

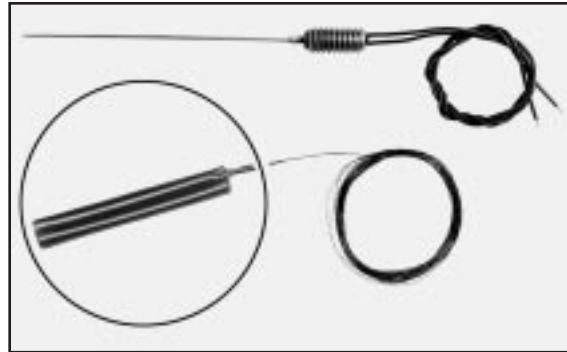


NTC THERMISTORS: TYPE A990

DESCRIPTION:

Type A990 Interchangeable sub-assemblies consist of matched pairs of small, glass encapsulated thermistor beads which are connected in either series or parallel circuit configurations. These sub-assemblies are available in a variety of styles which will permit them to be used in measuring the temperature of liquids or solids or to be encapsulated into larger housings such as hypodermic needles or closed end sheaths.

The sub-assemblies provide interchangeable resistance - temperature characteristics in extremely small, fast response packages which are easy to handle. The units shown are available from stock or with fast delivery. Resistance, tolerances and temperature ranges other than those which are indicated may be available upon special order. Other as-



sembly configurations may be available upon special order. Please consult factory for any special requests or modifications.

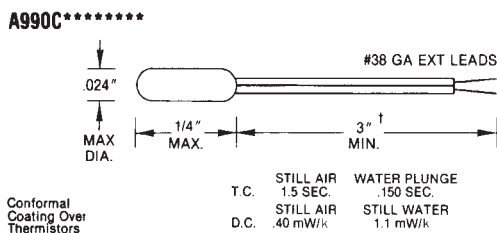
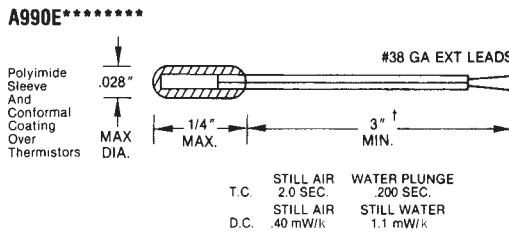
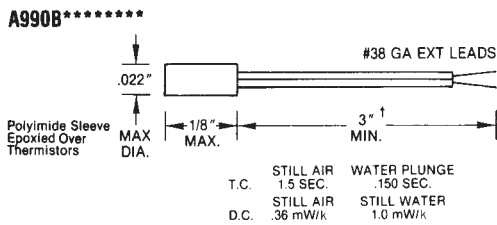
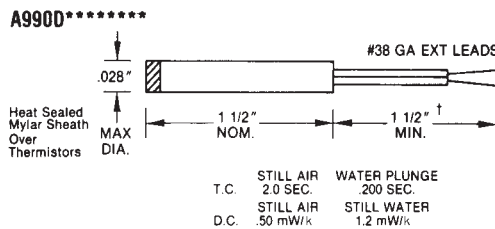
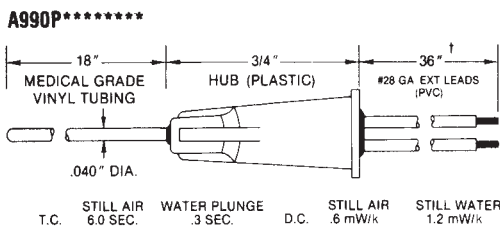
Maximum Operating or Storage Temperature for Optimum Stability is 105°C.

LONGER LEADS ARE AVAILABLE ON REQUEST

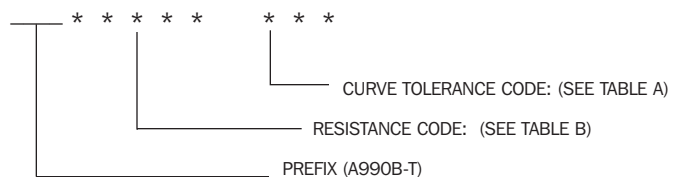
T.C. = THERMAL TIME CONSTANT

D.C. = DISSIPATION CONSTANT

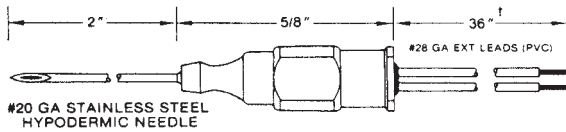
ALL DIMENSIONS ARE IN INCHES



CODING:



**A990M
HYPODERMIC NEEDLE ASSEMBLY**

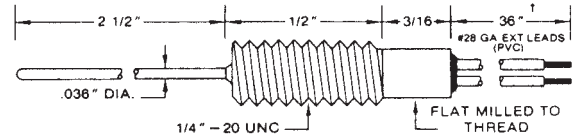


T.C. STILL AIR 15 SEC.
D.C. .80mW/K

T.C. WATER PLUNGE .250 SEC.
D.C. STILL WATER 1.7mW/K

T.C. = THERMAL TIME CONSTANT
D.C. = DISSIPATION CONSTANT

**A990T
STAINLESS STEEL SHEATH WITH TREADED HUB**



T.C. STILL AIR .16 SEC.
D.C. .80mW/K

T.C. WATER PLUNGE .300 SEC.
D.C. STILL WATER 1.8mW/K

LONGER LEADS
ARE AVAILABLE
ON REQUEST

TABLE A: CURVE TOLERANCES

Tolerance Code	Temperature Tolerance in °C (±)			
	0°C - 25°C	25°C - 50°C	50°C - 70°C	70°C - 105°C
Sx1	.1	.05	.1	.2
Sx2	.1	.1	.1	.2
Sx3	.2	.1	.2	.3
Sx4	.2	.2	.2	.3

TABLE B: RESISTANCE VS. TEMPERATURE CHARACTERISTICS

Temperature (°C)	Resistance Code (Data in Ohms)					
	UN 103	UT 103	UN 223	UT 223	UN 443	UT 443
0	14129.9	56519.5	31452.1	125808	64394.4	257577.5
5	11335.1	45340.5	25168.0	100672	51167.4	204669.5
10	9152.8	36611.2	20273.6	81094.6	40931.5	163726.2
15	7437.4	29749.5	16435.7	65742.7	32956.3	131825.2
20	6080.3	24321.1	13406.3	53625.1	26701.3	106805.3
25	5000.0	20000.0	11000.0	44000.0	21764.2	87056.8
30	4134.9	16539.7	9077.0	36307.9	17843.2	71372.8
35	3438.1	13752.5	7531.1	30124.5	14710.6	58842.5
40	2873.8	11495.1	6281.4	25125.7	12193.5	48774.1
45	2414.2	9656.7	5265.6	21062.5	10159.7	40638.8
50	2038.0	8151.9	4435.6	17742.3	8507.6	34030.3
55	1728.4	6913.8	3753.9	15015.5	7154.4	28617.7
60	1472.6	5890.2	3191.3	12765.2	6043.0	24171.9
65	1260.0	5040.0	2724.8	10899.2	5126.1	20504.4
70	1082.7	4330.6	2336.2	9344.9	4366.4	17465.8
75	934.02	3736.1	2011.1	8044.5	3734.4	14937.8
80	808.93	3235.7	1738.0	6952.0	3206.5	12825.9
85	703.23	2812.9	1507.6	6030.3	2763.7	11054.7
90	613.55	2454.2	1312.4	5249.6	2390.8	9563.4
95	537.18	2148.7	1146.5	4586.0	2075.7	8303.0
100	471.90	1887.6	1004.9	4019.6	1808.5	7233.9
105	415.90	1663.6	883.67	3534.7	1580.9	6323.7

APPLICATIONS:

- A990B** - For insertion into metal housing or close tolerance openings.
- A990C** - Fully immersible sub-assembly for use in conductive fluids.
- A990D** - Limited depth immersion or surface contact.
- A990E** - Fully immersible sub-assembly with additional mechanical strain relief.
- A990M** - Sub-assembly encapsulated into sharpened hypodermic needle with 3 foot extension leads of #28 GA PVC wire. For various laboratory temperature measurements.
- A990P** - Standard sub-assembly encapsulated into vinyl catheter tubing with #28 GA PVC wire extension leads.
- A990T** - Sub-assembly encapsulated into closed end stainless steel sheath with threaded hub. For various commercial applications or severe environments.