

Temperature Stabilized Resistance Standards

New Series of High to Ultra High Value Resistance Standards



6636 SERIES FEATURES

- ◆ Resistance Range: 10 MΩ to 100 TΩ
In Single Decade Increments
- ◆ Temperature Coefficient ± 0.2 ppm/ $^{\circ}$ C
- ◆ Stabilities Low as < 6 ppm/year
- ◆ Thermometry Value Models Available
- ◆ N-Type Design Ensures Solid Connections
- ◆ Eliminates Oil Bath Requirements
- ◆ Ambient Temperature Range: 23° C $\pm 5^{\circ}$ C
- ◆ Internal PRT Stability: $\pm 0.02^{\circ}$ C / Year
- ◆ Custom Internal Temperature Set Points
- ◆ Low Thermal EMF's – Shielded Chamber
- ◆ Temperature Regulation: ± 0.01 $^{\circ}$ C over
a 1 year period
- ◆ Guarded Resistance Element Chamber
- ◆ Custom Values / Models Available
- ◆ CE Marked with World-Wide Voltage and
Frequencies Available

GUILDLINE INSTRUMENTS 6636 SERIES is a modular series of Temperature Stabilized Resistance Standards that can be rack mountable or simply set on a bench. The 6636 Series provides a logical extension to the popular 6634A series of Temperature Stabilized Resistance Standards.

The 6636 can be configured with up to 6 standard decade resistance values available covering the range of 10 Megohms to 100 Tohms. Each resistance element is isolated and has an N-type terminal connection at the back panel. Special resistance and decade values are available in the range of 10 Mohms to 100 Tohms. All models purchased with less than 6 resistance standards can be expanded at any time.

High and Ultra High Resistance have inherently large temperature coefficients associated with them. The resistance elements are maintained at 30 ± 0.01 $^{\circ}$ C in a temperature stabilized chamber. Chamber temperature set points of 35 $^{\circ}$ C and 40 $^{\circ}$ C ± 0.01 $^{\circ}$ C are available on request. Temperature monitoring is provided by a precision PRT sensor installed in the chamber. The unit can be used in a wide working temperature surrounding of 23° C $\pm 5^{\circ}$ C without adding very minimal effects for temperature.

The 6636 Unique Design Allow Primary Laboratories to Significantly Enhance their High to Ultra High Value Resistance Standards Measurement Uncertainties

By maintaining a tight temperature environment around the element, the uncertainty on these values is significantly reduced. For example, the 6636-100G Resistance value temperature coefficient element is 25X better than a Standard Air Resistor of the same value for even a tight laboratory environment control of 1° C.

Resistance elements are electrically isolated and bonded to an aluminium block to reduce thermal gradients in the inner chamber. The inner chamber is designed to electrically shield the individual elements and an electrical connection is provided to a guard terminal at the back panel.

The 6636 was designed to allow primary Laboratories to significantly enhance their high accuracy uncertainties associated with Accreditation. By incorporating an enclosed shielded chamber, coupled along with a tightly controlled temperature environment, measurement uncertainties can be significantly controlled and reduced for the first time in high to ultra high value resistance standards.

6636 Series of Temperature Stabilized Resistance Standards

6636 Specifications

Nominal Resistance (Ohms)	Nominal Initial Tolerance ¹ (+/- ppm)	12 Month Stability ² (+/- ppm)	Temperature Coefficient (+/- ppm/°C)	Maximum Voltage (Volts)
10 M	35	6	0.2	1000 V
100 M	50	15	0.2	1000 V
1 G	100	35	0.2	1000 V
10 G	200	100	1	1000 V
100 G	500	200	10	1000 V
1 T	1000	500	15	1000 V
10 T	3500	750	25	1000 V
100 T	6000	1000	35	1000 V

Note 1: Nominal initial tolerance is defined as the maximum variation of resistance mean values as initially adjusted at the point of sale.

Note 2: Stability is exclusive of the effects of applying power above 20 mW, but not exceeding the maximum voltage, in terms of hysteresis and short term temperature stabilization.

Calibration Note: Calibrated in ambient conditions of 23 °C, referred to the unit of resistance as maintained by the National Research Council of Canada or the NIST and expressed as a total uncertainty with a coverage factor of k = 2. A calibration report stating the measurement values and uncertainty is provided with each unit.

GENERAL SPECIFICATIONS									
Temperature Stability		± 0.01 °C over 1 year, exclusive of self heating effects of the resistors							
Output Resistance Range		10 Mohms to 100 Tohms. (Special values between 10 Mohms and 100 Tohms available at time of order. For lower values see Guidline 6634A Temperature Stabilized Resistance Standard Series.							
PRT Sensor :	1 Year Stability ± 0.02 °C	Resistance 100 ohms ± 0.1% at 0°C		0-100°C Temperature Coefficient 0.392 ohms/°C					
Power Requirements		VAC: 100, 120, 220, 240V ± 10%		Frequency: 50/60 Hz ± 10%		15 VA Maximum			
Environmental:		Operating		18 °C to 28 °C, < 50% RH, non-condensing					
		Storage		-20 °C to 60 °C, < 90% RH, non-condensing					
Dimensions		Height		Width		Depth		Weight	
		132 mm	5.2 in	440 mm	17.4 in	503 mm	19.8 in	11 kg	24 lbs
Note:		Add 10mm (0.4 in) to height for bench top feet							

ORDERING INFORMATION	
6636-6/100T	Standard with 6 Decade Elements 1GΩ to 100TΩ
6636-6/10T	Standard with 6 Decade Elements 100MΩ to 10TΩ
6636-6/1T	Standard with 6 Decade Elements 10MΩ to 1TΩ
6636-5/100T	Standard with 5 Decade Elements 10GΩ to 100TΩ
6636-5/10T	Standard with 5 Decade Elements 1GΩ to 10TΩ
6636-5/1T	Standard with 5 Decade Elements 100MΩ to 1TΩ
6636-5/100G	Standard with 5 Decade Elements 10MΩ to 100GΩ
6636-5/10G	Standard with 5 Decade Elements 10MΩ to 10GΩ
6636/SSRV	Single element substitution of any decade value
6636/SPRV	Single element substitution of any special value
/TM6636	Technical Manual (Included)
/ST-X	Optional Internal Temperature Set point (Specify 35°C or 40°C)
Note: Report of Calibration and Calibration Certificate Included	
/Lead-11	Low Thermal Lead Pair w/Gold Plated Banana Plugs, 1M length
/Lead-12	Low Thermal Lead Pair w/Gold Plated Banana Plugs, 2M length
*Other Precision Leads Are Available – Call and tell us your requirements	
Optional Calibration Services (ISO 17025 Service Available)	
/Cal	Additional Customer Specified Cal Point (Charge)

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