Part Number 100093-2 Extended Range Temperature Probe Specifications

Linear Components Kit P/N	44212	44212
Range	-50º to +50º C	-58º to +122º 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	+/- 0.1º C -50º to +50º C	+/-0.18ºF -58º to +122º 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	+/- 0.15º C (Condition "A")**	+/- 0.27º F (A)
Linearity Deviation	+/- 0.08º C (Condition "B")**	+/- 0.15º 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/ºC 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 +/-0.15º 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 +/-0.08º C.	