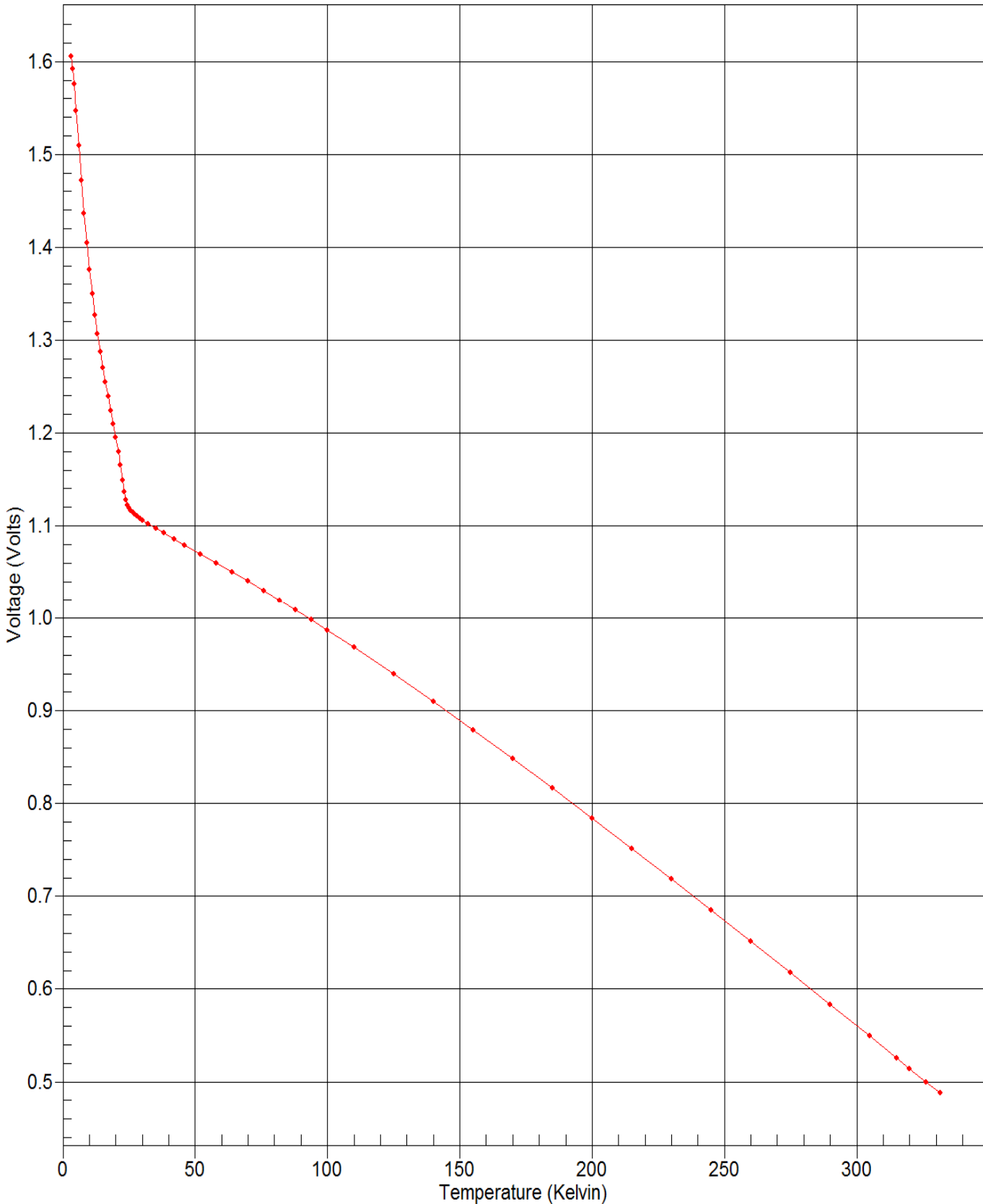


DATA PLOT

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K



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TEST DATA

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Index	Temp. (K)	Voltage (V)	Excitation	Index	Temp. (K)	Voltage (V)	Excitation
1	3.19891	1.60578	10µA±0.1%	36	42.1318	1.08571	10µA±0.1%
2	3.69891	1.59169	10µA±0.1%	37	46.1201	1.07938	10µA±0.1%
3	4.21101	1.57579	10µA±0.1%	38	52.1239	1.06977	10µA±0.1%
4	5.05539	1.54657	10µA±0.1%	39	58.1164	1.06006	10µA±0.1%
5	6.05429	1.50954	10µA±0.1%	40	64.1191	1.05019	10µA±0.1%
6	7.06482	1.47197	10µA±0.1%	41	70.1214	1.04013	10µA±0.1%
7	8.07207	1.43653	10µA±0.1%	42	76.1108	1.02991	10µA±0.1%
8	9.08992	1.40438	10µA±0.1%	43	82.0995	1.01950	10µA±0.1%
9	10.1059	1.37582	10µA±0.1%	44	88.1018	1.00888	10µA±0.1%
10	11.1235	1.35013	10µA±0.1%	45	94.0944	0.998076	10µA±0.1%
11	12.1329	1.32715	10µA±0.1%	46	100.087	0.987094	10µA±0.1%
12	13.1371	1.30639	10µA±0.1%	47	110.090	0.968370	10µA±0.1%
13	14.1332	1.28763	10µA±0.1%	48	125.075	0.939500	10µA±0.1%
14	15.1237	1.27042	10µA±0.1%	49	140.076	0.909737	10µA±0.1%
15	16.1083	1.25441	10µA±0.1%	50	155.066	0.879258	10µA±0.1%
16	17.0904	1.23919	10µA±0.1%	51	170.066	0.848126	10µA±0.1%
17	18.0717	1.22446	10µA±0.1%	52	185.053	0.816476	10µA±0.1%
18	19.0545	1.20990	10µA±0.1%	53	200.045	0.784336	10µA±0.1%
19	20.0379	1.19515	10µA±0.1%	54	215.048	0.751738	10µA±0.1%
20	21.0212	1.17958	10µA±0.1%	55	230.047	0.718760	10µA±0.1%
21	21.8146	1.16537	10µA±0.1%	56	245.043	0.685431	10µA±0.1%
22	22.6085	1.14863	10µA±0.1%	57	260.032	0.651793	10µA±0.1%
23	23.2148	1.13617	10µA±0.1%	58	275.045	0.617796	10µA±0.1%
24	23.8194	1.12750	10µA±0.1%	59	290.049	0.583550	10µA±0.1%
25	24.4247	1.12245	10µA±0.1%	60	305.037	0.549089	10µA±0.1%
26	25.0304	1.11923	10µA±0.1%	61	315.050	0.525950	10µA±0.1%
27	25.6318	1.11687	10µA±0.1%	62	320.042	0.514374	10µA±0.1%
28	26.4474	1.11432	10µA±0.1%	63	326.327	0.499773	10µA±0.1%
29	27.2605	1.11220	10µA±0.1%	64	331.515	0.487703	10µA±0.1%
30	28.0760	1.11030	10µA±0.1%				
31	29.0921	1.10813	10µA±0.1%				
32	30.1029	1.10611	10µA±0.1%				
33	32.1183	1.10234	10µA±0.1%				
34	35.1335	1.09707	10µA±0.1%				
35	38.1391	1.09210	10µA±0.1%				



UNCERTAINTY ANALYSIS

Calibration Report: 677809
 Sensor Model: DT-670-SD-4L
 Sensor Type: Silicon Diode

Sales Order: 74204
 Serial Number: D6026339
 Temperature Range: 4.00K to 325K

Calibration Data Uncertainty

The uncertainties of the measured calibration data for Lake Shore's sensors are summarized in the table below. The values given are the combined uncertainty of the temperature measurement and the resistance or voltage measurement expressed as an equivalent temperature uncertainty in millikelvin (mK). Note that the values are the calibration uncertainty only and do not include the stability of the temperature sensor. The uncertainty analysis has followed the guidelines for determining measurement uncertainty as outlined in the ISO Guide to the Expression of Uncertainty in Measurement, NIST Technical Note 1297, and ANSI/NCSL Z540-2-1997. Since the uncertainty varies with temperature due to the variation of the sensor sensitivity and excitation, the table gives typical values at several different temperatures throughout the range of the calibration. The uncertainty is based on an approximate 95% confidence level with a coverage factor $k = 2$.

T (K)	Uncertainty (\pm mK)													
	GR	Cernox (CX)					RX			Platinum		RF-800	Diode	
		1010	1030	1050	1070	1080	102A	103A	202A	100 Ω	25 Ω	27 Ω		
1.4	4	4	4	4			4	4	4				5	7
4.2	4	4	4	4	4		4	6	5				5	5
10	4	5	5	4	4		10	15	12				7	6
20	8	10	9	8	8	8	35	35	28	9	10		13	9
30	9	13	11	9	9	9	76	61	46	9	9		14	31
50	11	18	14	12	12	11				10	10		13	37
100	20	29	22	17	16	14				11	12		12	32
300		78	60	46	45	36				24	24		25	35
400		124	94	74	72	60				45	45		45	49
500										51	51			54

Polynomial Fit Uncertainty

When a sensor is used to measure temperature, a polynomial fit to the measured calibration data is often used to convert the sensor resistance (R) or voltage (V) to a temperature (T). How well the polynomial represents the sensor calibration data is another source of uncertainty when using the sensor. In the polynomials provided with this set of calibration data, the standard deviation of the fit can be used as an estimate of this additional temperature uncertainty. The standard deviation of fit is determined from the following equation:

$$\sigma_{fit}^2 = \frac{\sum_{i=1}^N (T_i - T_{i,calc})^2}{N - n} = \frac{N}{N - n} (\Delta T_{RMS})^2$$

where

- σ_{fit} = standard deviation of the fit
- T_i = measured temperature for point i
- $T_{i,calc}$ = the temperature calculated from the polynomial equation for point i
- N = number of data points in fit range
- n = number of fit coefficients
- ΔT_{RMS} = root mean square deviation of fit

A value of ΔT_{RMS} is given for each range of fit.

F008-04-00_B (01/17/11)



POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

4.00 K to 25.0 K
1.583 Volts to 1.119 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 1.114323696 ZU = 1.605780204

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	12.710891	3.5737E-03	3556.75
1	-10.843082	5.3929E-03	-2010.62
2	1.766331	5.0526E-03	349.59
3	-0.256392	5.1216E-03	-50.06
4	-0.158644	5.1194E-03	-30.99
5	-0.101431	5.0450E-03	-20.11
6	0.183403	4.9005E-03	37.43
7	-0.207715	4.7732E-03	-43.52
8	0.170478	4.6806E-03	36.42
9	-0.126226	4.6681E-03	-27.04
10	0.085359	4.7762E-03	17.87
11	-0.058881	4.9692E-03	-11.85
12	0.040873	5.0296E-03	8.13
13	-0.024034	4.8738E-03	-4.93
14	0.018594	4.6496E-03	4.00

Z = Voltage

$$k = ((Z-ZL)-(ZU-Z))/(ZU-ZL)$$

Temp. (K) = $\sum A_i \cdot \text{COS}(i \cdot \text{ARCCOS}(k))$, where $0 \leq i \leq 14$
and the A_i 's are the coefficients in the table above.



POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Temp. (K) vs. Voltage

	V Meas. (V)	T Meas. (K)	T Eq. (K)	T diff. (mK)
1	1.605780	3.19891	3.19953	-0.61
2	1.591692	3.69891	3.69586	3.05
3	1.575792	4.21101	4.21628	-5.28
4	1.546574	5.05539	5.04881	6.58
5	1.509545	6.05429	6.06338	-9.09
6	1.471969	7.06482	7.05387	10.95
7	1.436529	8.07207	8.07877	-6.71
8	1.404377	9.08992	9.09469	-4.77
9	1.375816	10.10595	10.09672	9.23
10	1.350129	11.12346	11.12020	3.26
11	1.327146	12.13286	12.14043	-7.57
12	1.306387	13.13709	13.14455	-7.46
13	1.287631	14.13317	14.12980	3.37
14	1.270415	15.12370	15.11420	9.49
15	1.254414	16.10830	16.10210	6.20
16	1.239186	17.09040	17.09600	-5.60
17	1.224457	18.07175	18.08377	-12.03
18	1.209903	19.05449	19.05948	-4.99
19	1.195155	20.03792	20.02703	10.89
20	1.179581	21.02120	21.00556	15.64
21	1.165372	21.81462	21.82539	-10.77
22	1.148629	22.60850	22.63285	-24.35
23	1.136167	23.21477	23.18821	26.55
24	1.127501	23.81940	23.80306	16.34
25	1.122453	24.42466	24.44163	-16.97
26	1.119234	25.03039	25.04773	-17.33
27	1.116872	25.63176	25.63218	-0.42
28	1.114324	26.44745	26.43504	12.40

Order of Fit = 14 RMS error of fit = 11.48 mK
Largest absolute error = 26.55 mK at data point no. 23



POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

25.0 K to 88.1 K
1.119 Volts to 1.009 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 0.987093522 ZU = 1.127501006

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	60.110035	8.0317E-03	7484.06
1	-39.927820	1.4226E-02	-2806.59
2	1.042149	1.3442E-02	77.53
3	1.503102	9.6622E-03	155.57
4	0.842621	6.9909E-03	120.53
5	0.326964	3.2183E-03	101.59
6	0.066739	3.6599E-03	18.24
7	-0.019516	6.8207E-03	-2.86
8	-0.057639	9.6296E-03	-5.99
9	-0.016046	1.0440E-02	-1.54
10	-0.033247	1.0680E-02	-3.11
11	-0.000609	8.3590E-03	-0.07
12	-0.018085	5.8666E-03	-3.08

Z = Voltage

$$k = ((Z-ZL)-(ZU-Z))/(ZU-ZL)$$

Temp. (K) = $\sum A_i * \text{COS}(i * \text{ARCCOS}(k))$, where $0 \leq i \leq 12$
and the A_i 's are the coefficients in the table above.

POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Temp. (K) vs. Voltage

	V Meas. (V)	T Meas. (K)	T Eq. (K)	T diff. (mK)
24	1.127501	23.80306	23.81865	0.75
25	1.122453	24.44163	24.43226	-7.60
26	1.119234	25.04773	25.01803	12.37
27	1.116872	25.63176	25.62680	4.96
28	1.114324	26.44745	26.45541	-7.96
29	1.112199	27.26045	27.26997	-9.52
30	1.110301	28.07602	28.08015	-4.13
31	1.108131	29.09214	29.08911	3.04
32	1.106113	30.10288	30.09409	8.79
33	1.102338	32.11834	32.11073	7.61
34	1.097071	35.13350	35.14023	-6.73
35	1.092101	38.13906	38.14748	-8.42
36	1.085714	42.13180	42.12580	6.00
37	1.079380	46.12007	46.11461	5.46
38	1.069767	52.12395	52.13143	-7.48
39	1.060059	58.11642	58.11421	2.21
40	1.050186	64.11915	64.11598	3.17
41	1.040133	70.12137	70.12606	-4.69
42	1.029915	76.11081	76.10758	3.24
43	1.019503	82.09952	82.10090	-1.38
44	1.008876	88.10182	88.10145	0.37
45	0.9980763	94.09439	94.09445	-0.06
46	0.9870935	100.08650	100.08650	0.00

Order of Fit = 12 RMS error of fit = 6.04 mK
Largest absolute error = 12.37 mK at data point no. 26



POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

88.1 K to 325. K
1.009 Volts to 0.5029 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 0.4877027744 ZU = 1.029914546

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	208.062694	1.1772E-04	1767369.36
1	-126.709345	1.7060E-04	-742707.23
2	-3.981143	1.6787E-04	-23715.57
3	-0.913382	1.7264E-04	-5290.71
4	-0.252255	1.7092E-04	-1475.88
5	-0.077656	1.6314E-04	-476.02
6	-0.017770	1.5726E-04	-113.00
7	-0.002379	1.5690E-04	-15.16
8	0.000655	1.5914E-04	4.12
9	0.000510	1.5900E-04	3.21
10	0.000606	1.5705E-04	3.86

Z = Voltage

$$k = ((Z-ZL)-(ZU-Z))/(ZU-ZL)$$

Temp. (K) = $\sum A_i \cdot \text{COS}(i \cdot \text{ARCCOS}(k))$, where $0 \leq i \leq 10$
and the A_i 's are the coefficients in the table above.

POLYNOMIAL EQUATION

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Temp. (K) vs. Voltage

	V Meas. (V)	T Meas. (K)	T Eq. (K)	T diff. (mK)
42	1.029915	76.10758	76.11054	0.28
43	1.019503	82.10090	82.10010	-0.58
44	1.008876	88.10145	88.10189	-0.07
45	0.9980763	94.09439	94.09399	0.39
46	0.9870935	100.08650	100.08618	0.32
47	0.9683703	110.09043	110.09060	-0.17
48	0.9395001	125.07539	125.07594	-0.55
49	0.9097369	140.07609	140.07578	0.31
50	0.8792582	155.06592	155.06552	0.40
51	0.8481263	170.06632	170.06642	-0.09
52	0.8164764	185.05268	185.05337	-0.68
53	0.7843363	200.04467	200.04429	0.39
54	0.7517378	215.04838	215.04807	0.30
55	0.7187605	230.04680	230.04689	-0.09
56	0.6854308	245.04338	245.04379	-0.41
57	0.6517932	260.03206	260.03167	0.39
58	0.6177956	275.04537	275.04565	-0.29
59	0.5835499	290.04911	290.04865	0.46
60	0.5490892	305.03746	305.03820	-0.74
61	0.5259497	315.04963	315.04894	0.69
62	0.5143738	320.04197	320.04207	-0.10
63	0.4997727	326.32741	326.32764	-0.23
64	0.4877028	331.51513	331.51504	0.08

Order of Fit = 10 RMS error of fit = 0.40 mK
Largest absolute error = -0.74 mK at data point no. 60

INTERPOLATION TABLE

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Temp (K)	Volts (V)	dV/dT (mV/K)	Temp (K)	Volts (V)	dV/dT (mV/K)
4.000	1.58253	-31.304	37.00	1.09396	-1.6439
4.200	1.57615	-32.485	38.00	1.09233	-1.6246
4.400	1.56954	-33.609	39.00	1.09071	-1.6095
4.600	1.56272	-34.575	40.00	1.08911	-1.5983
4.800	1.55572	-35.384	42.00	1.08592	-1.5875
5.000	1.54857	-36.035	44.00	1.08275	-1.5873
5.200	1.54131	-36.543	46.00	1.07957	-1.5914
5.400	1.53396	-36.943	48.00	1.07638	-1.5978
5.600	1.52654	-37.237	50.00	1.07318	-1.6039
5.800	1.51908	-37.426	52.00	1.06997	-1.6097
6.000	1.51158	-37.510	54.00	1.06674	-1.6158
6.500	1.49285	-37.323	56.00	1.06350	-1.6228
7.000	1.47434	-36.642	58.00	1.06025	-1.6307
7.500	1.45629	-35.468	60.00	1.05698	-1.6394
8.000	1.43895	-33.801	65.00	1.04872	-1.6639
8.500	1.42254	-31.868	70.00	1.04034	-1.6897
9.000	1.40707	-30.056	75.00	1.03182	-1.7161
9.500	1.39246	-28.387	77.35	1.02778	-1.7290
10.00	1.37865	-26.890	80.00	1.02318	-1.7434
10.50	1.36555	-25.534	85.00	1.01439	-1.7700
11.00	1.35310	-24.248	90.00	1.00548	-1.7965
11.50	1.34129	-23.043	95.00	0.996428	-1.8224
12.00	1.33004	-21.944	100.0	0.987253	-1.8474
12.50	1.31933	-20.933	105.0	0.977956	-1.8713
13.00	1.30910	-19.957	110.0	0.968542	-1.8943
13.50	1.29936	-19.038	115.0	0.959015	-1.9162
14.00	1.29005	-18.237	120.0	0.949382	-1.9369
14.50	1.28111	-17.540	125.0	0.939648	-1.9566
15.00	1.27250	-16.904	130.0	0.929818	-1.9752
15.50	1.26419	-16.344	135.0	0.919897	-1.9929
16.00	1.25613	-15.904	140.0	0.909890	-2.0098
16.50	1.24827	-15.561	145.0	0.899801	-2.0257
17.00	1.24056	-15.266	150.0	0.889634	-2.0409
17.50	1.23299	-15.027	155.0	0.879394	-2.0552
18.00	1.22552	-14.869	160.0	0.869083	-2.0689
18.50	1.21811	-14.796	165.0	0.858706	-2.0819
19.00	1.21071	-14.818	170.0	0.848265	-2.0944
19.50	1.20327	-14.954	175.0	0.837763	-2.1062
20.00	1.19573	-15.234	180.0	0.827204	-2.1176
21.00	1.17993	-16.593	185.0	0.816589	-2.1284
22.00	1.16165	-20.529	190.0	0.805921	-2.1387
23.00	1.14029	-20.236	195.0	0.795202	-2.1488
24.00	1.12569	-9.1683	200.0	0.784433	-2.1586
25.00	1.11937	-4.5208	205.0	0.773616	-2.1681
26.00	1.11565	-3.1414	210.0	0.762752	-2.1773
27.00	1.11285	-2.5415	215.0	0.751844	-2.1861
28.00	1.11047	-2.2421	220.0	0.740892	-2.1946
29.00	1.10832	-2.0688	225.0	0.729898	-2.2028
30.00	1.10631	-1.9548	230.0	0.718864	-2.2109
31.00	1.10440	-1.8774	235.0	0.707790	-2.2187
32.00	1.10255	-1.8174	240.0	0.696677	-2.2263
33.00	1.10076	-1.7705	245.0	0.685528	-2.2335
34.00	1.09901	-1.7301	250.0	0.674342	-2.2407
35.00	1.09730	-1.6961	255.0	0.663121	-2.2477
36.00	1.09562	-1.6677	260.0	0.651866	-2.2546



INTERPOLATION TABLE

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

<u>Temp (K)</u>	<u>Volts (V)</u>	<u>dV/dT (mV/K)</u>	<u>Temp (K)</u>	<u>Volts (V)</u>	<u>dV/dT (mV/K)</u>
265.0	0.640575	-2.2614	285.0	0.595104	-2.2853
270.0	0.629253	-2.2677	290.0	0.583662	-2.2911
273.15	0.622103	-2.2715	295.0	0.572193	-2.2967
275.0	0.617899	-2.2737	300.0	0.560696	-2.3018
280.0	0.606516	-2.2795	305.0	0.549176	-2.3064
			310.0	0.537632	-2.3110
			315.0	0.526065	-2.3162
			320.0	0.514471	-2.3208
			325.0	0.502858	-2.3242



THERMAL CYCLE TESTING

Sensor Model: DT-670-SD-4L

Serial Number: D6026339

Sensor Type: Silicon Diode

This sensor was tested for repeatability through rapid thermal cycles from room temperature into liquid helium. During this test, the following four lead voltage values were recorded:

Approximately 305 K:	0.549 V
Liquid Nitrogen:	1.028 V
Liquid Helium:	1.577 V

The nitrogen and helium values were recorded in OPEN dewars, so precision comparisons with calibration values or other thermal cycle test values should not be made.

Recommended Operating Parameters:

For diode sensors calibrated by LSCI, the current is maintained at the constant values listed on the Test Data page. In order to minimize calibration offsets due to the nonlinear voltage-current relationship in the diode sensor, these same guidelines should be followed in using the sensor.



BREAKPOINTS 340 FORMAT

Calibration Report: 677809

Sensor Model: DT-670-SD-4L

Sensor Type: Silicon Diode

Sales Order: 74204

Serial Number: D6026339

Temperature Range: 4.00K to 325K

Name: DT-670-SD-4L

Serial number: D6026339

Format: 2 ;Volts/Kelvin

Limit: 325.0

Coefficient: 1 ;Negative

Point 1: 9.06000e-02,500.000
Point 2: .110239,491.000
Point 3: .136555,479.500
Point 4: .179181,461.500
Point 5: .265393,425.500

Point 6: .349522,390.000
Point 7: .452797,346.000
Point 8: .502883,325.000
Point 9: .543430,307.500
Point 10: .581392,291.000

Point 11: .615645,276.000
Point 12: .648503,261.500
Point 13: .679962,247.500
Point 14: .710029,234.000
Point 15: .737618,221.500

Point 16: .763860,209.500
Point 17: .788766,198.000
Point 18: .812347,187.000
Point 19: .834620,176.500
Point 20: .855599,166.500

Point 21: .875296,157.000
Point 22: .893728,148.000
Point 23: .910912,139.500
Point 24: .926868,131.500
Point 25: .942598,123.500

Point 26: .957114,116.000
Point 27: .970450,109.000
Point 28: .983567,102.000
Point 29: .993697,96.500
Point 30: 1.00188,92.000

Point 31: 1.00996,87.500
Point 32: 1.01793,83.000
Point 33: 1.02579,78.500
Point 34: 1.03355,74.000
Point 35: 1.04119,69.500

Point 36: 1.04873,65.000
Point 37: 1.05617,60.500
Point 38: 1.06383,55.800
Point 39: 1.07287,50.200
Point 40: 1.08180,44.600

Point 41: 1.08878,40.200
Point 42: 1.09297,37.600
Point 43: 1.09628,35.600
Point 44: 1.09918,33.900
Point 45: 1.10182,32.400

Point 46: 1.10439,31.000
Point 47: 1.10670,29.800
Point 48: 1.10873,28.800
Point 49: 1.11046,28.000
Point 50: 1.11209,27.300

Point 51: 1.11362,26.700
Point 52: 1.11503,26.200
Point 53: 1.11662,25.700
Point 54: 1.11809,25.300
Point 55: 1.11936,25.000

Point 56: 1.12083,24.700
Point 57: 1.12259,24.400
Point 58: 1.12478,24.100
Point 59: 1.12664,23.900
Point 60: 1.12886,23.700

Point 61: 1.13153,23.500
Point 62: 1.13466,23.300
Point 63: 1.14022,23.000
Point 64: 1.16173,22.000
Point 65: 1.17138,21.500

Point 66: 1.18165,20.900
Point 67: 1.19427,20.100
Point 68: 1.19875,19.800
Point 69: 1.21000,19.050
Point 70: 1.22773,17.850

Point 71: 1.24130,16.950
Point 72: 1.25294,16.200
Point 73: 1.26335,15.550
Point 74: 1.27331,14.950
Point 75: 1.28284,14.400

Point 76: 1.29276,13.850
Point 77: 1.30221,13.350
Point 78: 1.31208,12.850
Point 79: 1.32245,12.350
Point 80: 1.33332,11.850

Point 81: 1.34472,11.350
Point 82: 1.35672,10.850
Point 83: 1.36936,10.350
Point 84: 1.38266,9.850
Point 85: 1.39527,9.400

Point 86: 1.40852,8.950
Point 87: 1.42249,8.500
Point 88: 1.43721,8.050
Point 89: 1.45446,7.550
Point 90: 1.47611,6.950

Point 91: 1.53772,5.300
Point 92: 1.55720,4.760
Point 93: 1.57161,4.340
Point 94: 1.58194,4.020
Point 95: 1.58253,4.000

Point 96: 1.59690,3.580
Point 97: 1.60756,3.180
Point 98: 1.62125,2.620
Point 99: 1.62945,2.260
Point 100: 1.63516,1.980

Point 101: 1.63943,1.740
Point 102: 1.64261,1.530
Point 103: 1.64430,1.400

Note: Breakpoints outside of the calibration range were added from the standard curve. These extra points conform to reduced accuracy specifications and are added as a convenience to the customer.



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F010-04-00_B 06/21/2011

BREAKPOINTS 91C/93C/330 FORMAT

Calibration Report: 677809
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026339
Temperature Range: 4.00K to 325K

Interpolation Method: Straight Line
Limit: 325.0 (Kelvin)
Format: 2 (Volts/Kelvin)
Number of Breakpoints: 37

No.	Units	Temperature (K)	No.	Units	Temperature (K)
1	0.147030	475.0	21	1.10828	29.0
2	0.218700	445.0	22	1.11281	27.0
3	0.326000	400.0	23	1.11565	26.0
4	0.490260	330.0	24	1.11937	25.0
5	0.502950	325.0	25	1.12569	24.0
6	0.572240	295.0	26	1.14029	23.0
7	0.640660	265.0	27	1.16165	22.0
8	0.707880	235.0	28	1.17993	21.0
9	0.762810	210.0	29	1.26378	15.5
10	0.816680	185.0	30	1.30843	13.0
11	0.858750	165.0	31	1.36452	10.5
12	0.899880	145.0	32	1.43743	8.0
13	0.939740	125.0	33	1.57763	4.2
14	0.968580	110.0	34	1.58253	4.0
15	0.996490	95.0	35	1.59237	3.8
16	1.02324	80.0	36	1.63785	1.9
17	1.04879	65.0	37	1.64411	1.4
18	1.07324	50.0			
19	1.09390	37.0			
20	1.10250	32.0			

Note: Breakpoints outside of the calibration range were added from the standard curve. These extra points conform to reduced accuracy specifications and are added as a convenience to the customer.

