

THERMISTOR STANDARDS PROBES



Thermistor Standards Probes	Models 5640–5644
Accuracy to $\pm 0.001^{\circ}\text{C}$	
Affordable system accuracy to $\pm 0.004^{\circ}\text{C}$ or better	
NIST-traceable calibration included	

If you want a high-accuracy probe with excellent stability at a great price, the Model 5640-series Thermistor Standards Probes give you all three in a great package. Why pay for an SPRT when you can get $\pm 0.001^{\circ}\text{C}$ accuracy from 0°C to 60°C in a calibrated thermistor probe for about one-third the cost of an uncalibrated SPRT alone?

Each probe uses an ultra-stable glass thermistor enclosed in a thin-wall stainless steel tube. The basic semiconductor element is a bead of manganese, nickel, and cobalt oxides mounted on 0.1 mm platinum wires. For long-term stability, the thermistor is aged at various temperatures for 16 weeks. During the aging process, verification of the probe's stability

is done to ensure performance to published specs.

The 5640, 5641, and 5642 thermistor probes are designed for the temperature range of 0°C to 60°C . The 5643 and 5644 probes span the 0°C to 100°C temperature range. They offer stability of either $\pm 0.002^{\circ}\text{C}$ or $\pm 0.005^{\circ}\text{C}$. These stability levels are guaranteed for one full year.

Precision calibration, traceable to NIST, is provided with each probe. A computer-generated table in increments of 0.01°C is furnished with each calibration based on the formula $R = \exp(A + B/T + C/T^2 + D/T^3)$.

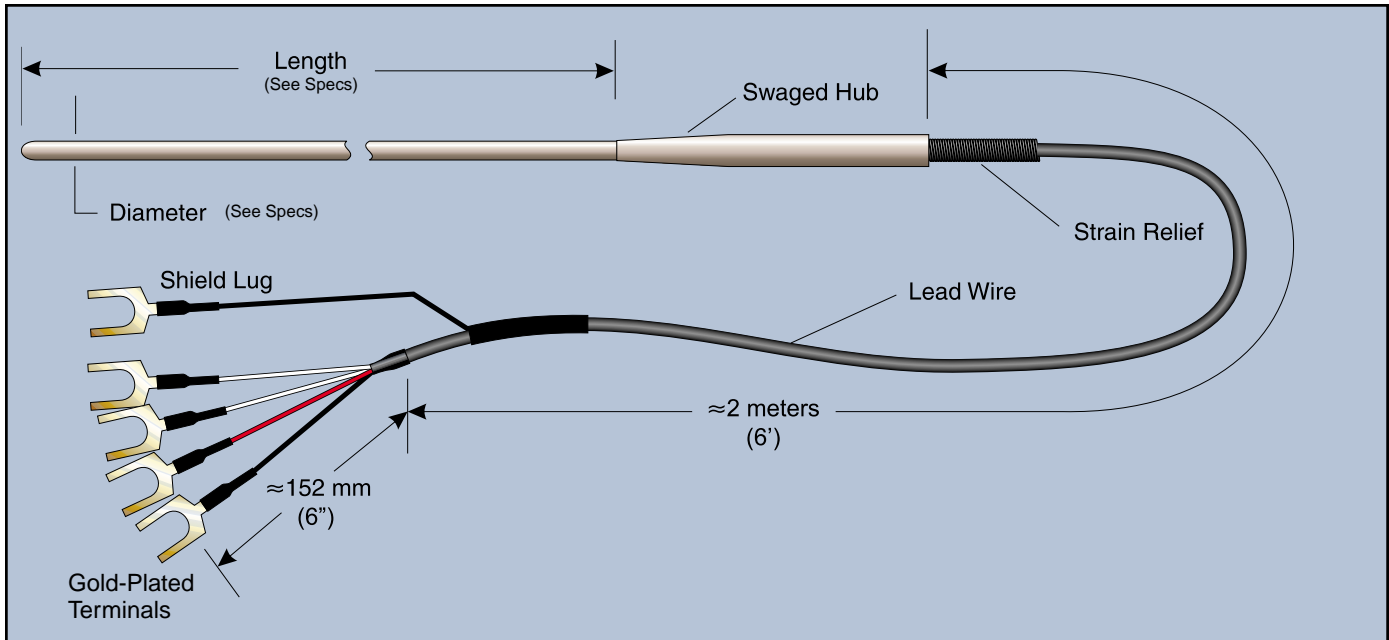
The constants for the formula are obtained from a polynomial regression performed on the calibration data obtained.

Over the range of 0°C to 60°C , calibration is performed at the triple point of water (0.01°C) and 15°C , 25°C , 30°C , 37°C , 50°C and 60°C . For the 0°C to 100°C temperature range, the additional calibration points of 80°C and 100°C are used.

Each probe is individually calibrated and includes a report of calibration from the manufacturer. Contact Hart for calibration in Hart's NVLAP accredited lab.

Thermistor standards are rugged, precision sensors suitable for use as secondary or working temperature standards for laboratory metrology applications. Because they generally are not affected by shock and vibration, you can use them in the most difficult field environments without worrying about calibration integrity.

Combine these probes with Hart's Model 1560 *Black Stack* thermometer to read directly in $^{\circ}\text{C}$, $^{\circ}\text{F}$, or K. This combination gives you resolution of 0.0001 degrees and total system accuracy is better



Specifications

Model	Dia x Length (mm x mm)	Range	Stability °C/Year	Accuracy		Wires
				0–60°C	60–100°C	
5640	.25" x 9" (6.35 x 229 mm)	0°C–60°C	±0.005°C	±0.0015°C		4
5641	.125" x 4.5" (3.18 x 114 mm)	0°C–60°C	±0.002°C	±0.001°C		4
5642	.125" x 9" (3.18 x 229 mm)	0°C–60°C	±0.002°C	±0.001°C		4
5643	.125" x 4.5" (3.18 x 114 mm)	0°C–100°C	±0.005°C	±0.0015°C	±0.0025°C	4
5644	.125" x 9" (3.18 x 229 mm)	0°C–100°C	±0.005°C	±0.0015°C	±0.0025°C	4

than $\pm 0.004^\circ\text{C}$. Combined with Hart's Model 1575 Super-Thermometer, the 5640 gives you an overall system accuracy of $\pm 0.002^\circ\text{C}$.

Compare the cost of a 5640 calibrated probe and a *Black Stack* thermometer to the cost of one uncalibrated SPRT. Between 0°C and 100°C , nothing beats the value of the Model 5640 Thermistor Standards Probe.

Ordering Information

- 5640-X Thermistor Probe
- 5641-X Thermistor Probe
- 5642-X Thermistor Probe
- 5643-X Thermistor Probe
- 5644-X Thermistor Probe
- 2601 Protective Case

X = termination. Specify "B" (bare wire), "S" (spade lugs), "D" (5-pin DIN for Tweener Thermometer), or "I" (INFO-CON for 1521 or 1522 Handheld Thermometer).



Mike and Ron are taking their favorite freeze-point cells to lunch.