

**\*\*\*\*\*SENSORS\*\*\*\*\***

All Independent Energy, Inc. sensors except the GC-1 used for multi-point freeze sensing, are 10K OHM thermistor types. The following discussion is also applicable to the non-industry standard 3K OHM sensors.

Always disconnect the sensor wires from the control before attempting to measure the sensor resistance. Use a digital or meter type meter (note that most meter types have to be "zeroed" to ensure an accurate reading) to measure the sensor resistance at the point where the wires attach to the control. If an open or short is detected repeat the measurement at the sensor (after disconnecting the wires) to determine if the sensor or interconnecting wiring is at fault.

If the sensor reading does not correlate with the assumed temperature check:

\*There is good mechanical contact between the sensor and pipe, tank, or collector. Use a hose clamp or screw. Never rely on just taping. Poor thermal contact can cause apparant temperature errors of 10°F or more!

\*Use of thermally condutive grease (see installation instructions) is helpful.

\*Not only the sensor, but also the adjacent piping runs must be adequately insulated to eliminate the effects of ambient air temperatures. This is especially important with ST strap on sensors. Again, substantial temperature discrepancies can be caused by inadquate insulation.

\*Make sure moisture (rain, condensation,etc.) can not get into the sensor or interconnecting cabling, or wire nut connections.

°F	10K	3K	°F	10K	3K
32	32.6K	9.81K	125	3.38K	1.01K
35	30.0K	9.00K			
40	26.1K	7.84K	130	3.05K	.907K
45	22.8K	6.98K	135	2.75	.824K
50	19.9K	5.97K	140	2.49K	.747K
55	17.4K	5.24K	145	2.25K	.677K
60	15.3K	4.93K	150	2.04K	.612K
65	13.5K	4.05K	155	1.85K	.557K
70	11.9K	3.55K	160	1.69K	.505K
75	10.5K	3.16K	165	1.54K	.461K
80	9.29K	2.79K	170	1.40K	.421K
85	8.25K	2.48K	175	1.28K	.385K
90	7.33K	2.20K	180	1.17K	.351K
95	6.53K	1.96K	185	1.07K	.321K
100	5.83K	1.75K	190	.982K	.295K
105	5.21K	1.57K	195	.901K	.271K
110	4.66K	1.40K	200	.828K	.248K
115	4.18K	1.25K	205	.761K	.227K
120	3.76K	1.13K	210	.701K	.211K
			212	.679K	.204K