

## CALIBRATION MODES

Description	Designation	Documentation
<b>Standard Calibration</b> <i>For off-the-shelf sensor</i>	0000	None
<b>Spot Calibration</b> <i>Good accuracy over a narrow range</i> Sensor will be calibrated at one temperature in °C or °F between 0° and 70°C (32° and 158°F) Epoxy Bead 0° and 100°C (32° and 212°F) Glass Bead	Specify actual temperature in 1° increments along with C or F.	Date, sensor identification readings taken and resultant correction data.
<b>Custom Calibration</b> <i>Good Accuracy over a wide range</i> <i>Calibration Range:</i> 0° to 70°C (Epoxy or Glass Bead) 0° to 100°C (Glass Bead)	0031 0030	Date, sensor identification, readings taken, and individualized R vs T table in °C and °F in 1° increments, along with the programmable coefficients (A, B, & C).

## CALIBRATION ACCURACY

Calibration Mode	Epoxy Bead Sensors Models 401,402,403,405, 406, 409A	Stable Glass Beaded Sensors Models 052SS and 083SS
<b>Standard Calibration</b> <i>For off-the-shelf sensor</i> 0° and 70°C At 100°C	±0.100°C ±0.210°C	±0.200°C ±0.300°C
<b>Spot Calibration</b> (At spot temperature ±5°C) 0° and 70°C (32° and 158°F) 0° and 100°C (32° and 212°F)	±0.020°C —	±0.020°C ±0.020°C
<b>Custom Calibration</b> 0° and 70°C 0° and 100°C	±0.012° to ±0.031°C —	±0.012° to ±0.031°C ±0.012° to ±0.034°C

## STABILITY

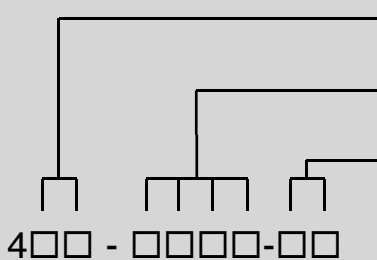
Operating Temperature	10 Months	100 Months	10 Months	100 Months
0°C	<0.01°C	<0.01°C	<0.01°C	<0.01°C
25°C	<0.01°C	0.02°C	<0.01°C	<0.01°C
70°C	0.10°C	0.20°C	<0.01°C	<0.01°C
100°C	0.20°C	0.32°C	0.02°C	0.03°C

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Bulletin 400-509

## HOW TO ORDER



Enter Probe Model Number

Enter Designation Number for Standard, Spot or Custom Calibration

Termination Options

01-Stripped and Tinned Leads

05-5 pin DIN connector

## NTC Thermistor Probes

$$R_t = 2252 \Omega @ 25^\circ\text{C}$$

Measurement Specialties Series 400 Thermistor Probes offer the exclusive feature of "true interchangeability" between probes. The temperature sensing elements used in these probes are precision thermistors manufactured with matching temperature/resistance characteristics.

### For Instrulab Models 310 and 3312A Thermometers

Model	Probe Description	Configuration
401-□□□□-01*	GENERAL PURPOSE. Rugged, vinyl probe. Esophageal or rectal temperature in humans and animals. Used in air when fast response not required, and for short-term water and sub-soil readings. Usable to 100°C (212°F). Time constant 7.0 sec.	
402-□□□□-01*	SMALL FLEXIBLE VINYL. Rectal temperatures of small animals. Esophageal temperatures of infants. Cuvette temperatures. Vinyl sheath and tip. Usable to 100°C (212°F). Time constant 3.2 sec	
403-□□□□-01† 406-□□□□-01†	TUBULAR. For rugged duty in liquid immersion. Stainless steel 5/32" dia. Usable to 150°C (300°F). Time constant 3.4 sec. TUBULAR, FAST RESPONSE. Same as 403 except 1/8" dia. and less rugged. Time constant 2.5 sec.	
405-□□□□-01†	AIR TEMPERATURE. Test rooms, incubators, remote air readings, gas streams. etc. Stainless steel cage around epoxy encapsulated thermistor. Usable to 150°C (300°F). Time constant 10 sec.	
409A-□□□□-01†	ATTACHABLE SURFACE TEMPERATURE. Tape on flat surfaces. Stainless steel cup, epoxy backed. Usable to 150°C (300°F). Time constant 1.1 sec.	
052-□□□□-01‡	STABLE, WATERPROOF AIRWAY Glass bead. For applications requiring improved long term stability. Time constant 3 second typical. Furnished with 4 wire leads.	
083-□□□□-01‡	STABLE, ATTACHABLE SURFACE TEMPERATURE Glass bead. For applications requiring improved long term stability. Time constant 8 second typical. Furnished with 4 wire leads.	

\* Vinyl sheath epoxy bead thermistors not recommended for spot or custom calibration.

† Metal sheath epoxy bead thermistors not recommended above 70°C for spot or custom calibration.

‡ Requires 4-wire Option 24 on the Model 3312 System Thermometer.

#### Electrical Isolation

Except as noted, sensing elements and lead wires are electrically isolated from the outer probe surfaces. To provide maximum safety for medical and biomedical applications, however, the probe should be used with isolated instruments.

#### Time Constant

Time required to indicate 63% of the difference between two sequentially impressed temperatures. Derived from measurements in water at 3 ft/sec, except 405, which is measured in moving air at 3 ft/sec at 0% RH. Approximately five time constants are required for a probe to read 99% of total temperature change.

**Note:** Stable glass bead sensors are available in other configurations on special order, please contact factory.