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Thermistor Options

To make a radiometric measurement with thermopile detectors, you will need to approximate the thermopile's cold junction temperature. Dexter offers optional externally mounted thermistors for all models as well as internally mounted thermistors on several of our models. Chip Thermistors (DC-4005) can be mounted internally in our models: ST60, ST120, ST150, 2M, 2M Quad, TM34, T34, 10-Channel, and SLA32 Array to monitor ambient temperature of the thermopile. Chip-in-Glass Thermistors (DC-4007) are available for external mounting by the customer. Customers may supply thermistors or choose from Dexter's standard thermistors. The on detector die poly-silicon resistor / thermistor (ST60R & ST150R) are also shown below. Please contact Dexter Research Center for pricing.

Chip Thermistor DC-4005 (T4)

Dexter part number: DC-4005 (formerly MT04)
Cornerstone Sensors P/N: TC1005
Description: 30k Ω 5% R/T Curve E chip thermistor
Resistance @ 25°C: 30,000 Ω
Tolerance on resistance @ 25°C: +/-5%
Dimensions (width, length, thick) inches: .027 x .027 x .010



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Cornerstone Sensors, Inc. Resistance vs. Temperature Table in 1 °C Increments -- Curve E
Resistance at 25 °C = 30.000 ohms

(°C)	Resistance (Ohms)	(°C)	Resistance (Ohms)	(°C)	Resistance (Ohms)	(°C)	Resistance (Ohms)
-50.0	1,692,966	0.0	94,980	50.0	10,969	100.0	2,070.0
-49.0	1,583,474	1.0	90,413	51.0	10,564	101.0	2,009.9
-48.0	1,481,706	2.0	86,090	52.0	10,177	102.0	1,951.8
-47.0	1,387,075	3.0	81,996	53.0	9,804.9	103.0	1,895.7
-46.0	1,299,040	4.0	78,119	54.0	9,448.7	104.0	1,841.4
-45.0	1,217,106	5.0	74,445	55.0	9,107.1	105.0	1,789.0
-44.0	1,140,816	6.0	70,964	56.0	8,779.5	106.0	1,738.2
-43.0	1,069,751	7.0	67,663	57.0	8,465.3	107.0	1,689.1
-42.0	1,003,525	8.0	64,534	58.0	8,163.8	108.0	1,641.7
-41.0	941,781	9.0	61,565	59.0	7,874.5	109.0	1,595.7
-40.0	884,192	10.0	58,749	60.0	7,596.8	110.0	1,551.3
-39.0	830,456	11.0	56,076	61.0	7,330.2	111.0	1,508.3
-38.0	780,295	12.0	53,538	62.0	7,074.3	112.0	1,466.6
-37.0	733,450	13.0	51,129	63.0	6,828.5	113.0	1,426.3
-36.0	689,686	14.0	48,841	64.0	6,592.5	114.0	1,387.3
-35.0	648,783	15.0	46,667	65.0	6,365.7	115.0	1,349.6
-34.0	610,539	16.0	44,600	66.0	6,147.8	116.0	1,313.0
-33.0	574,767	17.0	42,636	67.0	5,938.4	117.0	1,277.6
-32.0	541,293	18.0	40,769	68.0	5,737.0	118.0	1,243.2
-31.0	509,958	19.0	38,993	69.0	5,543.5	119.0	1,210.0
-30.0	480,614	20.0	37,303	70.0	5,357.4	120.0	1,177.8
-29.0	453,125	21.0	35,696	71.0	5,178.4	121.0	1,146.6
-28.0	427,362	22.0	34,165	72.0	5,006.3	122.0	1,116.3
-27.0	403,208	23.0	32,709	73.0	4,840.7	123.0	1,087.0
-26.0	380,555	24.0	31,321	74.0	4,681.3	124.0	1,058.6
-25.0	359,301	25.0	30,000	75.0	4,527.9	125.0	1,031.0
-24.0	339,353	26.0	28,741	76.0	4,380.3	126.0	1,004.3
-23.0	320,623	27.0	27,541	77.0	4,238.1	127.0	978.37
-22.0	303,031	28.0	26,398	78.0	4,101.2	128.0	953.23
-21.0	286,502	29.0	25,307	79.0	3,969.4	129.0	928.85
-20.0	270,966	30.0	24,268	80.0	3,842.4	130.0	905.20
-19.0	256,359	31.0	23,276	81.0	3,720.1	131.0	882.25
-18.0	242,619	32.0	22,329	82.0	3,602.2	132.0	859.97
-17.0	229,691	33.0	21,426	83.0	3,488.6	133.0	838.36
-16.0	217,523	34.0	20,564	84.0	3,379.1	134.0	817.38
-15.0	206,067	35.0	19,741	85.0	3,273.6	135.0	797.02
-14.0	195,276	36.0	18,955	86.0	3,171.8	136.0	777.24
-13.0	185,109	37.0	18,204	87.0	3,073.7	137.0	758.05
-12.0	175,527	38.0	17,487	88.0	2,979.0	138.0	739.40
-11.0	166,494	39.0	16,801	89.0	2,887.7	139.0	721.30
-10.0	157,974	40.0	16,146	90.0	2,799.6	140.0	703.71
-9.0	149,936	41.0	15,520	91.0	2,714.6	141.0	686.63
-8.0	142,351	42.0	14,920	92.0	2,632.5	142.0	670.03
-7.0	135,190	43.0	14,347	93.0	2,553.3	143.0	653.90
-6.0	128,428	44.0	13,799	94.0	2,476.9	144.0	638.23
-5.0	122,041	45.0	13,275	95.0	2,403.0	145.0	623.00
-4.0	116,005	46.0	12,773	96.0	2,331.7	146.0	608.20
-3.0	110,301	47.0	12,292	97.0	2,262.9	147.0	593.81
-2.0	104,907	48.0	11,832	98.0	2,196.4	148.0	579.82
-1.0	99,806	49.0	11,391	99.0	2,132.1	149.0	566.22
						150.0	552.99



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Cornerstone Sensors, Inc. Curve E Resistance vs. Temperature Table in 5 °C Increments
With Manufacturing Tolerance Adders, Resistance at 25 °C = 30,000 ohms ± 5 %

Temp. (°C)	Resistance at Temp. (ohms)	NTC (%/°C)	Point Matched Resistance Mfg. Tolerance Adder (±%)	Resistance Tolerance at Temp. (±%)
-50	1,692,966	-6.71	6.5	11.5
-45	1,217,106	-6.49	5.7	10.7
-40	884,193	-6.29	5.0	10.0
-35	648,783	-6.09	4.4	9.4
-30	480,615	-5.91	3.8	8.8
-25	359,301	-5.73	3.3	8.3
-20	270,966	-5.56	2.8	7.8
-15	206,067	-5.39	2.4	7.4
-10	157,974	-5.24	2.0	7.0
-5	122,041	-5.09	1.7	6.7
0	94,980	-4.94	1.4	6.4
5	74,445	-4.80	1.1	6.1
10	58,749	-4.67	0.8	5.8
15	46,667	-4.54	0.5	5.5
20	37,303	-4.42	0.3	5.3
25	30,000	-4.30	0.0	5.0
30	24,268	-4.18	0.3	5.3
35	19,741	-4.07	0.5	5.5
40	16,146	-3.97	0.7	5.7
45	13,275	-3.87	0.9	5.9
50	10,969	-3.77	1.2	6.2
55	9,107.1	-3.67	1.4	6.4
60	7,596.9	-3.58	1.6	6.6
65	6,365.7	-3.49	1.8	6.8
70	5,357.4	-3.41	2.0	7.0
75	4,527.9	-3.32	2.1	7.1
80	3,842.4	-3.24	2.3	7.3
85	3,273.6	-3.17	2.5	7.5
90	2,799.6	-3.09	2.7	7.7
95	2,403.0	-3.02	2.8	7.8
100	2,070.0	-2.95	3.0	8.0
105	1,788.9	-2.88	3.1	8.1
110	1,551.3	-2.82	3.3	8.3
115	1,349.7	-2.75	3.4	8.4
120	1,177.8	-2.69	3.6	8.6
125	1,031.1	-2.63	3.7	8.7
130	905.10	-2.57	3.9	8.9
135	797.10	-2.52	4.0	9.0
140	703.80	-2.46	4.2	9.2
145	623.10	-2.41	4.3	9.3
150	552.90	-2.36	4.5	9.5

COLUMN HEADING DEFINITIONS:

NTC - The Negative Temperature Coefficient of resistance is the % change in resistance per change in temperature, expressed in units of -%/ °C. To determine the approximate % resistance tolerance of a thermistor at a particular temperature, multiply the given NTC value by the temperature tolerance at that temperature .

POINT MATCHED - For thermistors with a specified tolerance at a single temperature point, the manufacturing tolerance is used to determine the tolerance at other temperature points. Typically, thermistors are specified at 25 °C. To determine the resistance tolerance at another temperature point, add the manufacturing tolerance to the specified point matched tolerance. For example, a thermistor with a ± 5 % resistance tolerance at 25 °C has a ± 6.4 % tolerance at 0 °C. Point matched thermistors should typically not cycle or operate continuously above 105 °C.



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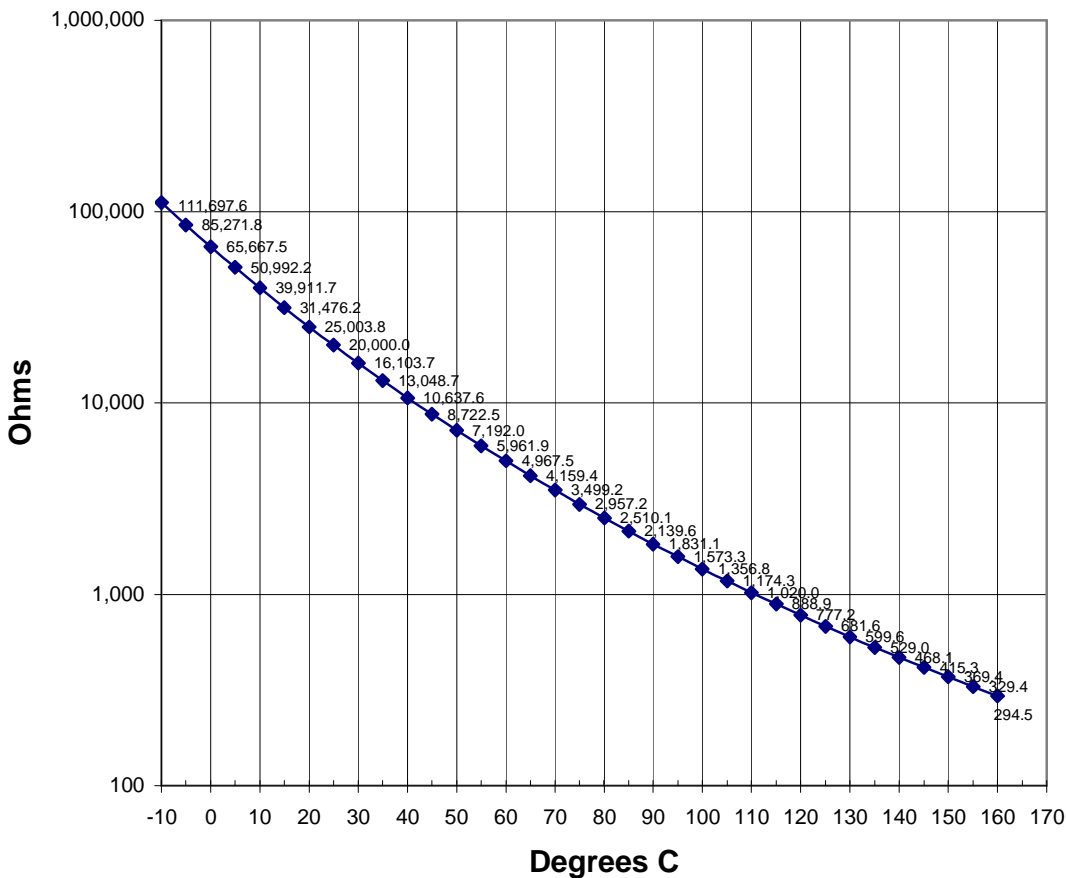


Chip-in-Glass Thermistor DC-4007 (T6)

Dexter part number: DC-4007 (formerly MT06)
 Thermometrics P/N: GC32KB203
 Description: 20k Ω 5% B-curve Chip-in-Glass thermistor
 Resistance @ 25°C: 20,000 Ω
 Tolerance on resistance @ 25°C: +/-5%
 Resistance ratio ($R_{0^\circ\text{C}}/R_{70^\circ\text{C}}$): 18.77
 Dimensions (diameter, length) inches: \varnothing .033 x .084

DC-4007	
Degree C	Ohms
-10	111,697.6
-5	85,271.8
0	65,667.5
5	50,992.2
10	39,911.7
15	31,476.2
20	25,003.8
25	20,000.0
30	16,103.7
35	13,048.7
40	10,637.6
45	8,722.5
50	7,192.0
55	5,961.9
60	4,967.5
65	4,159.4
70	3,499.2
75	2,957.2
80	2,510.1
85	2,139.6
90	1,831.1
95	1,573.3
100	1,356.8
105	1,174.3
110	1,020.0
115	888.9
120	777.2
125	681.6
130	599.6
135	529.0
140	468.1
145	415.3
150	369.4
155	329.4
160	294.5

DC-4007 Resistance as a function of temperature





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Thermistor ST60R

Dexter part number: ST60R

Description: 30kΩ 20% on detector die thermistor, poly-silicon curve
.11%±.003%/°C [$\Delta R / (R \cdot \Delta T)$]

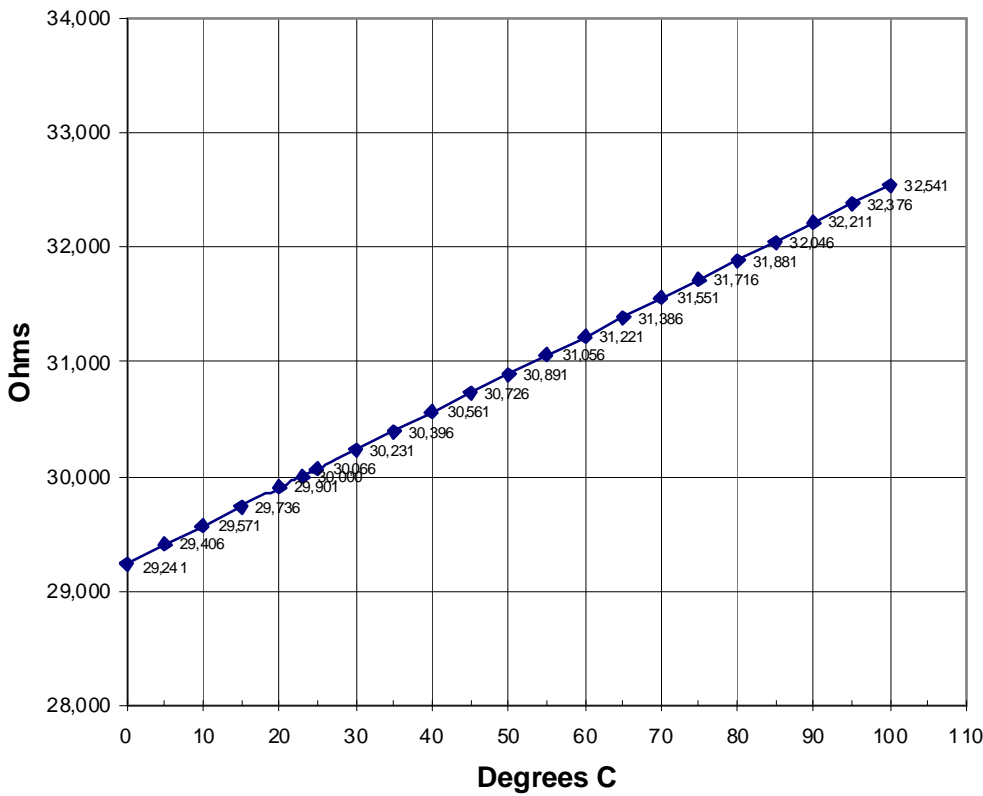
Resistance @ 23°C: 30,000 Ω

Tolerance on resistance @ 23°C: +/-20%

Resistance ratio ($R_{0°C} / R_{70°C}$): .953

Dimensions inches: NA`

ST60R Resistance as a function of temperature



ST60R	
Degree C	Ohms
0	29,241
5	29,406
10	29,571
15	29,736
20	29,901
23	30,000
25	30,066
30	30,231
35	30,396
40	30,561
45	30,726
50	30,891
55	31,056
60	31,221
65	31,386
70	31,551
75	31,716
80	31,881
85	32,046
90	32,211
95	32,376
100	32,541



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Thermistor ST150R

Dexter part number: ST150R

Description: 75kΩ 20% on detector die thermistor, poly-silicon curve
.11%±.003%/°C [ΔR/(R*ΔT)]

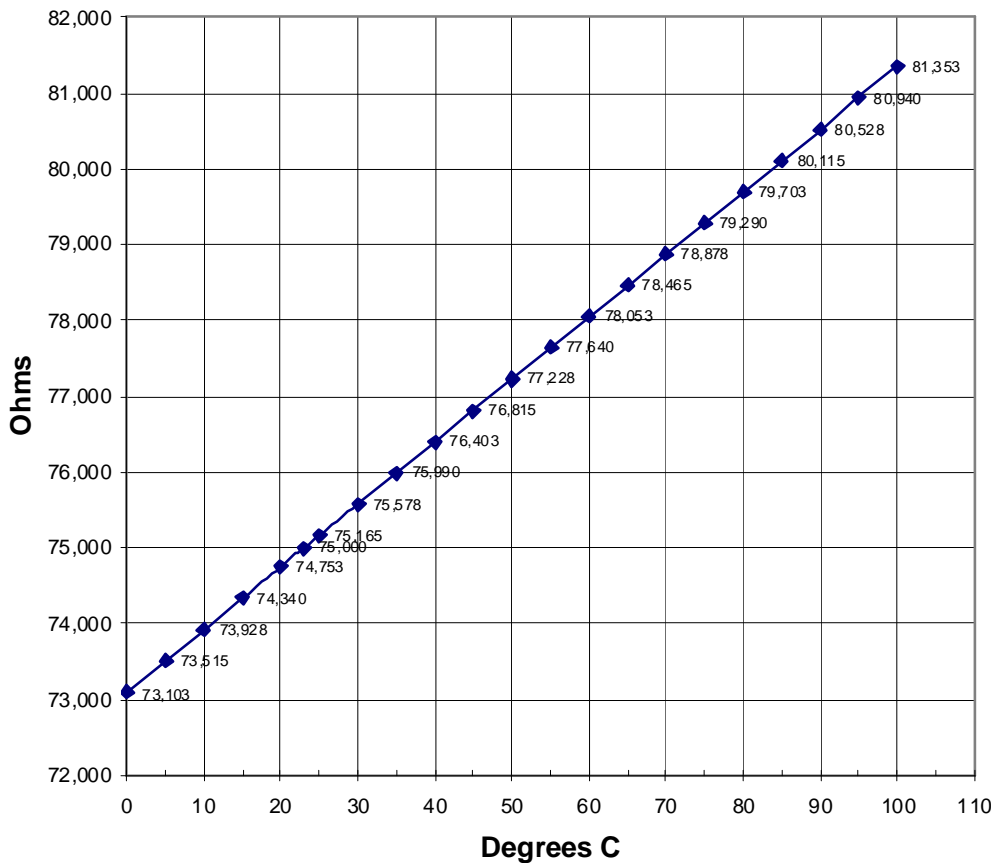
Resistance @ 23°C: 75,000 Ω

Tolerance on resistance @ 23°C: +/-20%

Resistance ratio (R_{0°C}/R_{70°C}): .957

Dimensions inches: NA

ST150R Resistance as a function of temperature



ST150R	
Degree C	Ohms
0	73,103
5	73,515
10	73,928
15	74,340
20	74,753
23	75,000
25	75,165
30	75,578
35	75,990
40	76,403
45	76,815
50	77,228
55	77,640
60	78,053
65	78,465
70	78,878
75	79,290
80	79,703
85	80,115
90	80,528
95	80,940
100	81,353