



The MCS-T100 Specifications & Description

Physical Characteristics

- 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..... -25°F to +230° F (-30°C to 110°C)
- Extended Temperature Accuracy.... ±1.5°F (±0.8°C)
- Resistance Range 2 Meg to 286 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..... Stainless Steel
 - Environmental rating..... Waterproof to IP68
 - Testing..... 10,000 freeze/thaw thermal cycles
- Cable:
 - Length 20', 40' or 60'
 - 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' or 60' wire length



Part # MCS-T100

Product 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 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, ohms and vdc at a sensor input pin (S1) of a MCS micro controller.

Product Specifications

| Temp (°F) | Resist (ohms) | S1 (vdc) |
|-----------|---------------|----------|
| 21 | 491,039 | 0.846 |
| 22 | 476,042 | 0.868 |
| 23 | 461,550 | 0.890 |
| 24 | 447,544 | 0.913 |
| 25 | 434,007 | 0.936 |
| 26 | 420,922 | 0.960 |
| 27 | 408,271 | 0.984 |
| 28 | 396,041 | 1.008 |
| 29 | 384,214 | 1.033 |
| 30 | 372,778 | 1.058 |
| 31 | 361,718 | 1.083 |
| 32 | 351,020 | 1.109 |
| 33 | 340,672 | 1.135 |
| 34 | 330,661 | 1.161 |
| 35 | 320,976 | 1.188 |
| 36 | 311,604 | 1.215 |

| Temp (°F) | Resist (ohms) | S1 (vdc) |
|-----------|---------------|----------|
| 37 | 302,535 | 1.242 |
| 38 | 293,758 | 1.270 |
| 39 | 285,263 | 1.298 |
| 40 | 277,040 | 1.326 |
| 41 | 269,080 | 1.355 |
| 42 | 261,373 | 1.384 |
| 43 | 253,910 | 1.413 |
| 44 | 246,684 | 1.442 |
| 45 | 239,686 | 1.472 |
| 46 | 232,908 | 1.502 |
| 47 | 226,342 | 1.532 |
| 48 | 219,982 | 1.563 |
| 49 | 213,820 | 1.593 |
| 50 | 207,850 | 1.624 |
| 51 | 202,063 | 1.655 |
| 52 | 196,456 | 1.687 |

| Temp (°F) | Resist (ohms) | S1 (vdc) |
|-----------|---------------|----------|
| 53 | 191,021 | 1.718 |
| 54 | 185,753 | 1.750 |
| 55 | 180,647 | 1.782 |
| 56 | 175,696 | 1.814 |
| 57 | 170,897 | 1.846 |
| 58 | 166,243 | 1.878 |
| 59 | 161,730 | 1.910 |
| 60 | 157,353 | 1.943 |
| 61 | 153,109 | 1.975 |
| 62 | 148,991 | 2.008 |
| 63 | 144,997 | 2.041 |
| 64 | 141,123 | 2.074 |
| 65 | 137,363 | 2.106 |
| 66 | 133,715 | 2.139 |
| 67 | 130,175 | 2.172 |
| 68 | 126,740 | 2.205 |

| Temp (°F) | Resist (ohms) | S1 (vdc) |
|-----------|---------------|----------|
| 69 | 123,406 | 2.238 |
| 70 | 120,169 | 2.271 |
| 71 | 117,027 | 2.304 |
| 72 | 113,977 | 2.337 |
| 73 | 111,015 | 2.369 |
| 74 | 108,139 | 2.402 |
| 75 | 105,347 | 2.435 |
| 76 | 102,634 | 2.467 |
| 77 | 100,000 | 2.500 |
| 78 | 97,441 | 2.532 |
| 79 | 94,955 | 2.565 |
| 80 | 92,541 | 2.597 |
| 81 | 90,194 | 2.629 |
| 82 | 87,915 | 2.661 |
| 83 | 85,699 | 2.693 |
| 84 | 83,546 | 2.724 |

| Temp (°F) | Resist (ohms) | S1 (vdc) |
|-----------|---------------|----------|
| 85 | 81,454 | 2.756 |
| 86 | 79,420 | 2.787 |
| 87 | 77,444 | 2.818 |
| 88 | 75,522 | 2.849 |
| 89 | 73,654 | 2.879 |
| 90 | 71,838 | 2.910 |
| 91 | 70,072 | 2.940 |
| 92 | 68,355 | 2.970 |
| 93 | 66,685 | 3.000 |
| 94 | 65,060 | 3.029 |
| 95 | 63,480 | 3.058 |
| 96 | 61,943 | 3.088 |
| 97 | 60,448 | 3.116 |
| 98 | 58,993 | 3.145 |
| 99 | 57,577 | 3.173 |
| 100 | 56,200 | 3.201 |