

Mitsutomo

**TEMPERATURE SENSOR
RESISTANCE VALUES**

Appendix

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i) Temperature Sensor Resistance Value Table for T1, T2, T3 and T4 (°C - K)

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
20	-4	115.266	20	68	12.6461	60	140	2.25714	100	212	0.62972
19	-3	106.148	21	70	12.0881	61	142	2.27246	101	214	0.61146
18	0	101.513	22	72	11.5	62	144	2.19032	102	216	0.59266
17	1	95.2452	22	72	10.9021	62	142	2.11248	102	217	0.57462
16	2	89.5665	24	75	10.4026	64	148	2.02722	104	219	0.55626
15	5	84.219	25	77	10	65	146	1.95522	105	221	0.54446
14	7	79.211	26	79	9.55714	66	151	1.89521	106	222	0.52912
12	9	74.556	27	81	9.12446	67	152	1.85002	107	225	0.51426
12	10	70.1694	28	82	8.71962	68	154	1.76648	108	226	0.49969
11	12	66.0694	29	84	8.32566	69	156	1.70548	109	228	0.486
10	14	62.2756	20	68	7.95076	70	158	1.64691	110	220	0.47256
9	16	58.7079	21	69	7.58481	71	160	1.59069	111	222	0.45957
8	16	56.2694	22	90	7.22464	72	162	1.53669	112	224	0.44699
7	19	52.2456	22	91	6.86912	72	162	1.48491	112	225	0.43462
6	21	48.2171	24	92	6.5255	74	165	1.43469	114	227	0.42264
5	22	46.5725	25	95	6.19021	75	167	1.38702	115	229	0.41164
4	25	44	26	97	5.86259	76	169	1.34105	116	248	0.4006
2	27	41.5676	27	99	5.54259	77	171	1.29676	117	242	0.38991
2	28	39.6229	28	100	5.22971	78	172	1.25422	118	244	0.37956
-1	20	37.1966	29	102	5.26669	79	174	1.2122	119	246	0.36954
0	22	35.2024	40	104	5.11519	80	176	1.17292	120	248	0.35942
1	24	32.2269	41	105	4.96592	81	178	1.13504	121	250	0.35042
2	26	21.5625	42	108	4.71252	82	180	1.09856	122	252	0.3412
2	27	29.9056	42	109	4.5705	82	181	1.06446	122	252	0.33246
4	29	28.2489	44	111	4.26726	84	182	1.03069	124	255	0.3229
5	41	26.6776	45	112	4.21262	85	185	0.99615	125	257	0.21559
6	42	25.4654	45	115	4.04569	86	187	0.96691	126	259	0.20754
7	45	24.1922	49	117	2.66672	87	189	0.93952	127	261	0.25974
8	46	22.5962	48	118	2.72476	88	190	0.90752	128	262	0.25216
9	48	21.6094	49	120	2.59662	89	192	0.8795	129	264	0.24462
10	50	20.7164	50	122	2.48097	90	194	0.85246	120	266	0.2377
11	52	19.6691	51	124	2.21648	91	196	0.82642	121	268	0.23076
12	54	18.7177	52	126	2.19162	92	198	0.80122	122	270	0.22406
12	55	17.6665	52	127	2.07075	92	199	0.77709	122	271	0.22757
14	57	16.9248	54	129	2.95696	94	201	0.75212	124	272	0.25725
15	59	16.1156	55	121	2.44621	95	202	0.72719	125	275	0.24672
16	61	15.2486	56	122	2.72622	96	205	0.70244	126	277	0.23976
17	62	14.6747	57	125	2.42662	97	207	0.67644	127	279	0.23226
18	64	12.916	58	126	2.52972	98	208	0.66616	128	280	0.22776
19	66	12.2621	59	128	2.44677	99	210	0.64662	129	282	0.22221

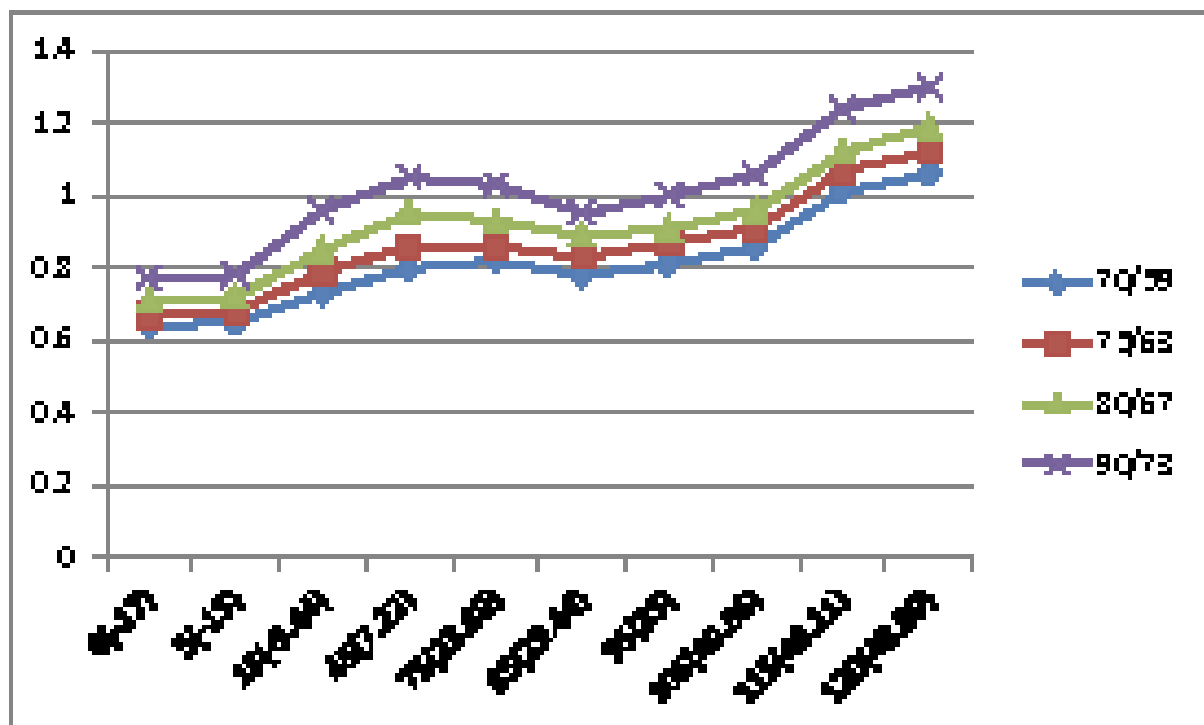
ii) Temperature Sensor Resistance Value Table for TP (°C – K)

°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm	°C	°F	K Ohm
-20	-4	5463	20	68	66.66	60	140	1259	100	212	2.702
-19	-2	5119	21	70	65.62	61	142	1211	101	214	2.595
-18	0	482	22	72	62.72	62	144	1265	102	216	2.482
-17	1	4559	22	72	59.96	62	145	1221	102	217	2.392
-16	2	4205	24	75	57.27	64	149	1179	104	219	2.296
-15	5	4063	25	77	54.69	65	149	1126	105	221	2.202
-14	7	3942	26	79	52.22	66	151	1099	106	222	2.112
-12	9	3822	27	81	50.26	67	152	10.67	107	225	2.025
-12	10	3626	28	82	48.74	68	154	10.25	108	226	1.948
-11	12	3251	29	84	46.71	69	155	9902	109	228	1.87
-10	14	2973	29	85	44.77	70	156	9569	110	230	1.791
-9	16	2912	21	88	42.22	71	160	9249	111	232	1.704
-8	18	2759	22	90	40.27	72	162	8.94	112	234	1.62
-7	19	2674	22	91	38.69	72	162	8.642	112	235	1.559
-6	21	249.6	24	92	37.2	74	165	82.59	114	237	1.489
-5	23	2349	25	95	35.74	75	167	80.64	115	239	1.422
-4	25	2226	26	90	34.22	76	169	7.62	116	248	1.357
-2	27	2114	27	99	32.94	77	171	7.566	117	242	1.294
-2	28	2007	28	100	31.62	78	172	7.221	118	244	1.232
-1	29	1905	29	102	30.26	79	174	7.066	119	246	1.174
0	32	1809	40	104	29.15	80	176	6.859	120	248	1.117
1	34	1719	48	106	28	81	178	6.641	121	250	1.061
2	36	1622	42	108	26.9	82	180	6.42	122	252	1.000
2	37	1532	42	109	25.66	82	181	62.26	122	252	1.955
4	39	148.6	44	111	24.65	84	182	60.22	124	255	1.905
5	41	1404	45	112	23.69	85	185	58.44	125	257	1.856
6	42	1325	46	115	22.69	86	187	56.62	126	259	1.809
7	45	127.1	48	117	22.1	87	189	5.466	127	261	1.762
8	46	121	48	118	21.26	88	190	5.22	128	262	1.717
9	48	1152	49	120	20.46	89	192	5.157	129	264	1.674
10	50	1098	50	122	19.69	90	194	5	130	266	1.632
11	52	1046	51	124	18.96	91	196	4.849			
12	54	9969	52	126	18.26	92	198	4.702			
12	55	9506	52	127	17.59	92	199	4.562			
14	57	9066	54	129	16.94	94	201	4.426			
15	59	8649	55	131	16.32	95	202	4.294			
16	61	8254	56	132	15.72	96	205	4.167			
17	62	7879	57	135	15.16	97	207	4.045			
18	64	7524	58	136	14.62	98	209	3.927			
19	66	7186	59	138	14.09	99	210	3.812			

ii) Pressure On Service Port (P410A)

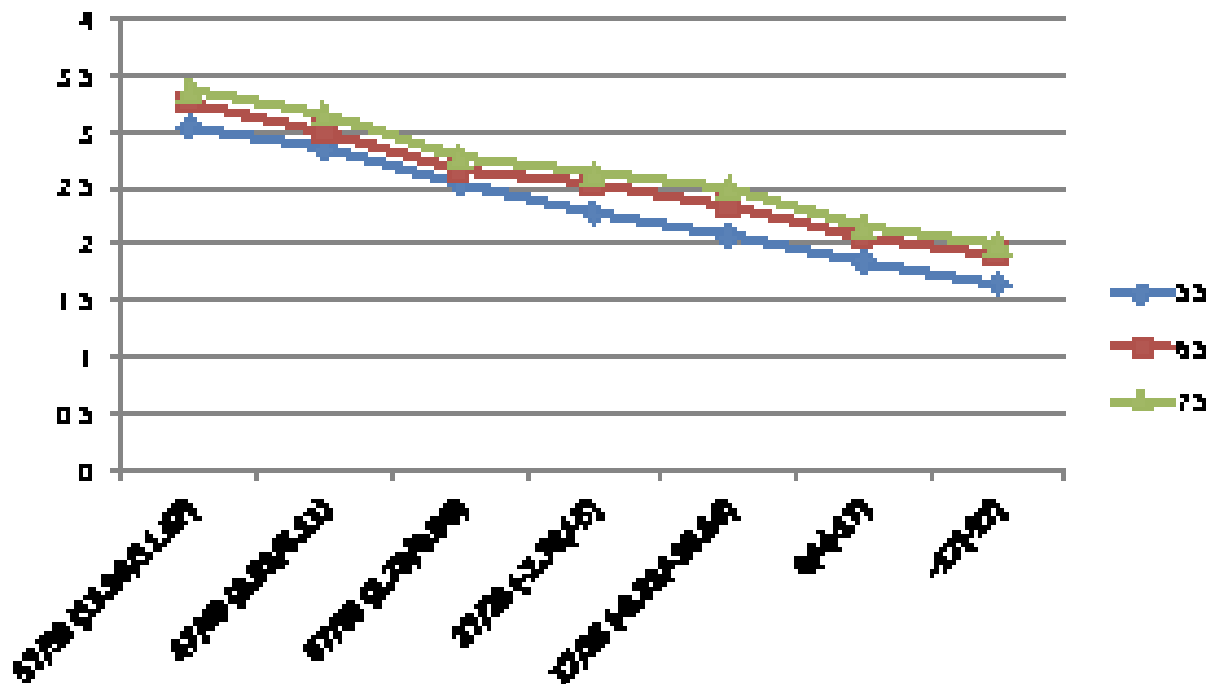
Cooling chart:

Temp (°C)	Cooling Rate (°C/hr)	06:10	06:15	15 (9.44)	45 (0.22)	75 (22.49)	85 (29.44)	95 (32)	105 (40.56)	115 (46.11)	120 (48.69)
		Bar	70.59 (21.11/5)	64	6.5	7.2	6.0	6.2	7.6	6.1	6.6
	75.62 (22.69/17.22)	63	6.6	7.9	6.6	6.6	6.2	6.7	9.1	10.7	11.2
	80.67 (25.67/19.44)	7.1	7.2	6.5	9.5	9.2	6.9	9.1	9.6	11.2	11.9
	90.72 (22.23/22.16)	7.3	7.6	9.6	10.5	10.2	9.5	10.0	10.6	12.4	12.0
Psi	70.59 (21.11/5)	92	94	106	116	119	112	117	125	149	154
	75.62 (22.69/17.22)	97	99	115	125	124	120	126	122	133	162
	80.67 (25.67/19.44)	102	104	122	128	125	129	122	140	162	172
	90.72 (22.23/22.16)	112	112	129	152	149	128	146	154	160	169
MPa	70.59 (21.11/5)	0.64	0.65	0.72	0.6	0.62	0.76	0.61	0.66	1.01	1.06
	75.62 (22.69/17.22)	0.63	0.66	0.79	0.66	0.66	0.62	0.63	0.91	1.03	1.12
	80.67 (25.67/19.44)	0.71	0.72	0.65	0.95	0.92	0.69	0.97	0.96	1.12	1.19
	90.72 (22.23/22.16)	0.73	0.76	0.96	1.05	1.02	0.95	1	1.06	1.24	1.2



Heating chart:

°C)	COUB&WE) DUbe)	57/52	47/42	37/32	27/22	17/12 (-6,22)	0/2	-17/16
		(12,66/11,67)	(8,22/6,11)	(2,76/0,56)	(2,76/1,5)	(10,22/10,22)	(17/17)	(20/20)
BAR	55(1276)	202	205	25,2	22,6	20,6	18,5	16,5
	65(1622)	205	200	24,7	25,4	22,2	20,5	190
	75(2269)	220	215	27,6	26,2	24,9	21,5	200
BA	55(1276)	429	412	297	280	262	256	229
	65(1622)	471	425	295	288	289	290	276
	75(2269)	469	457	402	291	282	272	280
MBA	55(1276)	202	205	2,52	2,26	2,06	1,85	1,65
	65(1622)	205	200	2,67	2,54	2,22	2,05	1,90
	75(2269)	220	215	2,76	2,62	2,49	2,15	2,00



System Pressure Table-R410A

Pressure			Temperature		Pressure			Temperature	
Kpa	bar	PSI	°C	°F	Kpa	bar	PSI	°C	°F
100	1	14.5	41.52	106.74	2500	25	362.6	26.67	101.01
150	1.5	21.75	42.23	108.02	2600	26	376.6	28.89	102.01
200	2	29	42.94	109.29	2700	27	390.6	31.11	103.01
250	2.5	36.25	43.65	110.57	2800	28	404.6	33.33	104.01
300	3	43.5	44.36	111.85	2900	29	418.6	35.56	105.01
350	3.5	50.75	45.07	113.12	3000	30	432.6	37.78	106.01
400	4	58	45.78	114.4	3100	31	446.6	40	107.01
450	4.5	65.25	46.49	115.68	3200	32	460.6	42.22	108.01
500	5	72.5	47.2	116.96	3300	33	474.6	44.44	109.01
550	5.5	79.75	47.91	118.24	3400	34	488.6	46.67	110.01
600	6	87	48.62	119.52	3500	35	502.6	48.89	111.01
650	6.5	94.25	49.33	120.8	3600	36	516.6	51.11	112.01
700	7	101.5	50.04	122.08	3700	37	530.6	53.33	113.01
750	7.5	108.75	50.75	123.36	3800	38	544.6	55.56	114.01
800	8	116	51.46	124.64	3900	39	558.6	57.78	115.01
850	8.5	123.25	52.17	125.92	4000	40	572.6	60	116.01
900	9	130.5	52.88	127.2	4100	41	586.6	62.22	117.01
950	9.5	137.75	53.59	128.48	4200	42	600.6	64.44	118.01
1000	10	145	54.3	129.76	4300	43	614.6	66.67	119.01
1050	10.5	152.25	55.01	131.04	4400	44	628.6	68.89	120.01
1100	11	159.5	55.72	132.32	4500	45	642.6	71.11	121.01
1150	11.5	166.75	56.43	133.6	4600	46	656.6	73.33	122.01
1200	12	174	57.14	134.88	4700	47	670.6	75.56	123.01
1250	12.5	181.25	57.85	136.16	4800	48	684.6	77.78	124.01
1300	13	188.5	58.56	137.44	4900	49	698.6	80	125.01
1350	13.5	195.75	59.27	138.72	5000	50	712.6	82.22	126.01
1400	14	203	59.98	140	5100	51	726.6	84.44	127.01
1450	14.5	210.25	60.69	141.28	5200	52	740.6	86.67	128.01
1500	15	217.5	61.4	142.56	5300	53	754.6	88.89	129.01
1550	15.5	224.75	62.11	143.84	5400	54	768.6	91.11	130.01
1600	16	232	62.82	145.12	5500	55	782.6	93.33	131.01
1650	16.5	239.25	63.53	146.4	5600	56	796.6	95.56	132.01
1700	17	246.5	64.24	147.68	5700	57	810.6	97.78	133.01
1750	17.5	253.75	64.95	148.96	5800	58	824.6	100	134.01
1800	18	261	65.66	150.24	5900	59	838.6	102.22	135.01
1850	18.5	268.25	66.37	151.52	6000	60	852.6	104.44	136.01
1900	19	275.5	67.08	152.8	6100	61	866.6	106.67	137.01
1950	19.5	282.75	67.79	154.08	6200	62	880.6	108.89	138.01
2000	20	290	68.5	155.36	6300	63	894.6	111.11	139.01
2050	20.5	297.25	69.21	156.64	6400	64	908.6	113.33	140.01
2100	21	304.5	69.92	157.92	6500	65	922.6	115.56	141.01
2150	21.5	311.75	70.63	159.2	6600	66	936.6	117.78	142.01
2200	22	319	71.34	160.48	6700	67	950.6	120	143.01
2250	22.5	326.25	72.05	161.76	6800	68	964.6	122.22	144.01
2300	23	333.5	72.76	163.04	6900	69	978.6	124.44	145.01
2350	23.5	340.75	73.47	164.32	7000	70	992.6	126.67	146.01
2400	24	348	74.18	165.6	7100	71	1006.6	128.89	147.01
2450	24.5	355.25	74.89	166.88	7200	72	1020.6	131.11	148.01
2500	25	362.5	75.6	168.16	7300	73	1034.6	133.33	149.01
2550	25.5	369.75	76.31	169.44	7400	74	1048.6	135.56	150.01
2600	26	377	77.02	170.72	7500	75	1062.6	137.78	151.01
2650	26.5	384.25	77.73	172	7600	76	1076.6	140	152.01
2700	27	391.5	78.44	173.28	7700	77	1090.6	142.22	153.01
2750	27.5	398.75	79.15	174.56	7800	78	1104.6	144.44	154.01
2800	28	406	79.86	175.84	7900	79	1118.6	146.67	155.01
2850	28.5	413.25	80.57	177.12	8000	80	1132.6	148.89	156.01
2900	29	420.5	81.28	178.4	8100	81	1146.6	151.11	157.01
2950	29.5	427.75	81.99	179.68	8200	82	1160.6	153.33	158.01
3000	30	435	82.7	180.96	8300	83	1174.6	155.56	159.01
3050	30.5	442.25	83.41	182.24	8400	84	1188.6	157.78	160.01
3100	31	449.5	84.12	183.52	8500	85	1202.6	160	161.01
3150	31.5	456.75	84.83	184.8	8600	86	1216.6	162.22	162.01
3200	32	464	85.54	186.08	8700	87	1230.6	164.44	163.01
3250	32.5	471.25	86.25	187.36	8800	88	1244.6	166.67	164.01
3300	33	478.5	86.96	188.64	8900	89	1258.6	168.89	165.01
3350	33.5	485.75	87.67	189.92	9000	90	1272.6	171.11	166.01
3400	34	493	88.38	191.2	9100	91	1286.6	173.33	167.01
3450	34.5	500.25	89.09	192.48	9200	92	1300.6	175.56	168.01
3500	35	507.5	89.8	193.76	9300	93	1314.6	177.78	169.01
3550	35.5	514.75	90.51	195.04	9400	94	1328.6	180	170.01
3600	36	522	91.22	196.32	9500	95	1342.6	182.22	171.01
3650	36.5	529.25	91.93	197.6	9600	96	1356.6	184.44	172.01
3700	37	536.5	92.64	198.88	9700	97	1370.6	186.67	173.01
3750	37.5	543.75	93.35	200.16	9800	98	1384.6	188.89	174.01
3800	38	551	94.06	201.44	9900	99	1398.6	191.11	175.01
3850	38.5	558.25	94.77	202.72	10000	100	1412.6	193.33	176.01