



NTC THERMISTORS: TYPE FP07/10/14

FASTIP PROBE THERMISTOR

DESCRIPTION:

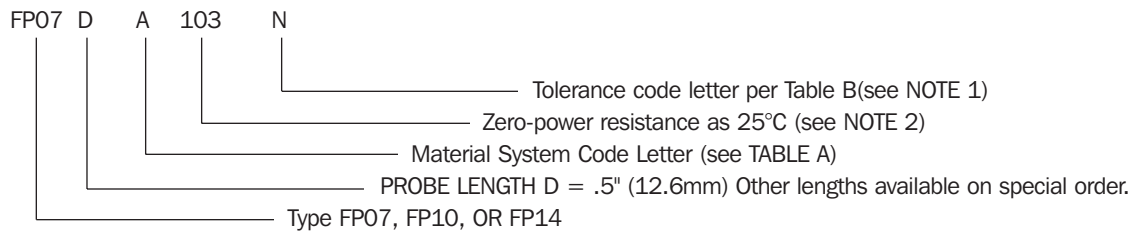
The FASTIP THERMOPROBES consist of small diameter glass coated thermistor beads hermetically sealed at the tips of shock resistant glass rods. The small bead thermistor has a very thin glass coating which allows for relatively flat frequency response for flow applications. As much of the bead as possible is exposed at the tip of the glass rod to provide the fastest response times. The units are rugged and unaffected by severe environmental exposures including high density nuclear radiation.

APPLICATIONS:

The FASTIP THERMOPROBES are ideally suited for high speed measurement and control of fluid temperatures, fluid level or flow. They offer the ease of handling associated with large glass probe thermistors as well as ultra-fast response times of small glass coated bead thermistors. These units exhibit relatively flat response to flow input from 200 Hz to 1000 Hz.

CODING:

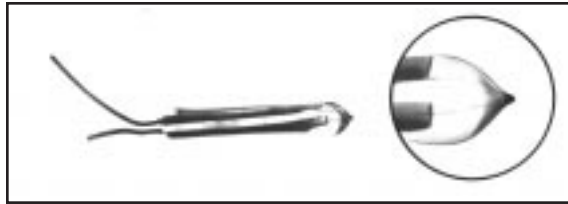
The code number to be ordered may be specified as follows:



NOTE 1: Special tolerances are available on request. To specify a non-standard tolerance, use the letter "S" followed by the desired tolerance (i.e., S7 = $\pm 7\%$).

NOTE 2: The zero-power resistance at 25°C, expressed in Ohms, is identified by a three digit number. The first two digits represent significant figures, and the last digit specifies the number of zeros to follow.

Example: A Fastip Probe with a 7msec response time in water, 100k ohms $\pm 25\%$ at 25°C would be coded FP07DA103N.



DIMENSIONS:

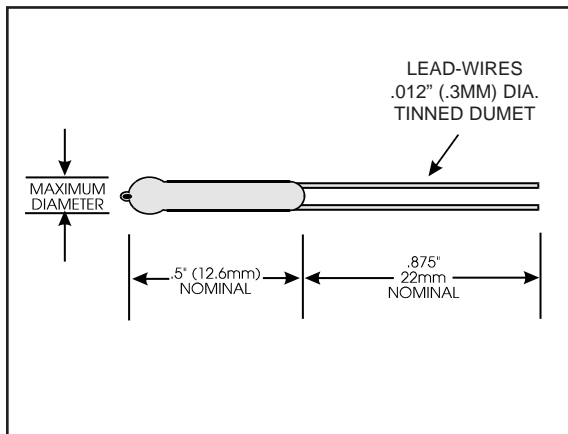


TABLE A: THERMAL AND ELECTRICAL PROPERTIES:

The following table lists the THERMAL and ELECTRICAL properties for all LARGE RUGGEDIZED THERMOBEADS. All definitions and test methods are per MIL-PRF-23648.

| THERMISTOR TYPE: | | | FP07 | FP10 | FP14 |
|-------------------------------|-----------------------|--------------|--|--|--|
| BODY DIMENSIONS: | | | | | |
| | Max. Diameter: | | .085" (2.2mm) | 0.85" (2.2mm) | .085" (2.2mm) |
| | Body Length: | | .5" (12.6mm) | .5" (12.6mm) | .5" (12.6mm) |
| lead-wires: | | | | | |
| | Nom. Diameter: | | .012" (.30mm) | .012" (.30mm) | .012" (.30mm) |
| | Lead Length: | | .875" (22mm) | .875" (22mm) | .875" (22mm) |
| | Lead Material: | | Tinned Dumet | Tinned Dumet | Tinned Dumet |
| MATERIAL SYSTEM: | | | | | |
| CODE LETTER | R-vs-T CURVE | 25/125 RATIO | Nominal Resistance Range @ 25°C (Ohms) | Nominal Resistance Range @ 25°C (Ohms) | Nominal Resistance Range @ 25°C (Ohms) |
| E | 0 | 5.0 | — | — | — |
| A | 1 | 11.8 | 300 – 680 | 300 – 680 | 300 – 680 |
| A | 2 | 12.5 | 680 – 1.6 k | 680 – 1.6 k | 680 – 1.6 k |
| A | 3 | 14.0 | 1.6 k – 3.6 k | 1.6 k – 3.6 k | 1.6 k – 3.6 k |
| A | 4 | 16.9 | 3.6 k – 6.8 k | 3.6 k – 6.8 k | 3.6 k – 6.8 k |
| A | 5 | 19.8 | 6.8 k – 27 k | 6.8 k – 27 k | 6.8 k – 27 k |
| A | 6 | 22.1 | — | — | — |
| A | 7 | 22.7 | 27 k – 75 k | 27 k – 75 k | 27 k – 75 k |
| B | 8 | 29.4 | 75 k – 130 k | 75 k – 130 k | 75 k – 130 k |
| B | 9 | 30.8 | 130 k – 240 k | 130 k – 240 k | 130 k – 240 k |
| B | 10 | 32.3 | 240 k – 360 k | 240 k – 360 k | 240 k – 360 k |
| B | 11 | 35.7 | 360 k – 820 k | 360 k – 820 k | 360 k – 820 k |
| B | 12 | 38.1 | 820 k – 1.3 M | 820 k – 1.3 M | 820 k – 1.3 M |
| B | 13 | 45.0 | 1.3 M – 3.3 M | 1.3 M – 3.3 M | 1.3 M – 3.3 M |
| B | 14 | 48.1 | 3.3 M – 6.8 M | 3.3 M – 6.8 M | 3.3 M – 6.8 M |
| B | 15 | 56.5 | 6.8 M – 10 M | 6.8 M – 10 M | 6.8 M – 10 M |
| D | 16 | 75.6 | — | — | — |
| D | 17 | 81.0 | — | — | — |
| THERMAL TIME CONSTANT: | | | | | |
| | Still Air at 25°C: | | 0.10 sec | 0.12 sec | 0.15 sec |
| | Plunge into Water: | | 7 msec | 10 msec | 16 msec |
| DISSIPATION CONSTANT: | | | | | |
| | Still Air at 25°C: | | .05 mW/°C | .09 mW/°C | .10 mW/°C |
| | Still Water at 25°C: | | .25 mW/°C | .45 mW/°C | .50 mW/°C |
| POWER RATING: (in air) | | | | | |
| | Maximum Power Rating: | | .006 Watts | .010 Watts | .014 Watts |

RESISTANCE -VS- TEMPERATURE CHARACTERISTICS: The nominal resistance range for the zero-power resistance at 25°C is shown for each THERMOBEAD Type and each available Material System. Each Material System is denoted by an ordering Code Letter, a referenced Curve number and the nominal 25°C/125°C resistance ratio..

TABLE B: STANDARD TOLERANCES:

| Tolerance Code Letter | F | G | J | K | L | M | N | P | Q | R | S |
|-----------------------|---|---|---|----|----|----|----|----|----|----|--------------------------------|
| ± % Tolerance at 25°C | 1 | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | Non-standard – consult factory |

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