



Extreme Temperature Platinum RTD's

Termination and Troubleshooting

8612_ins_rtd_extrm

Printed January 28, 2004

Termination

RTDs are resistive elements, and therefore, are NOT polarity sensitive. **BAPI** recommends using twisted pair wire of at least 22 AWG for all wire connections. **BAPI** also recommends that wiring for these units not be run in the same conduit as line voltage wiring or with wiring used to supply highly inductive loads such as motors, generators, and coils. Use sealant filled connectors (SFC) for all lead wire connections.

Specifications

Sensor Type:	Wire Wound 1K RTD	Leadwire Insulation:	Teflon or Fiberglass
Reference Resistance:	1K @ 0°C	Output:	Resistive
Operating Range:	-200 to 600°C	Temperature Coefficient:	3.85 ohm/°C
Standard Accuracy:	0.1% (1 ohm)		

Ordering Information

Part Number	Description
BA/1K(1)-I-4" or 8"	1K pRTD Packaged for -200 to 0°C Range (-328 to 32°F)
BA/1K(2)-I-4" or 8"	1K pRTD Packaged for 100 to 210°C Range (212 to 410°F)
BA/1K(3)-I-4" or 8"	1K pRTD Packaged for 200 to 600°C Range (392 to 1112°F)
BA/T1K(range)-XO	Optional 4 to 20mA Transmitter to be remote mounted
BA/T1K(range0-XO-R	Optional RUGGEDIZED 4 to 20mA transmitter to be remote mounted

Troubleshooting

Problems:

Temperature sensor in front end software is reading high

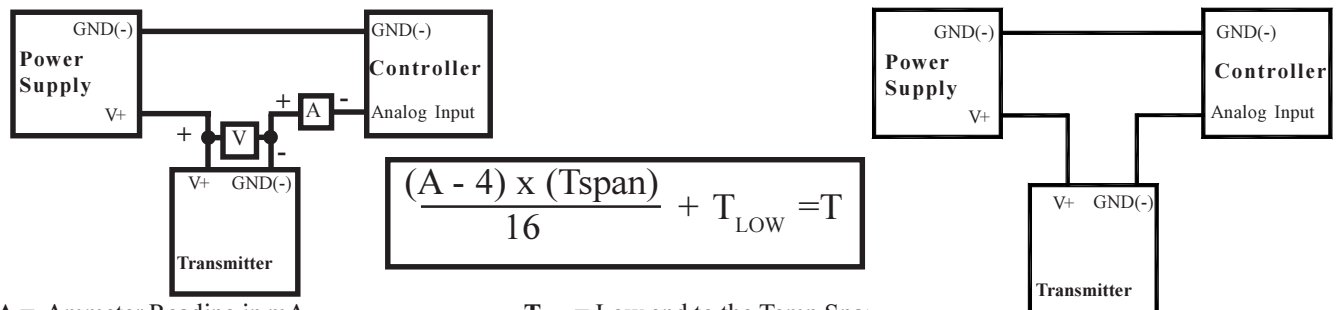
Possible Solutions:

- Confirm the input is set up correctly in the front end software
 - Verify that the RTD is not physically open
 - Check wiring for proper termination
 - Verify the "Sensor" output is correct from the wire to wire
- Refer to table on Page 2 for proper reading

Temperature sensor in front end software is reading low

- Verify that the RTD is not physically shorted
 - Check wiring for proper termination
 - Verify the "Sensor" output is correct from the wire to wire
- Refer to table on Page 2 for proper reading

Optional Transmitter Troubleshooting



A = Ammeter Reading in mA

T_{Span} = # of Degrees in Temp Span

T_{Low} = Low end to the Temp Spai.

T = Temperature at the sensor

1. Measure the voltage by placing a Voltmeter (V) across the transmitter's (+) and (-) terminals.
 - This voltage should be between 13 to 35 VDC.
2. Measure the current by placing an Ammeter (A) in series with the controller input.
 - The current should read according to the equation above..



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Sensor Output Table											
°F	°C	1K	°F	°C	1K	°F	°C	1K	°F	°C	1K
-328	-200	195.19	42	5.56	1021.71	412	211.11	1799.16	782	416.67	2527.62
-318	-194.44	218.19	52	11.11	1043.35	422	216.67	1819.51	792	422.22	2546.61
-308	-188.89	241.11	62	16.67	1064.99	432	222.22	1839.79	802	427.78	2565.60
-298	-183.33	264.04	72	22.22	1086.55	442	227.78	1860.07	812	433.33	2584.52
-288	-177.78	286.89	82	27.78	1108.12	452	233.33	1880.27	822	438.89	2603.43
-278	-172.22	309.75	92	33.33	1129.61	462	238.89	1900.48	832	444.44	2622.28
-268	-166.67	332.53	102	38.89	1151.11	472	244.44	1920.61	842	450.00	2641.12
-258	-161.11	355.32	112	44.44	1172.53	482	250.00	1940.74	852	455.56	2659.93
-248	-155.56	378.03	122	50.00	1193.95	492	255.56	1960.84	862	461.11	2678.66
-238	-150.00	400.74	132	55.56	1215.34	502	261.11	1980.87	872	466.67	2697.40
-228	-144.44	423.42	142	61.11	1236.65	512	266.67	2000.89	882	472.22	2716.07
-218	-138.89	446.02	152	66.67	1257.97	522	272.22	2020.85	892	477.78	2734.73
-208	-133.33	468.63	162	72.22	1279.97	532	277.78	2040.80	902	483.33	2753.32
-198	-127.78	491.16	172	77.78	1300.46	542	283.33	2060.68	912	488.89	2771.92
-188	-122.22	513.69	182	83.33	1321.63	552	288.89	2080.57	922	494.44	2790.44
-178	-116.67	536.15	192	88.89	1342.80	562	294.44	2100.38	932	500.00	2808.96
-168	-111.11	558.62	202	94.44	1363.90	572	300.00	2120.19	942	505.56	2827.44
-158	-105.56	581.00	212	100.00	1385.00	582	305.56	2139.96	952	511.11	2845.86
-148	-100.00	603.40	222	105.56	1406.07	592	311.11	2159.67	962	516.67	2864.27
-138	-94.44	625.75	232	111.11	1427.06	602	316.67	2179.37	972	522.22	2882.62
-128	-88.89	648.03	242	116.67	1448.05	612	322.22	2199.00	982	527.78	2900.96
-118	-83.33	670.32	252	122.22	1468.97	622	327.78	2218.63	992	533.33	2919.23
-108	-77.78	692.52	262	127.78	1489.89	632	333.33	2238.19	1002	538.89	2937.50
-98	-72.22	714.74	272	133.33	1510.74	642	338.89	2257.75	1012	544.44	2955.70
-88	-66.67	736.87	282	138.89	1531.59	652	344.44	2277.24	1022	550.00	2973.90
-78	-61.11	759.01	292	144.44	1552.37	662	350.00	2296.73	1032	555.56	2992.06
-68	-55.56	781.08	302	150.00	1573.15	672	355.56	2316.19	1042	561.11	3010.16
-58	-50.00	803.15	312	155.56	1593.89	682	361.11	2335.57	1052	566.67	3028.25
-48	-44.44	825.18	322	161.11	1614.56	692	366.67	2354.95	1062	572.22	3046.27
-38	-38.89	847.14	332	166.67	1635.23	702	372.22	2374.26	1072	577.78	3064.29
-28	-33.33	869.10	342	172.22	1655.83	712	377.78	2393.57	1082	583.33	3082.24
-18	-27.78	890.99	352	177.78	1676.43	722	383.33	2412.81	1092	588.89	3100.19
-8	-22.22	912.88	362	183.33	1696.96	732	388.89	2432.04	1102	594.44	3118.06
2	-16.67	934.69	372	188.89	1717.48	742	394.44	2451.21	1112	600.00	3135.94
12	-11.11	956.51	382	194.44	1737.94	752	400.00	2470.38			
22	-5.56	978.25	392	200.00	1758.40	762	405.56	2489.51			
32	0	1000.0	402	205.56	1778.82	772	411.11	2508.57			