



MCS-T100

Description & Specifications



Part # **MCS-T100**



Specifications

Standard Temperature Range.....+32°F to +158°F (0°C to +70°C)
 Standard Temperature Accuracy .. ±0.36°F (±0.2°C)
 Extended Temperature Range..... -40°F to +248°F
 (-40°C to 120°C)
 Extended Temperature Accuracy.. ±1.5°F (±0.8°C)
 Resistance Range 4 Megohms to 3K ohms
 Response Time (32 to 212°F)..... 22 sec (in liquid)
 Response Time (212 to 32°F)..... 30 sec (in liquid)
 Input Voltage..... 5vdc
 Sensor Resistance 100,000 ohms @ 77°F (25°C)

Housing Specifications:

Dimensions 0.187"OD x 1.5"L
 Material..... 305 Stainless Steel
 Environmental rating..... Waterproof to IP68
 Testing 10,000 freeze/thaw thermal cycles

Cable:

Length..... 20', 40', 60', 100' and 150'
 Wire 2 conductor 22 awg stranded
 Shield..... Foil shield with 25% overlap
 Drain..... Stranded tinned copper drain

Part number description when ordering (MCS-T100-xx)

xx..... 20', 40', 60', 100' or 150'
 wire length

Description

The **MCS-T100** is an extremely fast acting temperature sensor built for demanding environments. It is ideal for high moisture locations with continuous freeze and thaw cycles. The sensor is potted with a thermally conductive RTV Cure Silicon Adhesive to guarantee durability and response. Its high accuracy allows for interchangeability in the field. The large resistance range allows the use of over 1000' of cable with no noticeable effect. By placing a 100,000 ohm resistor between signal and ground the sensor may be used in a three wire input mode. The table below provides a cross reference between °F /°C, ohms, and vdc at a sensor input pin (S1) of a MCS micro controller.

Temperature to Resistance to VDC Chart

Temp (°F / °C)	Resist (ohms)	S1 (vdc)	Temp (°F / °C)	Resist (ohms)	S1 (vdc)	Temp (°F / °C)	Resist (ohms)	S1 (vdc)	Temp (°F / °C)	Resist (ohms)	S1 (vdc)	Temp (°F / °C)	Resist (ohms)	S1 (vdc)
-40/-40	4,015,500	0.121	32/0	351,020	1.109	95/35	63,480	3.058	158/70	15,500	4.329	208/97.7	5,981	4.718
-35/37.2	3,324,096	0.146	35/1.6	320,976	1.188	100/37.7	56,200	3.201	160/71.1	14,881	4.352	210/98.8	5,773	4.727
-30/34.4	2,760,524	0.175	38/3.3	293,758	1.270	104/40	51,050	3.310	165/73.8	13,456	4.407	212/100	5,573	4.736
-25/-31.6	2,299,670	0.208	40/4.4	277,040	1.326	105/40.5	49,846	3.337	167/75	12,930	4.428	215/101.6	5,289	4.749
-20/-28.9	1,921,640	0.247	45/7.2	239,686	1.472	110/43.3	44,287	3.465	170/76.6	12,185	4.457	218/103.3	5,020	4.761
-15/-26.1	1,610,592	0.292	50/10	207,850	1.624	113/45	41,290	3.539	175/79.4	11,052	4.502	220/104.4	4,849	4.769
-10/-23.3	1,353,866	0.344	55/12.7	180,647	1.782	115/46.1	39,420	3.586	180/82.2	10,033	4.544	223/106.1	4,605	4.780
-5/-20.6	1,141,345	0.403	58/14.4	166,243	1.878	120/48.8	35,149	3.697	183/83.8	9,474	4.567	225/107.2	4,449	4.787
0/-17.7	964,963	0.470	60/15.5	157,353	1.943	125/51.6	31,399	3.805	185/85	9,121	4.582	227/108.3	4,299	4.794
5/-15.0	818,070	0.545	65/18.3	137,363	2.106	130/54.4	28,093	3.903	190/87.7	8,303	4.617	230/110	4,085	4.804
10/-12.2	695,433	0.629	70/21.1	120,169	2.271	135/57.2	25,173	3.994	195/90.5	7,567	4.648	233/111.6	3,886	4.813
15 /-9.4	592,755	0.722	75/23.9	105,347	2.435	140/60	22,590	4.079	198/92.2	7,162	4.666	235/112.7	3,760	4.819
20/-6.6	506,560	0.824	80/26.7	92,541	2.597	145/62.8	20,309	4.156	200/93.3	6,906	4.677	240/115.5	3,463	4.833
25/-3.8	434,007	0.936	85/29.4	81,454	2.756	150/65.5	18,284	4.227	203/95	6,541	4.693	245/118.3	3,191	4.845
30/-1.1	372,778	1.058	90/32.2	71,838	2.910	155/68.3	16,484	4.292	205/96.1	6,310	4.703	248/120	3,040	4.852