

Part Number 100093-2 Extended Range Temperature Probe Specifications

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| Linear Components Kit P/N | 44212 | 44212 |
| Range | -50° to +50° C | -58° to +122° F |
| Thermistor Composite P/N | 44020 | 44020 |
| Resistor Composite Values | R ₁ 23,100Ω, R ₂ 88,200Ω, R ₃ 38,000Ω | R ₁ 23,100Ω, R ₂ 88,200Ω, R ₃ 38,000Ω |
| Thermistor Accuracy & Interchangeability | +/- 0.1° C -50° to +50° C | +/-0.18°F -58° to +122° F |
| E _o Positive Slope | $E_{out} = (+0.00559149 E_{in}) T + 0.40700 E_{in}$ | $E_{out} = (+0.00310638 E_{in}) T + 0.30760 E_{in}$ |
| E _o Negative Slope | $E_{out} = (-0.00559149 E_{in}) T + 0.59300 E_{in}$ | $E_{out} = (-0.00310638 E_{in}) T + 0.69240 E_{in}$ |
| Resistance Mode | $R_t = (-129.163) T + 13698.23$ | $R_t = (-71.757) T + 15994.5$ |
| *E _{in} MAX. | 3.5 Volts | 3.5 Volts |
| *I _T MAX. | 700 μA | 700 μA |
| ***Load Res. Min. RL | 10 MEG Ω | 10 MEG Ω |
| Linearity Deviation | +/- 0.15° C (Condition "A")** | +/- 0.27° F (A) |
| Linearity Deviation | +/- 0.08° C (Condition "B")** | +/- 0.15° F (B) |
| * E _{in} Max and I _T Max values have been assigned to control the thermistor self-heating errors so that they do not enlarge the component error band; i.e., the sum of the linearity deviation plus the probe tolerances. The values were assigned using a thermistor dissipation constant of 8MW/°C in stirred oil. If better heat sink methods are used or if an enlargement of the error band is acceptable, E _{in} Max and I _T Max values may be exceeded without damage to the thermistor probe. | ** The maximum error at any point is the algebraic sum of the thermistor manufacturing tolerances, plus linearity deviation, a fixed network behavior. Condition "A" is the worst case linearity deviation of +/-0.15° C and may occur with the +/-0.1% resistors supplied. Condition "B" exists when the three resistors are within +/-0.02% of nominal, which reduces linearity deviation to +/- 0.08° C. | |