

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.

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?

Please note that the Fluke 5699 does not come calibrated with accreditation by default. If calibration is required, we recommend reaching out directly to Fluke Corporation or contacting your local Fluke representative to arrange for the specific accreditation needed across your desired temperature ranges.

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 better
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

Ordering information



5699-S

Extended Range Metal-Sheath SPRT with Maple carrying case

Part#: 1656430

1911-4-7

PRT Calibration, -200 °C to 660 °C, Accredited

Part#: 3796107

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