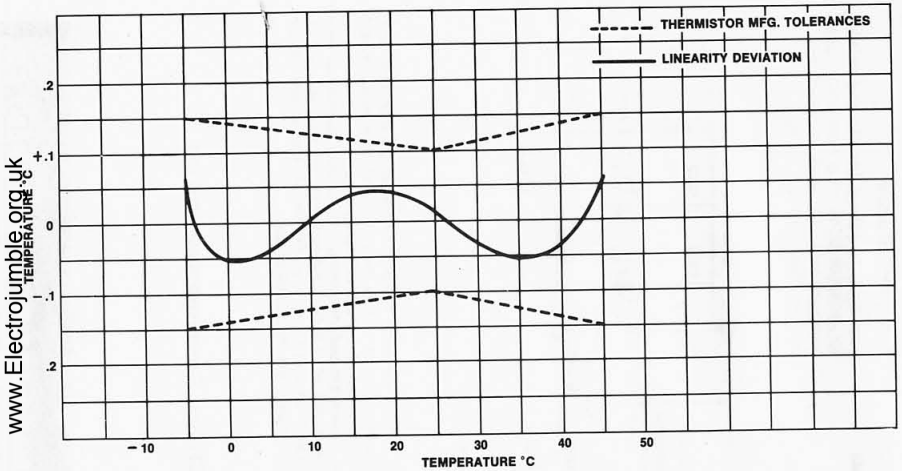
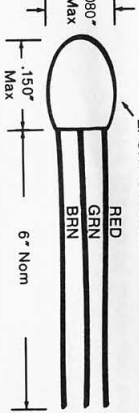


The maximum error at any point is the algebraic sum of the thermistor manufacturing tolerances plus the linearity deviation, a fixed network behavior. Since the linearity deviation is a known quantity, it may be eliminated from the error statement by consulting the linearity deviation curve at the temperature in question, and making the appropriate adjustment.

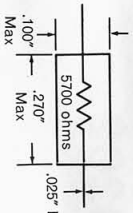
#44202
–5° to +45°C
$R_T = (-32.402)\ T + 4593.39$

–5	4753.4 Ohms
0	4595.0
5	4432.7
10	4269.2
15	4106.0
20	3944.0
25	3783.0
30	3622.5
35	3461.0
40	3298.4
45	3133.3

NEW
EXTRA SMALL SIZE



YSI Thermistor Composite #44018



YSI Resistor Composite #44302

The values tabulated above are compiled using nominal thermistor values and may differ from values calculated by the stated equation. The differences constitute the Linearity Deviation Curve.

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YSI Thermilinear® Component

YSI Part #44202

Range −5° to +45°C

This Thermilinear Thermistor Network is a composite device consisting of resistors and precise thermistors which produce an output voltage linear with temperature, see Fig. 1, or a linear resistance with temperature, see Fig 2. The precise thermistors can either be the YSI #44018 (as included in the #44202) or they can be a YSI 700 Series Probe since they are electrically identical.

Equations which describe the behavior of the device are:
(Refer to Fig. 1)

$Eout_1 = (-0.0056846\ Ein)\ T + 0.805858\ Ein$

$Eout_2 = (+0.0056846\ Ein)\ T + 0.194142\ Ein$

(Refer to Fig. 2)

$R_T = (-32.402)\ T + 4593.39$

$T = °C$

SPECIFICATIONS

	Voltage Mode	Resistance Mode
Thermistor Absolute Accuracy and Interchangeability:	±0.15°C	±0.15°C
Linearity Deviation:	±0.065°C	±2.11 ohms
***Ein Max**	3.50 Volts	
***I_T Max**		615 ua
Sensitivity:	0.0056846 Ein/°C	32.402 ohms/°C
Load Resistance:	1 Megohm or more	
Time Constant:	The time required for the thermistor to indicate 63% of a new impressed temperature, in 'well stirred' oil, 1 sec; in free still air, 10 sec.	

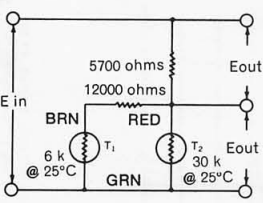

Fig. 1

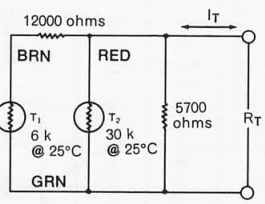

Fig. 2

***Ein Max. I_T Definition:**

Ein Max. 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.

Ein Max, I_T Max values are 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, Ein Max, I_T Max values may be exceeded without damage to the thermistor probe.

U. S. Patent #3316765, Canadian Patent #782790

YELLOW SPRINGS INSTRUMENT CO.
YELLOW SPRINGS, OHIO 45387