

BL618 Standard Platinum Resistance Thermometer



The BL618 Standard Platinum Resistance Thermometer (SPRT) is a precision instrument designed to measure temperature by detecting changes in electrical resistance in a platinum wire. It serves as the designated interpolation instrument for the International Temperature Scale of 1990 (ITS-90), operating between 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 SPRT's transfer function is based on electrical resistance as a function of temperature, making accurate resistance measurement against a fixed resistance base crucial for precise temperature readings.

KEY FEATURES

- Temperature Range: -200°C to 660.323°C
- Fused Quartz Sheathed: Offers protection and durability
- Resistance Values:
 $W(\text{Ga}) \geq 1.11807W(\text{Ga}) \setminus \geq 1.11807W(\text{Ga}) \geq 1.11807$
 $W(\text{Hg}) \leq 0.844235W(\text{Hg}) \setminus \leq 0.844235W(\text{Hg}) \leq 0.844235$
- Resistance at 0°C (Rtpw): Available in 25Ω or 100Ω
- Compliance: Fully meets all ITS-90 requirements for temperature measurement accuracy

APPLICATIONS

- Reference Thermometer: Ideal for precise temperature measurements in the range of -200°C to 661°C
- Comparative Calibration: Suitable for use in tube furnaces and liquid baths within the same temperature range

SPECIFICATIONS

Part Number	BL618-6	BL618-7	BL618-8
Temperature Range	-200°C to 660.323°C		
Rtpw	$25.5\Omega \pm 0.5\Omega / 100\Omega \pm 1\Omega$		
Resistance ratio	$W(\text{Ga}) \geq 1.11807, W(\text{Hg}) \leq 0.844235$		
Measurement Current	1mA		
Annual drift @0.01°C	$\leq 0.5\text{mk}$	$\leq 1\text{mk}$	$\leq 3\text{mk}$
Stability	$\leq 3\text{mk}$	$\leq 4\text{mk}$	$\leq 8\text{mk}$
Self-heating	$\leq 1.9\text{mk}$	$\leq 2.5\text{mk}$	$\leq 3\text{mk}$
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	510±10mm	510±10mm	510±10mm
Sheath material	Quartz	Quartz	Quartz
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

- BL618 Standard Platinum Resistance Thermometer
- Wooden carrying case for secure transport and storage

OPTIONAL ACCESSORIES AND SERVICES

- ISO17025 Calibration Certificate (P/N: CAL-618)
- Readout Device (available upon request)

ORDERING INFORMATION

BL618		Standard Platinum Resistance Thermometer (SPRT)		
		6	≤ 0.5mk annual drift, ≤ 3mk stability	
		7	≤ 1mk annual drift, ≤ 4mk stability	
		8	≤ 3mk annual drift, ≤ 8mk stability	
			25	25.5Ω ± 0.5 Ω
			100	100Ω ± 1 Ω
Model	Accuracy	Resistance		