

BL617 Standard Platinum Resistance Thermometer



The BL617 Standard Platinum Resistance Thermometer (SPRT) is an advanced device used for measuring temperature through the change in electrical resistance of a platinum wire. The SPRT serves as the primary interpolation instrument for the International Temperature Scale of 1990 (ITS-90), operating within the defined fixed points, from 13.8033 K (the triple point of equilibrium hydrogen, equivalent to -259.3467°C) to 961.78°C (the freezing point of silver). The performance of the SPRT is based on the precise measurement of electrical resistance as a function of temperature, necessitating accurate resistance measurements relative to a fixed resistance standard.

KEY FEATURES

- Temperature Range: -189.3442°C to 419.527°C
- Fused Quartz Sheathed: Provides durability and protection
- Resistance Values:
 $W(\text{Ga}) \geq 1.11807W(\text{Ga}) \setminus \text{geq } 1.11807W(\text{Ga}) \geq 1.11807$
 $W(\text{Hg}) \leq 0.844235W(\text{Hg}) \setminus \text{leq } 0.844235W(\text{Hg}) \leq 0.844235$
- Resistance at 0°C (Rtpw): Available in 25Ω or 100Ω
- Compliance: Meets all ITS-90 requirements for high accuracy

APPLICATIONS

- Reference Thermometer: Ideal for highly accurate temperature measurements in the range of -189°C to +420°C
- Comparative Calibration: Suitable for use in tube furnaces and liquid baths within the same temperature range

SPECIFICATIONS

Part Number	BL617-10	BL617-1	BL617-2/9
Temperature Range	-189.3442°C to 419.527°C		
Rtpw	25.5Ω ± 0.5 Ω / 100Ω ± 1 Ω		
Resistance ratio	$W(\text{Ga}) \geq 1.11807, W(\text{Hg}) \leq 0.844235$		
Measurement Current	1mA		
Annual drift @0.01°C	≤ 0.5mk	≤ 1mk	≤ 3mk
Stability	≤ 3mk	≤ 4mk	≤ 8mk
Self-heating	≤ 1.9mk	≤ 2.5mk	≤ 3mk
Platinum diameter	0.07mm	0.05mm	0.04mm
Sensor length	60mm	60mm	60mm
Sensor material	Quartz	Quartz	Quartz
Head diameter	φ21mm	φ21mm	φ21mm
Head length	103mm	103mm	103mm
Sheath diameter	φ7 ± 0.5mm	φ7 ± 0.5mm	φ7 ± 0.5mm
Sheath length	470 ± 10mm	470 ± 10mm	470 ± 10mm
Sheath material	Quartz	Quartz	Quartz/Metal
Insulation Resistance	>1000 M ohm at room temperature		
Characterizations	ITS-90, IEC-751(DIN 385)		
Cable	2m PTFE insulated copper wire cable		
Connection leads	Four Gold-plated Copper Spades		
Gas in sheath	Inert gas		

SCOPE OF DELIVERY

- BL617 Standard Platinum Resistance Thermometer
- Wooden carrying case for secure transport and storage

OPTIONAL ACCESSORIES AND SERVICES

- ISO17025 Calibration Certificate (P/N: CAL-617)
- Readout Device (available upon request)

ORDERING INFORMATION

BL617	Standard Platinum Resistance Thermometer (SPRT)		
Model	10	≤ 0.5mk annual drift, Quartz sheath	
	1	≤ 1mk annual drift, Quartz sheath	
	2	≤ 3mk annual drift, Quartz sheath	
	9	≤ 3mk annual drift (Metal sheath)	
Accuracy	25	25.5Ω ± 0.5 Ω	
	100	100Ω ± 1 Ω	
Resistance			