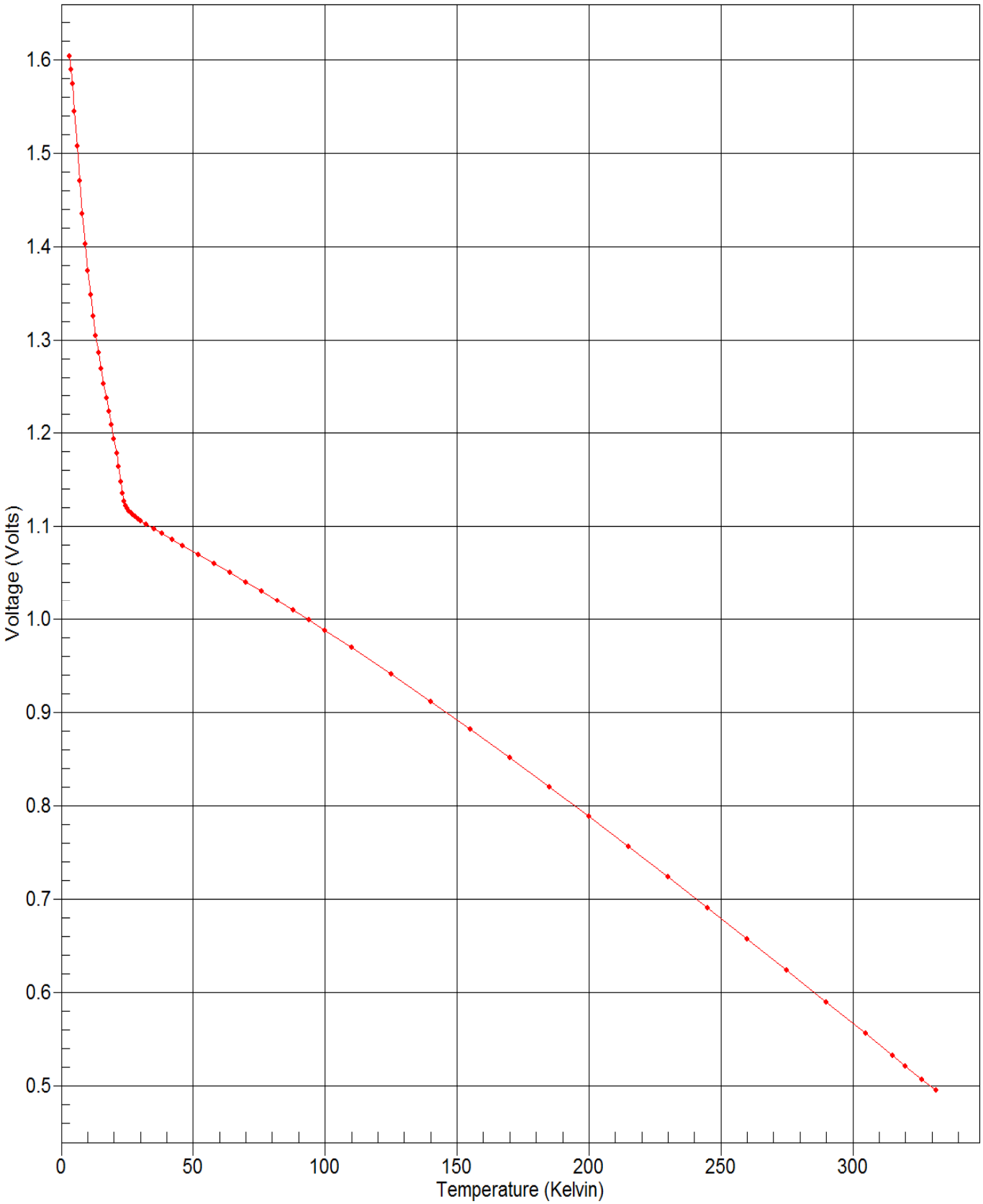
DATA PLOT

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
Temperature Range: 4.00K to 325K



Lake Shore Cryotronics, Inc. • 575 McCorkle Boulevard • Westerville, OH 43082
Sales: (614) 891-2244 • Fax: (614) 891-1392 • sales@lakeshore.com • www.lakeshore.com

F010-04-00_B 06/21/2011

TEST DATA

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
Temperature Range: 4.00K to 325K

Index	Temp. (K)	Voltage (V)	Excitation	Index	Temp. (K)	Voltage (V)	Excitation
1	3.20025	1.60380	10μA±0.1%	36	42.1315	1.08610	10μA±0.1%
2	3.69902	1.58961	10μA±0.1%	37	46.1225	1.07978	10μA±0.1%
3	4.21085	1.57369	10μA±0.1%	38	52.1225	1.07021	10μA±0.1%
4	5.05918	1.54441	10μA±0.1%	39	58.1195	1.06054	10μA±0.1%
5	6.05769	1.50744	10μA±0.1%	40	64.1188	1.05073	10μA±0.1%
6	7.06750	1.46996	10μA±0.1%	41	70.1190	1.04076	10μA±0.1%
7	8.07393	1.43465	10μA±0.1%	42	76.1113	1.03063	10μA±0.1%
8	9.09072	1.40260	10μA±0.1%	43	82.1009	1.02032	10μA±0.1%
9	10.1077	1.37403	10μA±0.1%	44	88.1033	1.00981	10μA±0.1%
10	11.1224	1.34845	10μA±0.1%	45	94.0952	0.999150	10μA±0.1%
11	12.1327	1.32543	10μA±0.1%	46	100.087	0.988312	10μA±0.1%
12	13.1363	1.30471	10μA±0.1%	47	110.090	0.969850	10μA±0.1%
13	14.1326	1.28599	10μA±0.1%	48	125.074	0.941396	10μA±0.1%
14	15.1229	1.26884	10μA±0.1%	49	140.074	0.912069	10μA±0.1%
15	16.1084	1.25288	10μA±0.1%	50	155.066	0.882020	10μA±0.1%
16	17.0911	1.23771	10μA±0.1%	51	170.066	0.851327	10μA±0.1%
17	18.0706	1.22306	10μA±0.1%	52	185.053	0.820108	10μA±0.1%
18	19.0539	1.20859	10μA±0.1%	53	200.046	0.788393	10μA±0.1%
19	20.0398	1.19392	10μA±0.1%	54	215.048	0.756217	10μA±0.1%
20	21.0216	1.17850	10μA±0.1%	55	230.047	0.723650	10μA±0.1%
21	21.8153	1.16443	10μA±0.1%	56	245.043	0.690721	10μA±0.1%
22	22.6109	1.14801	10μA±0.1%	57	260.033	0.657471	10μA±0.1%
23	23.2158	1.13594	10μA±0.1%	58	275.046	0.623854	10μA±0.1%
24	23.8202	1.12749	10μA±0.1%	59	290.051	0.589975	10μA±0.1%
25	24.4238	1.12251	10μA±0.1%	60	305.037	0.555871	10μA±0.1%
26	25.0304	1.11933	10μA±0.1%	61	315.048	0.532956	10μA±0.1%
27	25.6318	1.11699	10μA±0.1%	62	320.044	0.521488	10μA±0.1%
28	26.4474	1.11447	10μA±0.1%	63	326.328	0.507023	10μA±0.1%
29	27.2595	1.11237	10μA±0.1%	64	331.516	0.495064	10μA±0.1%
30	28.0774	1.11049	10μA±0.1%				
31	29.0907	1.10835	10μA±0.1%				
32	30.1021	1.10635	10μA±0.1%				
33	32.1183	1.10261	10μA±0.1%				
34	35.1331	1.09739	10μA±0.1%				
35	38.1388	1.09246	10μA±0.1%				

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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 (± 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:

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

where

σ_{fit} = standard deviation of the fit
T_i = measured temperature for point i
T_{icalc} = 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.

POLYNOMIAL EQUATION

Calibration Report: 677822 Sales Order: 74204
Sensor Model: DT-670-SD-4L Serial Number: D6026760
Sensor Type: Silicon Diode Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

4.00 K	to	25.0 K
1.580 Volts	to	1.119 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 1.114467398 ZU = 1.603802566

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	12.685471	3.6929E-03	3435.07
1	-10.827266	5.5772E-03	-1941.35
2	1.785022	5.2319E-03	341.18
3	-0.275870	5.2985E-03	-52.07
4	-0.149484	5.2902E-03	-28.26
5	-0.099044	5.2063E-03	-19.02
6	0.180109	5.0523E-03	35.65
7	-0.204734	4.9191E-03	-41.62
8	0.170044	4.8244E-03	35.25
9	-0.125671	4.8184E-03	-26.08
10	0.085946	4.9379E-03	17.41
11	-0.059519	5.1405E-03	-11.58
12	0.041429	5.1948E-03	7.98
13	-0.024545	5.0356E-03	-4.87
14	0.018953	4.8087E-03	3.94

Z = Voltage

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

Temp. (K) = ΣA_i* COS(i * ARCCOS(k)), where 0 <= i <= 14
and the A_i's are the coefficients in the table above.

POLYNOMIAL EQUATION

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
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	1.603803	3.20025	3.20084	-0.60
2	1.589614	3.69902	3.69602	3.00
3	1.573688	4.21085	4.21607	-5.22
4	1.544415	5.05918	5.05259	6.58
5	1.507437	6.05769	6.06690	-9.21
6	1.469961	7.06750	7.05626	11.23
7	1.434645	8.07393	8.08105	-7.12
8	1.402597	9.09072	9.09518	-4.47
9	1.374030	10.10768	10.09850	9.18
10	1.348447	11.12241	11.11892	3.49
11	1.325432	12.13270	12.14096	-8.26
12	1.304713	13.13633	13.14361	-7.28
13	1.285989	14.13260	14.12884	3.76
14	1.268837	15.12287	15.11293	9.94
15	1.252877	16.10844	16.10271	5.73
16	1.237715	17.09106	17.09671	-5.65
17	1.223060	18.07060	18.08366	-13.06
18	1.208586	19.05391	19.05860	-4.69
19	1.193923	20.03980	20.02709	12.71
20	1.178503	21.02164	21.00605	15.59
21	1.164435	21.81534	21.82858	-13.24
22	1.148014	22.61085	22.63422	-23.37
23	1.135937	23.21581	23.18859	27.22
24	1.127488	23.82022	23.80305	17.16
25	1.122513	24.42379	24.44171	-17.92
26	1.119328	25.03042	25.04801	-17.59
27	1.116988	25.63182	25.63303	-1.21
28	1.114467	26.44743	26.43414	13.29

Order of Fit = 14 RMS error of fit = 11.83 mK
Largest absolute error = 27.22 mK at data point no. 23

POLYNOMIAL EQUATION

Calibration Report: 677822 Sales Order: 74204
Sensor Model: DT-670-SD-4L Serial Number: D6026760
Sensor Type: Silicon Diode Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

25.0 K	to	88.1 K
1.119 Volts	to	1.010 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 0.9883123003 ZU = 1.127488461

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	60.090876	7.9994E-03	7511.90
1	-39.900149	1.4159E-02	-2818.10
2	1.065834	1.3396E-02	79.56
3	1.470731	9.6453E-03	152.48
4	0.830249	7.0160E-03	118.34
5	0.332742	3.2820E-03	101.38
6	0.074382	3.6595E-03	20.33
7	-0.017280	6.7732E-03	-2.55
8	-0.057781	9.5758E-03	-6.03
9	-0.018636	1.0405E-02	-1.79
10	-0.033182	1.0679E-02	-3.11
11	-0.001105	8.4025E-03	-0.13
12	-0.017234	5.9266E-03	-2.91

Z = Voltage

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

Temp. (K) = ΣA_i* COS(i * ARCCOS(k)), where 0 <= i <= 12
and the A_i's are the coefficients in the table above.

POLYNOMIAL EQUATION

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
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	1.127488	23.80305	23.81945	0.77
25	1.122513	24.44171	24.43162	-7.83
26	1.119328	25.04801	25.01732	13.10
27	1.116988	25.63182	25.62721	4.60
28	1.114467	26.44743	26.45590	-8.47
29	1.112370	27.25947	27.26909	-9.62
30	1.110489	28.07742	28.08150	-4.08
31	1.108351	29.09070	29.08699	3.71
32	1.106352	30.10205	30.09318	8.87
33	1.102615	32.11832	32.11080	7.52
34	1.097393	35.13310	35.14062	-7.51
35	1.092458	38.13880	38.14689	-8.10
36	1.086102	42.13147	42.12450	6.97
37	1.079782	46.12253	46.11819	4.34
38	1.070210	52.12250	52.12963	-7.14
39	1.060541	58.11945	58.11705	2.40
40	1.050733	64.11880	64.11595	2.85
41	1.040760	70.11903	70.12354	-4.52
42	1.030628	76.11129	76.10808	3.21
43	1.020321	82.10094	82.10234	-1.40
44	1.009814	88.10333	88.10294	0.38
45	0.9991500	94.09524	94.09530	-0.06
46	0.9883123	100.08685	100.08684	0.00

Order of Fit = 12 RMS error of fit = 6.16 mK
Largest absolute error = 13.10 mK at data point no. 26

POLYNOMIAL EQUATION

Calibration Report: 677822 | Sales Order: 74204
Sensor Model: DT-670-SD-4L | Serial Number: D6026760
Sensor Type: Silicon Diode | Temperature Range: 4.00K to 325K

Polynomial Type: Chebychev
Useful Range of Fit:

88.1 K	to	325. K
1.010 Volts	to	0.5101 Volts

Lower and Upper limits of Voltage used in computing Chebychev coefficients:
ZL = 0.4950637792 ZU = 1.030627992

Order	Coefficient	Std. Deviation of Coefficient	Ratio (Coeff./Std Dev.)
0	208.132323	1.4813E-04	1405067.98
1	-126.735188	2.1538E-04	-588433.08
2	-4.066405	2.1123E-04	-19250.63
3	-0.897517	2.1788E-04	-4119.34
4	-0.240622	2.1549E-04	-1116.64
5	-0.069577	2.0578E-04	-338.11
6	-0.013716	1.9786E-04	-69.32
7	-0.000664	1.9803E-04	-3.36
8	0.001390	2.0080E-04	6.92
9	0.000678	2.0035E-04	3.38

Z = Voltage

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

Temp. (K) = ΣA_i* COS(i * ARCCOS(k)), where 0 <= i <= 9
and the A_i's are the coefficients in the table above.

POLYNOMIAL EQUATION

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
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	1.030628	76.10808	76.11070	0.59
43	1.020321	82.10234	82.10186	-0.92
44	1.009814	88.10294	88.10388	-0.55
45	0.9991500	94.09524	94.09470	0.53
46	0.9883123	100.08685	100.08611	0.73
47	0.9698499	110.08976	110.08952	0.24
48	0.9413956	125.07440	125.07544	-1.04
49	0.9120687	140.07372	140.07357	0.14
50	0.8820204	155.06636	155.06613	0.24
51	0.8513274	170.06584	170.06549	0.36
52	0.8201080	185.05342	185.05360	-0.18
53	0.7883930	200.04577	200.04581	-0.04
54	0.7562169	215.04788	215.04830	-0.43
55	0.7236504	230.04651	230.04639	0.12
56	0.6907213	245.04327	245.04282	0.45
57	0.6574707	260.03268	260.03252	0.16
58	0.6238537	275.04639	275.04717	-0.78
59	0.5899755	290.05051	290.05007	0.44
60	0.5558713	305.03683	305.03685	-0.01
61	0.5329557	315.04846	315.04881	-0.35
62	0.5214882	320.04404	320.04323	0.80
63	0.5070231	326.32849	326.32927	-0.78
64	0.4950638	331.51553	331.51524	0.29

Order of Fit = 9 RMS error of fit = 0.53 mK
Largest absolute error = -1.04 mK at data point no. 48

INTERPOLATION TABLE

Calibration Report: 677822 Sales Order: 74204
Sensor Model: DT-670-SD-4L Serial Number: D6026760
Sensor Type: Silicon Diode Temperature Range: 4.00K to 325K

Temp (K)	Volts (V)	dV/dT (mV/K)	Temp (K)	Volts (V)	dV/dT (mV/K)
4.000	1.58042	-31.354	37.00	1.09430	-1.6326
4.200	1.57404	-32.461	38.00	1.09268	-1.6143
4.400	1.56744	-33.523	39.00	1.09107	-1.6005
4.600	1.56064	-34.456	40.00	1.08948	-1.5904
4.800	1.55367	-35.257	42.00	1.08631	-1.5818
5.000	1.54655	-35.929	44.00	1.08315	-1.5829
5.200	1.53930	-36.473	46.00	1.07998	-1.5868
5.400	1.53196	-36.900	48.00	1.07680	-1.5922
5.600	1.52455	-37.209	50.00	1.07361	-1.5976
5.800	1.51709	-37.402	52.00	1.07041	-1.6030
6.000	1.50960	-37.477	54.00	1.06720	-1.6086
6.500	1.49090	-37.254	56.00	1.06397	-1.6150
7.000	1.47242	-36.555	58.00	1.06073	-1.6221
7.500	1.45442	-35.377	60.00	1.05748	-1.6300
8.000	1.43713	-33.716	65.00	1.04928	-1.6522
8.500	1.42075	-31.798	70.00	1.04096	-1.6757
9.000	1.40531	-30.017	75.00	1.03252	-1.7000
9.500	1.39071	-28.377	77.35	1.02851	-1.7120
10.00	1.37691	-26.872	80.00	1.02396	-1.7253
10.50	1.36382	-25.494	85.00	1.01527	-1.7499
11.00	1.35139	-24.228	90.00	1.00646	-1.7744
11.50	1.33958	-23.058	95.00	0.997525	-1.7988
12.00	1.32833	-21.951	100.0	0.988471	-1.8226
12.50	1.31761	-20.905	105.0	0.979300	-1.8454
13.00	1.30741	-19.919	110.0	0.970018	-1.8675
13.50	1.29768	-19.005	115.0	0.960627	-1.8887
14.00	1.28839	-18.193	120.0	0.951132	-1.9089
14.50	1.27947	-17.478	125.0	0.941539	-1.9281
15.00	1.27090	-16.842	130.0	0.931853	-1.9464
15.50	1.26262	-16.292	135.0	0.922076	-1.9639
16.00	1.25459	-15.839	140.0	0.912215	-1.9807
16.50	1.24676	-15.479	145.0	0.902271	-1.9966
17.00	1.23910	-15.199	150.0	0.892250	-2.0118
17.50	1.23155	-14.984	155.0	0.882155	-2.0261
18.00	1.22411	-14.814	160.0	0.871990	-2.0397
18.50	1.21673	-14.709	165.0	0.861759	-2.0528
19.00	1.20938	-14.707	170.0	0.851463	-2.0653
19.50	1.20200	-14.829	175.0	0.841107	-2.0773
20.00	1.19453	-15.101	180.0	0.830691	-2.0887
21.00	1.17886	-16.461	185.0	0.820220	-2.0997
22.00	1.16079	-20.154	190.0	0.809695	-2.1103
23.00	1.13996	-19.649	195.0	0.799118	-2.1205
24.00	1.12572	-9.0534	200.0	0.788490	-2.1305
25.00	1.11946	-4.4645	205.0	0.777814	-2.1401
26.00	1.11578	-3.1063	210.0	0.767090	-2.1494
27.00	1.11301	-2.5118	215.0	0.756320	-2.1584
28.00	1.11066	-2.2158	220.0	0.745507	-2.1670
29.00	1.10854	-2.0451	225.0	0.734650	-2.1755
30.00	1.10655	-1.9350	230.0	0.723752	-2.1838
31.00	1.10465	-1.8578	235.0	0.712813	-2.1918
32.00	1.10283	-1.7994	240.0	0.701834	-2.1996
33.00	1.10105	-1.7547	245.0	0.690817	-2.2072
34.00	1.09932	-1.7159	250.0	0.679762	-2.2146
35.00	1.09762	-1.6830	255.0	0.668671	-2.2219
36.00	1.09595	-1.6554	260.0	0.657544	-2.2290

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F010-04-00_B 06/21/2011

INTERPOLATION TABLE

Calibration Report: 677822
Sensor Model: DT-670-SD-4L
Sensor Type: Silicon Diode

Sales Order: 74204
Serial Number: D6026760
Temperature Range: 4.00K to 325K

Temp (K)	Volts (V)	dV/dT (mV/K)
265.0	0.646382	-2.2358
270.0	0.635186	-2.2424
273.15	0.628116	-2.2464
275.0	0.623958	-2.2487
280.0	0.612699	-2.2548
285.0	0.601410	-2.2609
290.0	0.590090	-2.2669
295.0	0.578740	-2.2728
300.0	0.567362	-2.2785
305.0	0.555955	-2.2840
310.0	0.544523	-2.2890
315.0	0.533067	-2.2932
320.0	0.521589	-2.2983
325.0	0.510084	-2.3035

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Sensor Model: DT-670-SD-4L Serial Number: D6026760
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:	0.556 V
Liquid Nitrogen:	1.028 V
Liquid Helium:	1.575 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.

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BREAKPOINTS 340 FORMAT

Calibration Report: 677822 | Sales Order: 74204
Sensor Model: DT-670-SD-4L | Serial Number: D6026760
Sensor Type: Silicon Diode | Temperature Range: 4.00K to 325K

Name: DT-670-SD-4L
Serial number: D6026760
Format: 2 ;Volts/Kelvin
Limit: 325.0
Coefficient: 1 ;Negative

Point 1: 9.06000e-02,500.000	Point 56: 1.12264, 24.400
Point 2: .110239,491.000	Point 57: 1.12482, 24.100
Point 3: .136555,479.500	Point 58: 1.12665, 23.900
Point 4: .179181,461.500	Point 59: 1.12883, 23.700
Point 5: .265393,425.500	Point 60: 1.13144, 23.500
Point 6: .349522,390.000	Point 61: 1.13449, 23.300
Point 7: .452797,346.000	Point 62: 1.13990, 23.000
Point 8: .510111,325.000	Point 63: 1.16084, 22.000
Point 9: .549119,308.000	Point 64: 1.17039, 21.500
Point 10: .584441,292.500	Point 65: 1.18056, 20.900
Point 11: .618354,277.500	Point 66: 1.19307, 20.100
Point 12: .650872,263.000	Point 67: 1.19752, 19.800
Point 13: .680890,249.500	Point 68: 1.20941, 19.000
Point 14: .709544,236.500	Point 69: 1.22408, 18.000
Point 15: .736845,224.000	Point 70: 1.23831, 17.050
Point 16: .762807,212.000	Point 71: 1.25062, 16.250
Point 17: .787445,200.500	Point 72: 1.26097, 15.600
Point 18: .810769,189.500	Point 73: 1.27087, 15.000
Point 19: .832798,179.000	Point 74: 1.28032, 14.450
Point 20: .853546,169.000	Point 75: 1.29018, 13.900
Point 21: .873028,159.500	Point 76: 1.29956, 13.400
Point 22: .891261,150.500	Point 77: 1.30937, 12.900
Point 23: .908264,142.000	Point 78: 1.31968, 12.400
Point 24: .924055,134.000	Point 79: 1.33049, 11.900
Point 25: .939628,126.000	Point 80: 1.34185, 11.400
Point 26: .954007,118.500	Point 81: 1.35378, 10.900
Point 27: .967227,111.500	Point 82: 1.36633, 10.400
Point 28: .980240,104.500	Point 83: 1.37955, 9.900
Point 29: .990299, 99.000	Point 84: 1.39209, 9.450
Point 30: .998430, 94.500	Point 85: 1.40525, 9.000
Point 31: 1.00647, 90.000	Point 86: 1.41911, 8.550
Point 32: 1.01440, 85.500	Point 87: 1.43372, 8.100
Point 33: 1.02224, 81.000	Point 88: 1.45083, 7.600
Point 34: 1.02997, 76.500	Point 89: 1.47236, 7.000
Point 35: 1.03761, 72.000	Point 90: 1.51629, 5.820
Point 36: 1.04514, 67.500	Point 91: 1.53571, 5.300
Point 37: 1.05258, 63.000	Point 92: 1.55443, 4.780
Point 38: 1.06074, 58.000	Point 93: 1.56884, 4.360
Point 39: 1.06945, 52.600	Point 94: 1.57984, 4.020
Point 40: 1.07903, 46.600	Point 95: 1.58042, 4.000
Point 41: 1.09043, 39.400	Point 96: 1.59690, 3.580
Point 42: 1.09446, 36.900	Point 97: 1.60756, 3.180
Point 43: 1.09778, 34.900	Point 98: 1.62125, 2.620
Point 44: 1.10069, 33.200	Point 99: 1.62945, 2.260
Point 45: 1.10336, 31.700	Point 100: 1.63516, 1.980
Point 46: 1.10577, 30.400	Point 101: 1.63943, 1.740
Point 47: 1.10792, 29.300	Point 102: 1.64261, 1.530
Point 48: 1.10978, 28.400	Point 103: 1.64430, 1.400
Point 49: 1.11155, 27.600	
Point 50: 1.11325, 26.900	
Point 51: 1.11487, 26.300	
Point 52: 1.11641, 25.800	
Point 53: 1.11781, 25.400	
Point 54: 1.11944, 25.000	
Point 55: 1.12090, 24.700	

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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BREAKPOINTS 91C/93C/330 FORMAT

Calibration Report: 677822 Sales Order: 74204
Sensor Model: DT-670-SD-4L Serial Number: D6026760
Sensor Type: Silicon Diode 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	1.10850	29.0
2	0.218700	445.0	22	1.11297	27.0
3	0.326000	400.0	23	1.11578	26.0
4	0.490260	330.0	24	1.11946	25.0
5	0.510190	325.0	25	1.12572	24.0
6	0.578790	295.0	26	1.13996	23.0
7	0.646470	265.0	27	1.16079	22.0
8	0.712910	235.0	28	1.17886	21.0
9	0.767150	210.0	29	1.26216	15.5
10	0.820310	185.0	30	1.30674	13.0
11	0.872090	160.0	31	1.36280	10.5
12	0.912280	140.0	32	1.43562	8.0
13	0.941580	125.0	33	1.57552	4.2
14	0.970070	110.0	34	1.58042	4.0
15	0.997580	95.0	35	1.59237	3.8
16	1.02402	80.0	36	1.63785	1.9
17	1.04934	65.0	37	1.64411	1.4
18	1.07687	48.0			
19	1.09425	37.0			
20	1.10277	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.