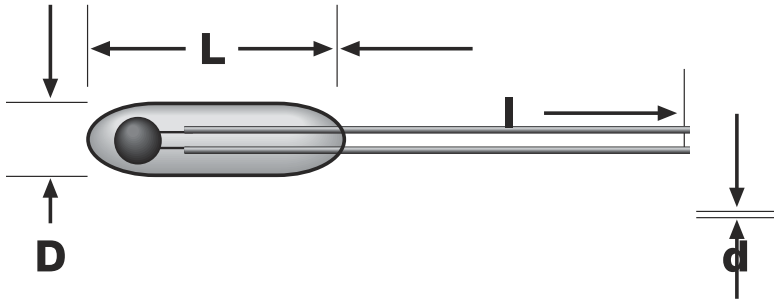


Sensor Scientific, Inc.

GLASS PROBE THERMISTORS



Sensor Scientific glass probe thermistors are extremely useful in applications that require high stability and ruggedness. The availability of 4 standard outer diameters offers the designer the flexibility to fit the thermistor to the design, rather than compromising the design to accommodate the thermistor. The SP43A style (0.043" / 1.09mm diameter) provides the small size advantages of the industry-standard large bead (.042" / 1.07mm) thermistor without the associated handling problems. Typical applications include fluid flow and fluid level measurement, thermal conductivity measurement, temperature measurement, and temperature compensation.

Recommended Storage Conditions:

- Temperature 10-30 C, Humidity less than 60% RH (without dewing)
- After unpacking, reseal and/or store product in a dry environment
- Do not store near corrosive materials or direct sunlight

FEATURES:

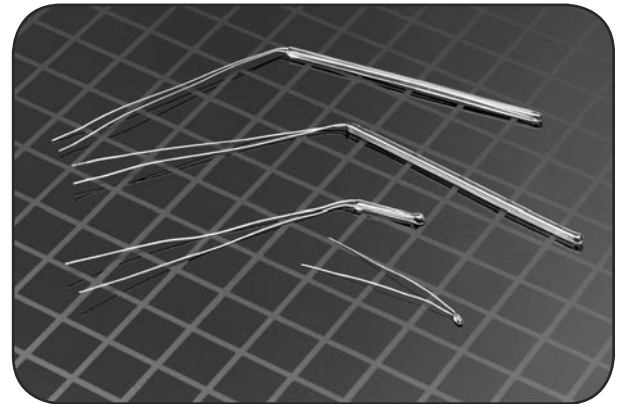
- Superior Stability
- Hermetically Sealed Glass Encapsulation
- Robust Construction

OPTIONS:

- Custom Terminations and Leads
- Non-Standard Tolerances
- Non-Standard Resistance Values
- Precision Calibration at Multiple Temperatures
- Custom Value-Added Assembly Options

SPECIFICATIONS

- Operating Temperature Range: -40°C to 300°C.
- Non-Standard Operating Ranges
- Standard Resistance Tolerance: ±20%
- Time Constant: 5 To 21 Sec. Typ. In Still Air, Depending On Type
- Dissipation Constant: 0.4 To 1.0 mW/°C In Still Air, Depending On Type



MECHANICAL AND THERMAL PROPERTIES					
THERMISTOR TYPE		SP43A	SP60A	SP80A	SP100A
GLASS DIMENSIONS					
Diameter, nominal (D)	inches	0.043	0.060	0.080	0.100
	mm	1.09	1.52	2.03	2.54
Length, nominal (L)					
standard	inches	0.1	0.25	0.25	0.25
	mm	2.54	6.35	6.35	6.35
standard	inches	—	0.5	0.5	0.5
	mm	—	12.7	12.7	12.7
custom	inches	none	0.75 & 1.0	0.75 to 2.0	0.75 to 2.0
	mm	none	19 & 25.4	19 to 50.8	19 to 50.8
LEAD WIRES					
Material: Tinned Dumet ¹					
Diameter, nominal (d)	inches	0.008	0.008	0.0126	0.0126
	mm	0.20	0.20	0.32	0.32
Length, nominal (l)	inches	1.2 - 2.0	1.2 - 2.0	1.2 - 2.0	1.2 - 2.0
	mm	51	51	51	51
THERMAL PROPERTIES					
Time constant, still air	sec.	5	10	15	21
Dissipation constant, still air	mW/°C	0.4	0.7	0.8	1

Note 1: Bare (not tinned) Dumet leads are available as an option

Call us toll-free at 800-524-1610 (in the US) – or check us out on the web at www.sensorsci.com

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RESISTANCE RATIO TABLE

R ₂₅ /R ₁₂₅ Ratio	α @ 25 Deg. C	Beta ₂₅₋₁₂₅	Available Nominal Resistance at 25 Deg. C.
	%/Deg. C	Deg. Kelvin	ohms
11.89	-3.28	2940	50-500 ₂
15.07	-3.54	3220	500-1500
19.80	-3.88	3550	1500-3500
22.36	-4.04	3690	3500-7500
29.40	-4.40	4015	7500-28000
29.88	-4.42	4035	28000-42000
31.54	-4.49	4100	42000-80000
37.92	-4.67	4315	80000-175000
38.62	-4.72	4340	175000-375000
48.05	-5.00	4600	375000-750000
54.28	-5.15	4740	750000-1250000

Note 2: Minimum available nominal resistance is 100 ohms for SP43A and SP60A types.

PART NUMBER SPECIFICATION:

To specify a part number, the following sequence should be used:

SP80A103201/2 specifies a glass probe thermistor, .080" (2.03mm) diameter, 10000 ohms at 25 Deg. C., with a resistance tolerance of $\pm 20\%$, and nominal length of 1/2" (12.7mm)

- **SP80A103201/2** indicates glass probe thermistor
- **SP80A 103201/2** indicates nominal diameter 43A = 0.043" (1.09mm) 80A = 0.080" (2.03mm) 60A = 0.060" (1.52mm) 100A = 0.100" (2.54mm)
- **SP80A103201/2** indicates zero power resistance at 25°C. The first two digits indicate significant figures, and the last digit indicates the number of zeros following the significant figures. In this example, "103" represents 10000 ohms.
- **SP80A103 201/2** indicates the resistance tolerance at 25°C, expressed in $\pm\%$. In this example, "20" indicates the standard tolerance of $\pm 20\%$. Other typical tolerances include $\pm 1\%$, 2%, 5%, 10%, 15%, 20%, and 30%.
- **SP80A10320 1/2** indicates the nominal body length. 1/4 = 0.25" (6.4mm) 1/2 = 0.50" (12.7mm) 1/1 = 1.00" (25.6mm) 2/1 = 2.00" (51.2mm)

(Note: The SP43A is available only in a 0.1" (2.5mm) length. The length term is omitted in the SP43A part number)