

Advantech AE Technical Share Document

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Category	■FAQ □SOP	Related OS	N/A
Abstract	ADAM-4015T, The thermistor type and mapping table		
Keyword	ADAM-4015T, Thermistor, Mapping table		
Related Product	ADAM-4015T		

■ Problem Description:

This documentation explains thermistor type used in the ADAM-4015T and corresponding resistance V.S. temperature mapping table.

■ Brief Solution - Step by Step:

ADAM-4015T is a special module designed for the temperature measurement with 3k and 10k thermistor.

Unlike the 3k thermistor, actually 10k thermistor have two types: type2 and the type 3.

Different type of the 10k thermistor have different resistance to temperature mapping table, and the ADAM-4015T is designed to use with type 3 10k thermistor.

STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)

100 Ohm	2.2k	3k	10k Type 2	10k Type 3	10k Dale	10k 3A221	10k "G" US	20k
03.06	154,464	205,800	692,700	454,910	672,300	-	441,200	1,267,6
42.71	77,081	102,690	344,700	245,089	337,200	333,562	239,700	643,80

If the customer don't know what kind of 10k thermister is used in your application, please refer to the following mapping table for ADAM-4015T.

Part NO.	44004 44033	44005 44030	44007 44034	44006 44031	44008 44032	PART NO.	44004 44033	44005 44030	44007 44034	44006 44031	44008 44032
Ω @25°C	2252	3000	5000	10,000	30,000	Ω @25°C	2252	3000	5000	10,000	30,000
BODY	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE	BODY	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE	BLACK ORANGE
END	YELLOW ORANGE	GREEN BLACK	VIOLET YELLOW	BLUE BROWN	GRAY RED	END	YELLOW ORANGE	GREEN BLACK	VIOLET YELLOW	BLUE BROWN	GRAY RED
TEMP. °C	RESISTANCE Ω					TEMP. °C	RESISTANCE Ω				
-80	1660K	2211K	3685K	3558K		-20	21.87K	29.13K	48.56K	78.91K	271.2K
79	1518K	2022K	3371K	3296K		19	20.64K	27.49K	45.83K	74.91K	256.5K
78	1390K	1851K	3086K	3055K		18	19.48K	25.95K	43.27K	71.13K	242.8K
77	1273K	1696K	2827K	2833K		17	18.40K	24.51K	40.86K	67.57K	229.8K
76	1167K	1555K	2592K	2629K		16	17.39K	23.16K	38.61K	64.20K	217.6K
75	1071K	1426K	2378K	2440K		15	16.43K	21.89K	36.49K	61.02K	206.2K
74	982.8K	1309K	2182K	2266K		14	15.54K	20.70K	34.50K	58.01K	195.4K
73	902.7K	1202K	2005K	2106K		13	14.70K	19.58K	32.63K	55.17K	185.2K
72	829.7K	1105K	1843K	1957K		12	13.91K	18.52K	30.88K	52.48K	175.6K
71	763.1K	1016K	1695K	1821K		11	13.16K	17.53K	29.23K	49.94K	166.6K
-70	702.3K	935.4K	1560K	1694K		-10	12.46K	16.60K	27.67K	47.54K	158.0K
69	646.7K	861.4K	1436K	1577K		9	11.81K	15.72K	26.21K	45.27K	150.0K
68	595.9K	793.7K	1323K	1469K		8	11.19K	14.90K	24.83K	43.11K	142.4K
67	549.4K	731.8K	1220K	1369K		7	10.60K	14.12K	23.54K	41.07K	135.2K
66	506.9K	675.2K	1126K	1276K		6	10.05K	13.39K	22.32K	39.14K	128.5K
65	467.9K	623.3K	1039K	1190K		5	9534	12.70K	21.17K	37.31K	122.1K
64	432.2K	575.7K	959.9K	1111K		4	9046	12.05K	20.08K	35.57K	116.0K
63	399.5K	532.1K	887.2K	1037K		3	8586	11.44K	19.06K	33.93K	110.3K
62	369.4K	492.1K	820.5K	968.4K		2	8151	10.86K	18.10K	32.37K	104.9K
61	341.8K	455.3K	759.2K	904.9K		-1	7741	10.31K	17.19K	30.89K	99.80K
-60	316.5K	421.5K	702.9K	845.9K		0	7355	9796	16.33K	29.49K	94.98K
59	293.2K	390.5K	651.1K	791.1K		+1	6989	9310	15.52K	28.15K	90.41K
58	271.7K	361.9K	603.5K	740.2K		2	6644	8851	14.75K	26.89K	86.09K
57	252.0K	335.7K	559.7K	692.8K		3	6319	8417	14.03K	25.69K	81.99K
56	233.8K	311.5K	519.4K	648.8K		4	6011	8006	13.34K	24.55K	78.11K
55	217.1K	289.2K	482.2K	607.8K		5	5719	7618	12.70K	23.46K	74.44K
54	201.7K	268.6K	447.9K	569.6K		6	5444	7252	12.09K	22.43K	70.96K
53	187.4K	249.7K	416.3K	534.1K		7	5183	6905	11.51K	21.45K	67.66K
52	174.3K	232.2K	387.1K	501.0K		8	4937	6576	10.96K	20.52K	64.53K
51	162.2K	216.0K	360.2K	470.1K		9	4703	6265	10.44K	19.63K	61.56K
-50	151.0K	201.1K	335.3K	441.3K		+10	4482	5971	9951	18.79K	58.75K
49	140.6K	187.3K	312.3K	414.5K		11	4273	5692	9486	17.98K	56.07K
48	131.0K	174.5K	291.0K	389.4K		12	4074	5427	9046	17.22K	53.54K
47	122.1K	162.7K	271.3K	366.0K		13	3886	5177	8628	16.49K	51.13K
46	113.9K	151.7K	253.0K	344.1K		14	3708	4939	8232	15.79K	48.84K
45	106.3K	141.6K	236.2K	323.7K		15	3539	4714	7857	15.13K	46.67K
44	99.26K	132.2K	220.5K	304.6K		16	3378	4500	7500	14.50K	44.60K
43	92.72K	123.5K	205.9K	286.7K		17	3226	4297	7162	13.90K	42.64K
42	86.65K	115.4K	192.5K	270.0K		18	3081	4105	6841	13.33K	40.77K
41	81.02K	107.9K	180.0K	254.4K		19	2944	3922	6536	12.79K	38.99K
-40	75.79K	101.0K	168.3K	239.8K	884.6K	+20	2814	3748	6247	12.26K	37.30K
39	70.93K	94.48K	157.5K	226.0K	830.9K	21	2690	3583	5972	11.77K	35.70K
38	66.41K	88.46K	147.5K	213.2K	780.8K	22	2572	3426	5710	11.29K	34.17K
37	62.21K	82.87K	138.2K	201.1K	733.9K	23	2460	3277	5462	10.84K	32.71K
36	58.30K	77.66K	129.5K	189.8K	690.2K	24	2354	3135	5225	10.41K	31.32K
35	54.66K	72.81K	121.4K	179.2K	649.3K	25	2252	3000	5000	10.00K	30.00K
34	51.27K	68.30K	113.9K	169.3K	611.0K	26	2156	2872	4787	9605	28.74K
33	48.11K	64.09K	106.9K	160.0K	575.2K	27	2064	2750	4583	9227	27.54K
32	45.17K	60.17K	100.3K	151.2K	541.7K	28	1977	2633	4389	8867	26.40K
31	42.42K	56.51K	94.22K	143.0K	510.4K	29	1894	2523	4204	8523	25.31K
-30	39.86K	53.10K	88.53K	135.2K	481.0K	+30	1815	2417	4029	8194	24.27K
29	37.47K	49.91K	83.22K	127.9K	453.5K	31	1739	2317	3861	7880	23.28K
28	35.24K	46.94K	78.26K	121.1K	427.7K	32	1667	2221	3702	7579	22.33K
27	33.15K	44.16K	73.62K	114.6K	403.5K	33	1599	2130	3549	7291	21.43K
26	31.20K	41.56K	69.29K	108.6K	380.9K	34	1533	2042	3404	7016	20.57K
25	29.38K	39.13K	65.24K	102.9K	359.6K	35	1471	1959	3266	6752	19.74K
24	27.67K	36.86K	61.45K	97.49K	339.6K	36	1412	1880	3134	6500	18.96K
23	26.07K	34.73K	57.90K	92.43K	320.9K	37	1355	1805	3008	6258	18.21K
22	24.58K	32.74K	54.58K	87.66K	303.3K	38	1301	1733	2888	6026	17.49K
21	23.18K	30.87K	51.47K	83.16K	286.7K	+39	1249	1664	2773	5805	16.80K

Part NO.	44004 44033	44005 44030	44007 44034	44006 44031	44008 44032	PART NO.	44004 44033	44005 44030	44007 44034	44006 44031	44008 44032
Ω @25°C	2252	3000	5000	10,000	30,000	Ω @25°C	2252	3000	5000	10,000	30,000
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END	YELLOW ORANGE	GREEN BLACK	VIOLET YELLOW	BLUE BROWN	GRAY RED	END	YELLOW ORANGE	GREEN BLACK	VIOLET YELLOW	BLUE BROWN	GRAY RED
TEMP. °C	RESISTANCE Ω					TEMP. °C	RESISTANCE Ω				
+40	1200	1598	2663	5592	16.15K	+100	152.8	203.8	339.6	816.8	2069
41	1152	1535	2559	5389	15.52K	101	148.4	197.9	329.8	794.6	2009
42	1107	1475	2459	5193	14.92K	102	144.2	192.2	320.4	773.1	1950
43	1064	1418	2363	5006	14.35K	103	140.1	186.8	311.3	752.3	1894
44	1023	1363	2272	4827	13.80K	104	136.1	181.5	302.5	732.1	1840
45	983.8	1310	2184	4655	13.28K	105	132.3	176.4	294.0	712.6	1788
46	946.2	1260	2101	4489	12.77K	106	128.6	171.4	285.7	693.6	1737
47	910.2	1212	2021	4331	12.29K	107	125.0	166.7	277.8	675.3	1688
48	875.8	1167	1944	4179	11.83K	108	121.6	162.0	270.1	657.5	1640
49	842.8	1123	1871	4033	11.39K	109	118.2	157.6	262.6	640.3	1594
+50	811.3	1081	1801	3893	10.97K	+110	115.0	153.2	255.4	623.5	1550
51	781.1	1040	1734	3758	10.57K	111	111.8	149.0	248.4	607.3	1507
52	752.2	1002	1670	3629	10.18K	112	108.8	145.0	241.6	591.6	1465
53	724.5	965.0	1608	3504	9807	113	105.8	141.1	235.1	576.4	1425
54	697.9	929.6	1549	3385	9450	114	103.0	137.2	228.7	561.6	1386
55	672.5	895.8	1493	3270	9109	115	100.2	133.6	222.6	547.3	1348
56	648.1	863.3	1439	3160	8781	116	97.6	130.0	216.7	533.4	1311
57	624.8	832.2	1387	3054	8467	117	95.0	126.5	210.9	519.9	1276
58	602.4	802.3	1337	2952	8166	118	92.5	123.2	205.3	506.8	1241
59	580.9	773.7	1290	2854	7876	119	90.0	119.9	199.9	494.1	1208
+60	560.3	746.3	1244	2760	7599	+120	87.7	116.8	194.7	481.8	1176
61	540.5	719.9	1200	2669	7332	121	85.4	113.8	189.6	469.8	1145
62	521.5	694.7	1158	2582	7076	122	83.2	110.8	184.7	458.2	1114
63	503.3	670.4	1117	2497	6830	123	81.1	107.9	179.9	446.9	1085
64	485.8	647.1	1079	2417	6594	124	79.0	105.2	175.3	435.9	1057
65	469.0	624.7	1041	2339	6367	125	77.0	102.5	170.8	425.3	1029
66	452.9	603.3	1006	2264	6149	126	75.0	99.9	166.4	414.9	1002
67	437.4	582.6	971.1	2191	5940	127	73.1	97.3	162.2	404.9	976.3
68	422.5	562.9	938.0	2122	5738	128	71.3	94.9	158.1	395.1	951.1
69	408.2	543.7	906.3	2055	5545	129	69.5	92.5	154.1	385.6	926.7
+70	394.5	525.4	875.7	1990	5359	+130	67.8	90.2	150.3	376.4	903.0
71	381.2	507.8	846.4	1928	5180	131	66.1	87.9	146.5	367.4	880.0
72	368.5	490.9	818.3	1868	5007	132	64.4	85.7	142.9	358.7	857.7
73	356.2	474.7	791.2	1810	4842	133	62.9	83.6	139.4	350.3	836.1
74	344.5	459.0	765.1	1754	4682	134	61.3	81.6	136.0	342.0	815.0
75	333.1	444.0	740.0	1700	4529	135	59.8	79.6	132.6	334.0	794.6
76	322.3	429.5	715.9	1648	4381	136	58.4	77.6	129.4	326.3	774.8
77	311.8	415.6	692.7	1598	4239	137	57.0	75.8	126.3	318.7	755.6
78	301.7	402.2	670.3	1549	4102	138	55.6	73.9	123.2	311.3	736.9
79	292.0	389.3	648.8	1503	3970	139	54.3	72.2	120.3	304.2	718.8
+80	282.7	376.9	628.1	1458	3843	+140	53.0	70.4	117.4	297.2	701.2
81	273.7	364.9	608.2	1414	3720	141	51.7	68.8	114.6	290.4	684.1
82	265.0	353.4	588.9	1372	3602	142	50.5	67.1	111.9	283.8	667.5
83	256.7	342.2	570.4	1332	3489	143	49.3	65.5	109.2	277.4	651.3
84	248.6	331.5	552.6	1293	3379	144	48.2	64.0	106.7	271.2	635.6
85	240.9	321.2	535.4	1255	3273	145	47.0	62.5	104.2	265.1	620.3
86	233.4	311.3	518.8	1218	3172	146	45.9	61.1	101.8	259.2	605.5
87	226.2	301.7	502.8	1183	3073	147	44.9	59.6	99.40	253.4	591.1
88	219.3	292.4	487.4	1149	2979	148	43.8	58.3	97.10	247.8	577.1
89	212.6	283.5	472.6	1116	2887	149	42.8	56.9	94.87	242.3	563.5
+90	206.1	274.9	458.2	1084	2799	+150	41.9	55.6	92.70	237.0	550.2
91	199.9	266.6	444.4	1053	2714	<p>Note: Data in black refer to thermistors with $\pm 0.2^\circ\text{C}$ interchangeability. Data in blue refer to thermistors with 0.1°C interchangeability. Temperature/resistance figures are the same for both types.</p> <p>Note: Only thermistors with $\pm 0.2^\circ\text{C}$ interchangeability are available encased in Teflon as standard parts. For Part No. of Teflon encased thermistors add 100 to part No. of $\pm 0.2^\circ\text{C}$ interchangeable thermistors. Example: 44005 is a standard thermistor. 44105 is a Teflon encased thermistor with the same resistance values.</p>					
92	193.9	258.6	431.0	1023	2632						
93	188.1	250.9	418.2	994.2	2552						
94	182.5	243.4	405.7	966.3	2476						
95	177.1	236.2	393.7	939.3	2402						
96	171.9	229.3	382.1	913.2	2331						
97	166.9	222.6	370.9	887.9	2262						
98	162.0	216.1	360.1	863.4	2195						
99	157.3	209.8	349.7	839.7	2131						