

- * **LOW COST**
- * **THERMO-HEAD
INSTALLATION**
- * **0.1% ACCURACY**
- * **LOW 8.5 VDC DROP**



DESCRIPTION

Conversion of RTD, (Resistance Temperature Detector) signals is accomplished using the DEVAR Model SM812EC signal transmitter. Surface mount technology provides a slim profile allowing the SM812EC to mount directly within miniature thermal connection heads. The SM812EC accommodates Pt 100Ω RTDs and provides a 4 to 20 mA output current proportional to the detected temperature.

The SM812EC is available in a variety of precalibrated temperature ranges. The span and zero potentiometers provide span and zero adjustments of $\pm 25\%$ of the normal range. Standard ranges, model numbers and RTD resistance values at 0, 25, 50, 75, and 100% are listed in table 1.

SPECIFICATIONS

Accuracy:

$\pm 0.1\%$ span, includes effects of linearity, hysteresis, and repeatability referred to temperature input.

Nonlinearity:

0.1% relative to a 100Ω Pt RTD,
 $\alpha = 0.00385$ standard curve for nominal range.
4:1 minimum improvement on nonlinearity otherwise.

Thermal Effect:

- 1) Zero Shift of $\pm 0.02\%$ / Span / °F
- 2) Span Shift of $\pm 0.02\%$ / Span / °F

Circuitry:

Epoxy Encapsulated
Analog Circuitry w/ sealed potentiometers.

Power Supply:

- 1) Working voltage of 8.5 to 35 VDC
- 2) Supply Voltage Effect $< \pm 0.001\%$ / Span / Volt

Loop Considerations:

- 1) Loop Resistance Load Effect $< \pm 0.002\%$ Span / 300 Ohms
- 2) Maximum Loop resistance $(V \text{ supply} - 8.5V) / 20\text{mA}$

RFI immunity:

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

Frequency Response:

Output -3dB @ 3Hz Input

Temperature range:

- 1) Ambient: -13° to 185°F
- 2) Storage: -85° to 257°F

Humidity:

0 to 95% noncondensing

Input:

100Ω Pt RTD, $\alpha = 0.00385$

Output:

- 1) Signal range: 4 to 20 mADC
- 2) Absolute Limit: 2 to 29 mA
- 3) Open RTD Indication: Output $> 22\text{mA}$

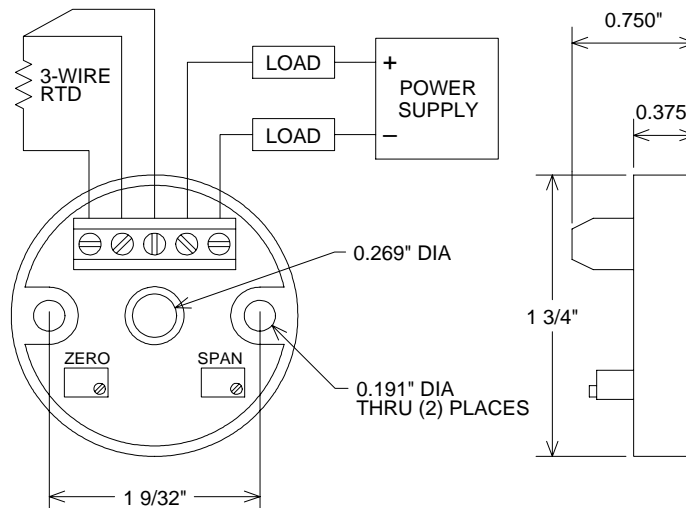
Calibration Range Adjustability:

- 1) Zero 25% of normal span
- 2) Span 25% of normal span

Table 1: Input Ranges

Model	Range °F	0%	25%	50%	75%	100%
-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	-40/25°C	84.27	90.69	97.07	103.42	109.73
-0030	0/50°C	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	0/100°C	100.00	109.73	119.40	128.98	138.50
-0034	30/110	99.57	103.90	108.22	112.53	116.83
-0035	-100/0°C	60.25	70.33	80.31	90.19	100.00
-0036	-50/50°C	80.31	90.19	100.00	109.73	119.40
-0037	0/320°C	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

($\alpha = 0.00385$ 100 Ω Pt RTD Values at % of input Span)



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