

Part Number 100093 Temperature Probe Specifications

Linear Components Kit P/N	44203	44203
Range	-30° to +50° C	-22° to +122° F
Thermistor Composite P/N	44018	44018
Resistor Composite Values	R ₁ 18,700Ω, R ₂ 35,250Ω	R ₁ 18,700Ω, R ₂ 35,250Ω
Thermistor Accuracy & Interchangeability	+/- 0.15° C -30° to +100° C	+/-0.27° F -22° to +212° F
E _o Positive Slope	$E_{out} = (+0.0067966 E_{in}) T + 0.34893 E_{in}$	$E_{out} = (+0.00377588 E_{in}) T + 0.228102 E_{in}$
E _o Negative Slope	$E_{out} = (-0.0067966 E_{in}) T + 0.65107 E_{in}$	$E_{out} = (-0.00377588 E_{in}) T + 0.771898 E_{in}$
Resistance Mode	$R_t = (-127.096) T + 12175$	$R_t = (-70.608) T + 14435$
*E _{in} MAX.	3.0 Volts	3.0 Volts
*I _T MAX.	475 μA	475 μA
***Load Res. Min. RL	10 MEG Ω	10 MEG Ω
Linearity Deviation	+/- 0.16° C	+/- 0.29° F
* 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.	