INSTRUCTION MANUAL

SM-812-EC3 Inexpensive Two Wire Temperature Transmitter for 2 or 3 Wire RTDs.

SPECIFICATIONS:

1) Performance
1.1) Accuracy ± 0.1% / span, includes effects of linearity, hysterisis, and repeatability refered to temperature input.

1.2) Nonlinearity 0.1% relative to a 100**S** Pt RTD, **"** = 0.00385 standard curve for nominal range. 4:1 minimum improvement on nonlinearity otherwise.

1.3) Thermal Effect
1.3.1) Zero Shift of ± 0.02% / Span / F
1.3.2) Span Shift of ± 0.02% / Span / F

1.4) Power Supply
1.4.1) Working Voltage of 8 to 35 VDC
1.4.2) Supply Voltage Effect
< ± 0.001% / Span / Volt

1.5) Loop Considerations
1.5.1) Loop Resistance Load Effect
< ± 0.002% / Span / 300 Ohms
1.5.2) Maximum Loop Resistance
MLR(**S**) = (V_{Supply} - 8V) / 0.020A

1.6) RFI immunity
Rated class 3-C: 0.25% of span per SAMA PMC 33.1-1987-2abc

1.7) Frequency Response
Output -3dB @ 3Hz Input

2) Environment
2.1) Temperature range
2.1.1) Ambient -13 to 185 F
2.1.2) Storage -85 to 257 F

2.2) Humidity 0 to 90% noncondensing

3) Input
3.1) Standard 100**S** Pt RTD, **"** = 0.00385

4) Output
4.1) Signal range 4 to 20 mADC

4.2) Absolute Limit 2 to 29 mA

4.3) Open RTD Indication Output > 22mA

5) Calibration
5.1) Calibration Range Adjustability
5.1.1) Zero 25% of nominal span
5.1.2) Span 25% of nominal span

CALIBRATION PROCEDURE:

10) Required test equipment:
A) Current measurement method with basic accuracy of 0.04% and resolution of 1**:**A.
B) Power supply, 22mA minimum. 24VDC desired, 8.5V to 35V, depending on load resistance.
C) RTD simulator accurate to within ± 0.5 F. The RTD can be simulated by decade resistors set to the values on the table that follows.

20) Identify transmitter temperature range by referencing the dash number of the particular unit.

30) Connect the device under test and the required test equipment as outlined on the attached wiring diagram.

40) Set the RTD simulator for the calibration range minimum temperature and adjust the Z(ero) potentiometer to obtain the minimum output of 4.000mA.

50) Set the RTD simulator for the calibration range maximum temperature and adjust the S(pan) potentiometer to obtain the maximum output of 20.000mA.

60) Repeat steps 40) and 50) until the device under test reads true without further adjustments.

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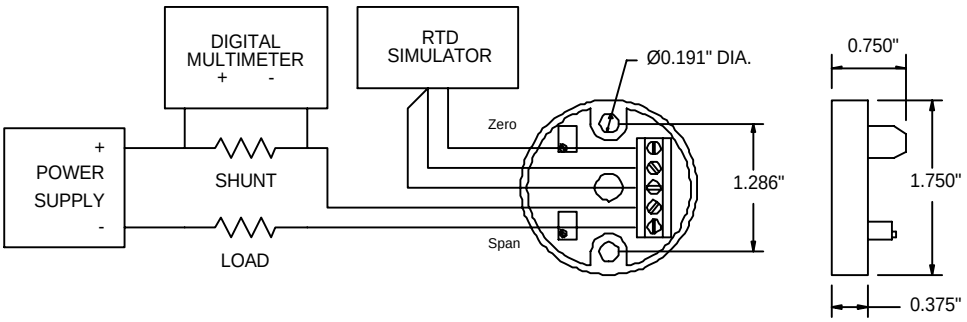
WIRING:



CALIBRATION DATA:

Input		0%	25%	50%	75%	100%
Model	Range ºF	" = 0.00385 100**S** Pt RTD Values at % of Input Span				
-0011	-40/120	84.27	93.03	101.74	110.38	118.97
-0012	0/200	93.03	103.90	114.68	125.37	135.97
-0013	0/300	93.03	109.30	125.37	141.24	156.90
-0014	0/500	93.03	120.04	146.48	172.36	197.69
-0015	0/750	93.03	133.33	172.36	210.14	246.65
-0016	0/1000	93.03	146.48	197.69	246.65	293.38
-0017	-30/130	86.47	95.21	103.90	112.53	121.11
-0018	40/140	101.74	107.15	112.53	117.90	123.24
-0019	50/85	103.90	105.80	107.69	109.57	111.46
-0021	0/150 C	100.00	114.57	128.98	143.23	157.31
-0022	0/100	93.03	98.48	103.90	109.30	114.68
-0023	20/120	97.39	102.82	108.22	113.61	118.97
-0024	0/150	93.03	101.19	109.30	117.36	125.37
-0025	0/200 C	100.00	119.40	138.50	157.31	175.84
-0026	30/100	99.57	103.36	107.15	110.92	114.68
-0027	35/85	100.65	103.36	106.07	108.76	111.46
-0028	0/250	93.03	106.61	120.04	133.33	146.48
-0029	-40/25ºC	84.27	90.69	97.07	103.42	109.73
-0030	0/50ºC	100.00	104.88	109.73	114.57	119.40
-0031	32/122	100.00	104.88	109.73	114.57	119.40
-0032	-200/0	48.46	59.80	71.00	82.07	93.03
-0033	0/100ºC	100.00	109.73	119.40	128.98	138.50
-0034	30/110	99.57	103.90	108.22	112.53	116.83
-0035	-100/0ºC	60.25	70.33	80.31	90.19	100.00

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CALIBRATION DATA (continued):

Input		0%	25%	50%	75%	100%
Model	Range ºF	" = 0.00385 100**S** Pt RTD Values at % of Input Span				
-0036	-50/50ºC	80.31	90.19	100.00	109.73	119.40
-0037	0/320ºC	100.00	130.90	161.04	190.45	219.12
-0038	30/130	99.57	104.98	110.38	115.75	121.11
-0039	-30/20	86.47	89.21	91.94	94.67	97.39
-0040	-40/25	84.27	87.84	91.40	94.94	98.48
-0041	30/65	99.57	101.46	103.36	105.25	107.15
-0042	50/100	103.90	106.61	109.30	111.99	114.68
-0043						
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