MICRO CONTROL SYSTEMS

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# The MCS-T100-xx-MIL Specifications & Description

## Product Specifications

Standard Temperature Range ..... -60ºF to +48ºF (-51°C to +9°C)
Standard Temperature Accuracy ... ±0.36ºF (±0.2°C)
Resistance Range ..... 2 Meg to 286 ohms
Response Time (32 to 212ºF)..... 22 sec (in liquid)
Response Time (212 to 32ºF)..... 30 sec (in liquid)
Input Voltage..... 5vdc
Sensor Resistance..... 10,000 ohms @ 77ºF (25°C)
Cable:
- Length..... 20', 40', or 60'
- Wire ..... 2 conductor 16 awg stranded
- Shield..... Helically applied, laminated aluminum/polyester tape
- Drain ..... Stranded tinned copper drain
- Jacket ..... CSPE
- Insulation ..... XLPE

Part number description when ordering (MCS-T100-xx-MIL)
xx ..... 20', 40', or 60' wire length

## Product Description

Part # **MCS-T100-xx-MIL**

The probe is an extremely fast acting thermistor packaged in a water tight thin walled nickel coated brass deep drawn tube. 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 resister 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 an MCS micro controller.

### Temp to Resist to VDC Chart

| T(°F) | Rt (K) | S1(V) | T(°F) | Rt (K) | S1(V) | T(°F) | Rt (K) | S1(V) | T(°F) | Rt (K) | S1(V) | T(°F) | Rt (K) | S1(V) | T(°F) | Rt (K) | S1(V) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -60 | 743.4 | 0.593 | -42 | 368.9 | 1.086 | -24 | 192.0 | 1.712 | -6 | 104.4 | 2.446 | 12 | 59.1 | 3.143 | 30 | 34.7 | 3.713 |
| -59 | 714.1 | 0.614 | -41 | 355.3 | 1.098 | -23 | 185.4 | 1.752 | -5 | 101.1 | 2.487 | 13 | 57.3 | 3.179 | 31 | 33.7 | 3.740 |
| -58 | 686.0 | 0.636 | -40 | 342.3 | 1.131 | -22 | 179.1 | 1.792 | -4 | 97.8 | 2.528 | 14 | 55.6 | 3.214 | 32 | 32.7 | 3.767 |
| -57 | 659.1 | 0.659 | -39 | 329.8 | 1.163 | -21 | 173.0 | 1.832 | -3 | 94.7 | 2.568 | 15 | 53.9 | 3.248 | 33 | 31.8 | 3.793 |
| -56 | 633.4 | 0.682 | -38 | 317.8 | 1.197 | -20 | 167.1 | 1.872 | -2 | 91.7 | 2.608 | 16 | 52.3 | 3.283 | 34 | 30.9 | 3.819 |
| -55 | 608.8 | 0.705 | -37 | 306.3 | 1.231 | -19 | 161.4 | 1.913 | -1 | 88.8 | 2.646 | 17 | 50.8 | 3.316 | 35 | 30.1 | 3.844 |
| -54 | 585.2 | 0.730 | -36 | 295.2 | 1.265 | -18 | 156.0 | 1.953 | 0 | 86.0 | 2.688 | 18 | 49.3 | 3.350 | 36 | 29.2 | 3.869 |
| -53 | 562.7 | 0.755 | -35 | 284.6 | 1.300 | -17 | 150.8 | 1.994 | 1 | 83.1 | 2.728 | 19 | 47.8 | 3.383 | 37 | 28.4 | 3.893 |
| -52 | 541.1 | 0.780 | -34 | 274.4 | 1.335 | -16 | 145.7 | 2.035 | 2 | 80.7 | 2.767 | 20 | 46.4 | 3.415 | 38 | 27.6 | 3.917 |
| -51 | 520.4 | 0.806 | -33 | 264.6 | 1.371 | -15 | 170.9 | 2.076 | 3 | 78.2 | 2.806 | 21 | 45.1 | 3.447 | 39 | 26.9 | 3.940 |
| -50 | 500.6 | 0.833 | -32 | 255.2 | 1.408 | -14 | 136.2 | 2.117 | 4 | 75.7 | 2.845 | 22 | 43.7 | 3.478 | 40 | 26.2 | 3.963 |
| -49 | 481.6 | 0.850 | -31 | 246.2 | 1.444 | -13 | 131.7 | 2.158 | 5 | 73.4 | 2.884 | 23 | 42.5 | 3.509 | 41 | 25.4 | 3.986 |
| -48 | 463.4 | 0.888 | -30 | 237.5 | 1.482 | -12 | 127.3 | 2.199 | 6 | 71.1 | 2.922 | 24 | 41.2 | 3.540 | 42 | 24.7 | 4.008 |
| -47 | 445.9 | 0.916 | -29 | 229.1 | 1.519 | -11 | 123.1 | 2.241 | 7 | 68.9 | 2960 | 25 | 40.1 | 3.570 | 43 | 24.1 | 4.030 |
| -46 | 429.2 | 0.945 | -28 | 221.1 | 1.557 | -10 | 119.1 | 2.282 | 8 | 66.8 | 2.997 | 26 | 38.9 | 3.600 | 44 | 23.4 | 4.057 |
| -45 | 413.1 | 0.974 | -27 | 213.4 | 1.595 | -9 | 115.2 | 2.323 | 9 | 64.8 | 3.034 | 27 | 37.8 | 3.6290 | 45 | 22.8 | 4.072 |
| -44 | 397.8 | 1.005 | -26 | 206.0 | 1.634 | -8 | 111.5 | 2.364 | 10 | 62.8 | 2.071 | 28 | 36.7 | 3.657 | 46 | 22.2 | 4.092 |
| -43 | 383.0 | 1.035 | -25 | 198.9 | 1.673 | -7 | 107.9 | 2.405 | 11 | 60.9 | 3.107 | 29 | 35.7 | 3.685 | 47 | 21.6 | 4.112 |
| | | | | | | | | | | | | | | | 48 | 21.0 | 4.131 |

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