TECHNICAL DATA

5640 Series Thermistor Standards Probes

Key features

- 5640, 5641, and 5642: 0 °C to 60 °C temperature range.
- 5643 and 5644: 0 °C to 100 °C temperature range.
- Stability of either ±0.002 °C or ±0.005 °C.
- Accuracy to ± 0.001 °C from 0 °C to 60 °C .
- System accuracy to ± 0.004 °C or better.
- Come with NIST-traceable calibration from the manufacturer.

Product overview: 5640 Series Thermistor Standards Probes

Each temperature thermistor 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 ±0.002 °C or ±0.005 °C. These stability levels are guaranteed for one full year.

Precision thermistor calibration, traceable to NIST, is provided with each temperature 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/T2 + D/T3)

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, thermistor 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 temperature thermistor probe is individually calibrated and includes a report of calibration from the manufacturer. Contact Fluke Calibration for calibration in our NVLAP accredited lab.

Thermistor standards are rugged, precision temperature 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 thermistor probes with a 1560 Fluke Calibration Black Stack thermometer to read directly in °C, °F, or K. This combination gives you resolution of 0.0001 degrees and total system accuracy is better than ±0.004 °C.

Compare the cost of a 5640 calibrated temperature thermistor 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 5640 Series Thermistors.

Specifications: 5640 Series Thermistor Standards Probes

Thermistor Specifications							
Model	**Diameter x Length**	**Range**	**Drift °C /Year**	**Accuracy (Mfr.)[†] 0–60 °C**	**60–100 °C**	**Wires**	**Nominal Resistance at 25 °C**
5640	6.35 x 229 mm (0.25 x 9 in)	0 °C–60 °C	± 0.005 °C	± 0.0015 °C	n/a	4	4.4 kΩ
5641	3.18 x 114 mm (0.125 x 4.5 in)	0 °C–60 °C	± 0.002 °C	± 0.001 °C	n/a	4	5 kΩ
5642	3.18 x 229 mm (0.125 x 9 in)	0 °C–60 °C	± 0.002 °C	± 0.001 °C	n/a	4	4 kΩ
5643	3.18 x 114 mm (0.125 x 4.5 in)	0 °C–100 °C	± 0.005 °C	± 0.0015 °C	± 0.0025 °C	4	7.5 kΩ
5644	3.18 x 229 mm (0.125 x 9 in)	0 °C–100 °C	± 0.005 °C	± 0.0015 °C	± 0.0025 °C	4	7.5 kΩ

[†]Does not include long-term drift, resistance traceability adds additional ± 0.0025 %.

Ordering information

5640 Series Thermistor Standards Probes

5640-X
Standards Thermistor Probe

(Calibration traceable to NIST standards included)

X = termination. Specify “A" (INFO-CON for 914X), “B" (bare wire), “D" (5-pin DIN for Tweener Thermometers), “G" (gold pins), “J" (banana plugs), “L" (mini spade lugs), “M" (mini banana plugs), “P" (INFO-CON for 1523 or 1524), or “S" (spade lugs).

5641-X
Standards Thermistor Probe

(Calibration traceable to NIST standards included)

X = termination. Specify “A" (INFO-CON for 914X), “B" (bare wire), “D" (5-pin DIN for Tweener Thermometers), “G" (gold pins), “J" (banana plugs), “L" (mini spade lugs), “M" (mini banana plugs), “P" (INFO-CON for 1523 or 1524), or “S" (spade lugs).

5642-X
Standards Thermistor Probe

(Calibration traceable to NIST standards included)

X = termination. Specify “A" (INFO-CON for 914X), “B" (bare wire), “D" (5-pin DIN for Tweener Thermometers), “G" (gold pins), “J" (banana plugs), “L" (mini spade lugs), “M" (mini banana plugs), “P" (INFO-CON for 1523 or 1524), or “S" (spade lugs).

5643-X

Standards Thermistor Probe

(Calibration traceable to NIST standards included)

X = termination. Specify “A" (INFO-CON for 914X), “B" (bare wire), “D" (5-pin DIN for Tweener Thermometers), “G" (gold pins), “J" (banana plugs), “L" (mini spade lugs), “M" (mini banana plugs), “P" (INFO-CON for 1523 or 1524), or “S" (spade lugs).

5644-X

Standards Thermistor Probe

(Calibration traceable to NIST standards included)

X = termination. Specify “A" (INFO-CON for 914X), “B" (bare wire), “D" (5-pin DIN for Tweener Thermometers), “G" (gold pins), “J" (banana plugs), “L" (mini spade lugs), “M" (mini banana plugs), “P" (INFO-CON for 1523 or 1524), or “S" (spade lugs).

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