TECHNICAL DATA

5699 High-Temperature Metal-Sheath SPRT



Key features

- Range up to the aluminum point (660 °C).
- Features Inconel™ and platinum sheaths that guard against contamination .
- Less than 8 mK/year drift.
- Usable in virtually any furnace or bath with temperatures as high as 670 °C.

Product overview: 5699 High-Temperature Metal-Sheath SPRT

Designed and manufactured by our primary standards metrologists, the strain-free sensing element in the 5699 meets all ITS-90 requirements for SPRTs and minimizes long-term drift.

After one year of regular usage, drift is less than 0.008 °C (< 0.003 °C is typical). Even lower drift rates are possible depending on care and handling. A fifth wire for grounding is added to the four-wire sensor to help reduce electrical noise, particularly for AC measurements. Finally, you can get an improved version of an old industry-standard Inconel-sheathed SPRT.

The 5699 is constructed with a 0.219-inch-diameter Inconel sheath for high durability and fast response times. Inside the sheath, the sensing element is protected by a thin platinum housing that shields the sensor from contamination from free-floating metal ions found within metal environments at high temperatures. Reduced contamination means a low drift rate—even after hours of use in metal-block furnaces at high temperatures.

If you choose not to calibrate the 5699 yourself, a wide variety of options are available from Fluke Calibration's own primary standards laboratory, including fixed-point calibrations covering any range between –200 °C and 661 °C.

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At Fluke Calibration, we use SPRTs every day. We design them, build them, calibrate them, use them as standards, and know what it takes to make a reliably performing instrument. Why buy from anyone else?

Specifications: 5699 High-Temperature Metal-Sheath SPRT

Specifications	
Temperature Range	–200 °C to 661 °C (recommended annealing temperature 665 °C)
Nominal RTPW	25.5Ω (± 0.5Ω)
Current	1 mA
Resistance Ratio	W(302.9146 K) ≥ 1.11807 W(234.3156 K) ≤ 0.844235
Sensitivity	0.1 Ω/ °C
Drift Rate	< 0.008 °C/year (< 0.003 °C/year typical)
Repeatability	< 1 mK
Self-heating at TPW	< 0.001 °C under 1 mA current
Reproducibility	± 0.001 °C or beer
RTPW Drift After Thermal Cycling	< 0.001 °C
Diameter of Pt Sensor Wire	0.07 mm (0.003 in)
Lead Wires	Four sensor wires plus grounding wire
Protective Sheath	Inconel
Diameter:	5.56 mm ± 0.13 mm (0.219 in ± 0.005 in)
Length:	482 mm (19 in)
Insulation Resistance	> 100 MΩ at 661 °C > 1000 MΩ at 20 °C

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Ordering information



5699-S
Extended Range Metal-Sheath SPRT with Maple carrying case

1911-4-7

PRT Calibration, –200 °C to 660 °C, NVLAP Accredited

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