

Offsetting

All LM334 sensors will have the following information provided on a label:

Therm Reading _____

The actual temperature reading according to a thermometer that is certified traceable to recognized standards by the National Institute of Standards and Technology (NIST).

Sensor Reading _____

The temperature reading according to the LM334 sensor, using the output in either mA or mV and converting the output to a Fahrenheit temperature.

Offset _____

The difference between the Thermometer Reading and the Sensor Reading

To correct the Sensor Reading, simply add the offset value to the sensor reading so that it equals the thermometer reading.

e.g. Therm Reading 74.6 Sensor Reading 73.0 Offset +1.6
Correction: Add (+1.6) °F to the sensor for an accurate reading: $73 + 1.6 = 74.6^{\circ}\text{F}$

e.g. Therm Reading 75.4 Sensor Reading 77.2 Offset -1.8
Correction: Add (-1.6) °F to the sensor for an accurate reading: $77.2 + (-1.8) = 75.4^{\circ}\text{F}$

Troubleshooting

If the unit you installed does not respond properly, please go through the following steps:

1. Set your meter to the mV setting.
2. With the unit configured according to the diagram below (note 10K ohm 0.1% resistor required with LM334 sensor) apply the power and measure the "Sensor out."
3. Compare the voltage reading to the voltage listed in the output table listed.
4. If the sensor reads significantly lower or 0, then your sensor is shorted.
5. If the sensor reads significantly higher or OL (overload) then the sensor is open.
6. If the sensor reads properly, verify that the controller is operating correctly.

Temp.		LM334	
°F	°C	(µA)	(V)
50	10	283.2	2.83
60	15.56	288.7	2.89
62	16.67	289.8	2.90
64	17.78	290.94	2.91
66	18.89	292.1	2.92
68	20	293.2	2.93
70	21.11	294.3	2.94
72	22.22	295.4	2.95
74	23.33	296.5	2.97
76	24.44	297.6	2.98
77	25	298.2	2.98
78	25.56	298.7	2.99
80	26.67	299.8	3.00
82	27.78	300.9	3.01
84	28.89	302.1	3.02
86	30	303.2	3.03
88	31.11	304.3	3.04
90	32.22	305.4	3.05
100	37.78	310.9	3.10

