0 # 0 NONE # α 1 EXT./THERMOWELL - see Note 2
<b><u>D</u> = CERTIFICATION</b>	<b>NOTES</b>
<b>D</b> 0 NONE 1 UL/CUL - see Note 1 Class I, Div. 1, Groups C & D, Exp. Class I, Div. 2, Groups A, B, C & D	Note 1: An RTD must be included if certification is selected. Note 2: RTD, thermowell and extension tables are on pages 3 and 4.

### 2808-41A Extension & Thermowell Selection Options

<b>A = EXTENSION TYPE</b>		<b>E = THERMOWELL EXTERNAL THREAD</b>			
<b>A</b>		<b>E</b>			
0	NONE	0	NONE		
1	UNION	1	0.500-14 N.P.T		
2	COUPLING	2	0.750-14 N.P.T		
		3	1.000-11.5 N.P.T		
<b>B C = EXTENSION LENGTH</b>		<b>F G = THERMOWELL INSERTION LENGTH</b>			
<b>ABC</b>		<b>DEFG</b>	<b>DEFG</b>		
0 0 0	NONE	1 1 0 4	2.5" Length	1 1 1 2	10.5" Length
1 2 0	2.0" Length - (Union)	12 0 4	2.5" Length	12 1 2	10.5" Length
2 2 0	2.0" Length - (Coupling)	13 0 4	2.5" Length	13 1 2	10.5" Length
1 2 5	2.5" Length - (Union)	22 0 4	2.5" Length	22 1 2	10.5" Length
2 2 5	2.5" Length - (Coupling)	23 0 4	2.5" Length	23 1 2	10.5" Length
1 3 0	3.0" Length - (Union)	1 1 0 5	3.5" Length	1 1 1 5	13.5" Length
2 3 0	3.0" Length - (Coupling)	12 0 5	3.5" Length	12 1 5	13.5" Length
1 3 5	3.5" Length - (Union)	13 0 5	3.5" Length	13 1 5	13.5" Length
2 3 5	3.5" Length - (Coupling)	22 0 5	3.5" Length	22 1 5	13.5" Length
1 4 0	4.0" Length - (Union)	23 0 5	3.5" Length	23 1 5	13.5" Length
2 4 0	4.0" Length - (Coupling)	1 1 0 6	4.5" Length	1 1 1 8	16.5" Length
1 4 5	4.5" Length - (Union)	12 0 6	4.5" Length	12 1 8	16.5" Length
2 4 5	4.5" Length - (Coupling)	13 0 6	4.5" Length	13 1 8	16.5" Length
1 5 0	5.0" Length - (Union)	22 0 6	4.5" Length	22 1 8	16.5" Length
2 5 0	5.0" Length - (Coupling)	23 0 6	4.5" Length	23 1 8	16.5" Length
1 5 5	5.5" Length - (Union)	1 1 0 7	5.5" Length	1 1 2 1	19.5" Length
2 5 5	5.5" Length - (Coupling)	12 0 7	5.5" Length	12 2 1	19.5" Length
1 6 0	6.0" Length - (Union)	13 0 7	5.5" Length	13 2 1	19.5" Length
2 6 0	6.0" Length - (Coupling)	22 0 7	5.5" Length	22 2 1	19.5" Length
1 7 0	7.0" Length - (Union)	23 0 7	5.5" Length	23 2 1	19.5" Length
2 7 0	7.0" Length - (Coupling)	1 1 0 9	7.5" Length	1 1 2 4	22.5" Length
1 8 0	8.0" Length - (Union)	12 0 9	7.5" Length	12 2 4	22.5" Length
2 8 0	8.0" Length - (Coupling)	13 0 9	7.5" Length	13 2 4	22.5" Length
1 9 0	9.0" Length - (Union)	22 0 9	7.5" Length	22 2 4	22.5" Length
2 9 0	9.0" Length - (Coupling)	23 0 9	7.5" Length	23 2 4	22.5" Length
		1 1 1 0	8.5" Length	0 0 0 0	NONE
		12 1 0	8.5" Length		
		13 1 0	8.5" Length		
		22 1 0	8.5" Length		
		23 1 0	8.5" Length		
<b>D = THERMOWELL TYPE</b>					
<b>D</b>					
0	NONE				
1	STEPPED				
2	TAPERED				

2808-41A RTD Length Selections

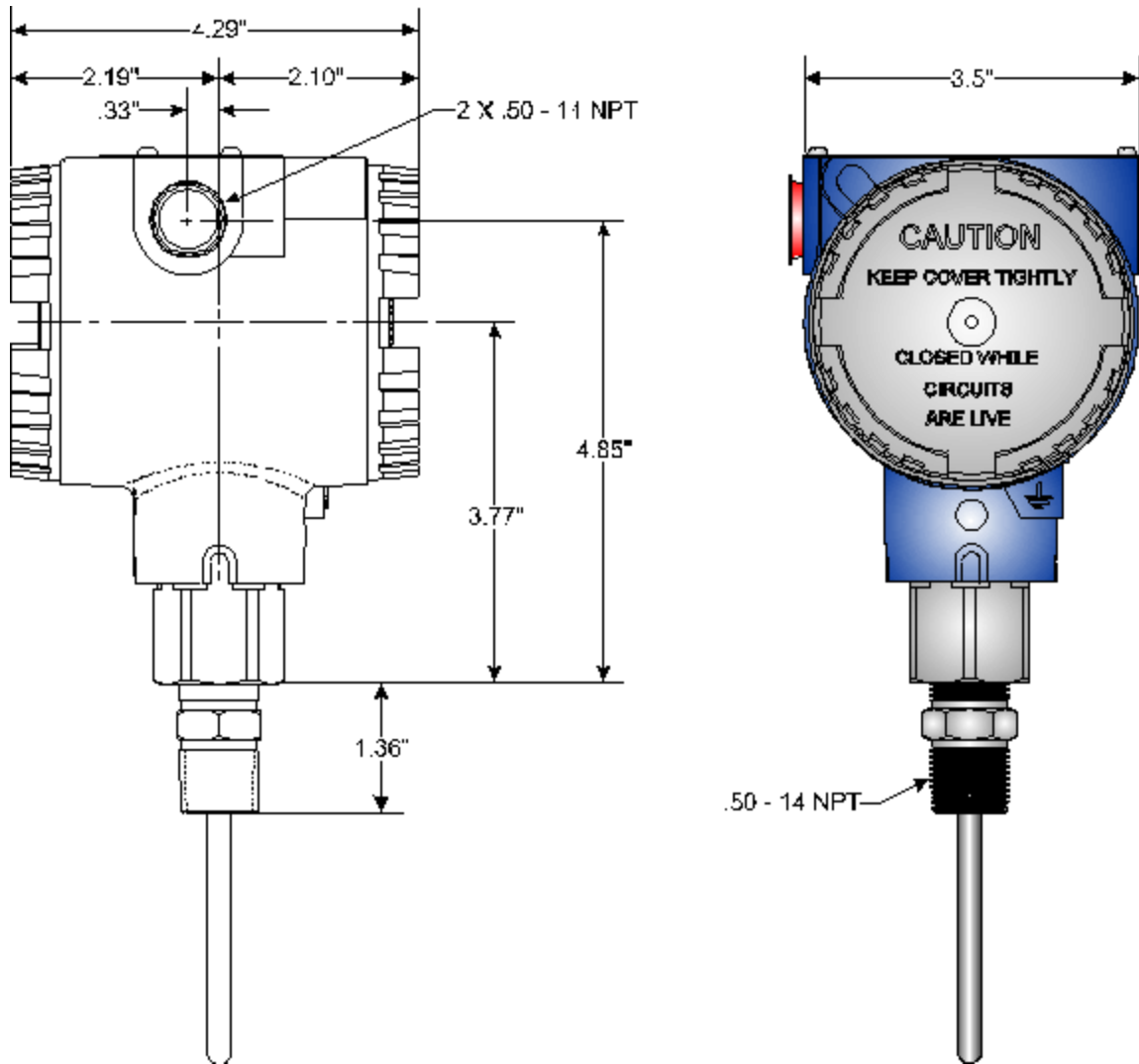
<b>RTD TYPE &amp; LENGTH</b>	<b>Attachment #s * A B (* = RTD Option)</b>	<b>RTD TYPE &amp; LENGTH</b>	<b>Attachment #s * A B (* = RTD Option)</b>
<b><u>GENERAL PURPOSE</u></b>	<b>* A B</b>	<b><u>SPRING LOADED</u></b>	<b>* A B</b>
2.5" Length	1 0 2	2.5" Length	2 0 2
3.5" Length	1 0 3	3.5" Length	2 0 3
4.5" Length	1 0 4	4.5" Length	2 0 4
5.5" Length	1 0 5	5.5" Length	2 0 5
6.5" Length	1 0 6	6.5" Length	2 0 6
8.5" Length	1 0 8	8.5" Length	2 0 8
9.5" Length	1 0 9	9.5" Length	2 0 9
11.5" Length	1 1 1	11.5" Length	2 1 1
14.5" Length	1 1 4	14.5" Length	2 1 4
17.5" Length	1 1 7	17.5" Length	2 1 7
20.5" Length	1 2 0	20.5" Length	2 2 0
23.5" Length	1 2 3	23.5" Length	2 2 3

Note: Please select a thermowell when a spring loaded RTD is selected.

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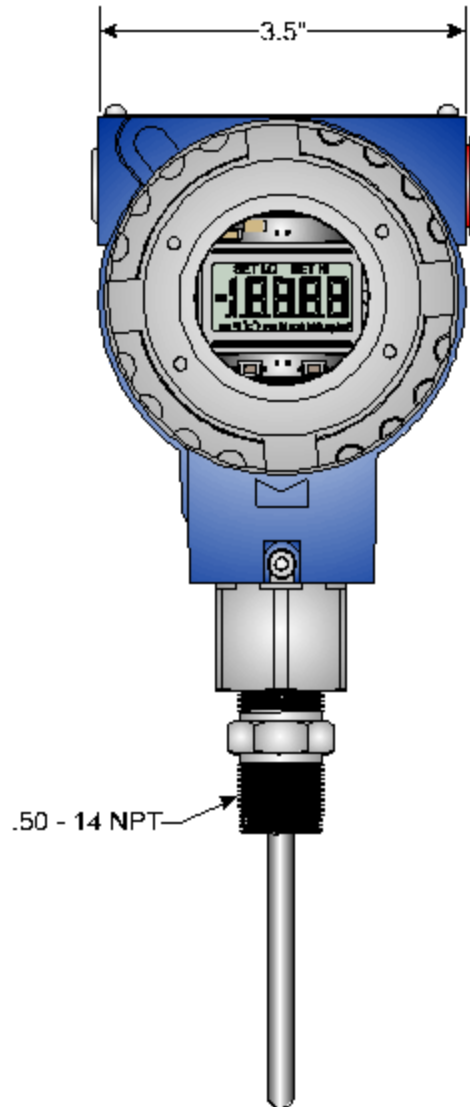
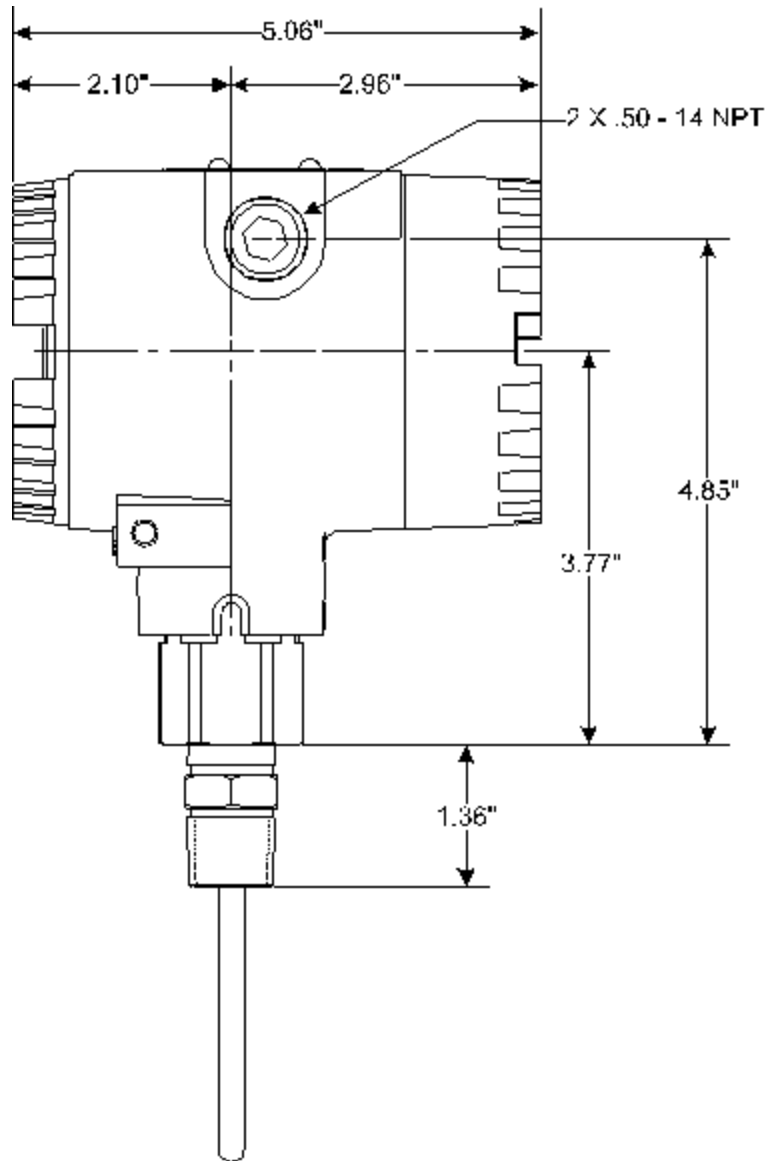


Model 2808-41A Dimensions (without Loop Indicator Option)

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