

TEMPERATURE STABILIZED RESISTANCE STANDARDS

Perfect for Automated Measurement Systems or as a Laboratory Standard



6634A SERIES FEATURES

- ◆ Resistance Range: 0.1 Ω to 100 M Ω in Decades
- ◆ Temperature Coefficient ± 0.005 ppm/ $^{\circ}\text{C}$
- ◆ Stabilities as Low as < 2 ppm/year
- ◆ Models Available For Thermometry applications
- ◆ Eliminates Oil Bath Requirements
- ◆ Ambient Temperature Range: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- ◆ Internal PRT Stability: $\pm 0.01^{\circ}\text{C}$ / year
- ◆ Custom Internal Temperature Set Points
- ◆ Temperature Regulation: $\pm 0.01^{\circ}\text{C}/\text{year}$
- ◆ Guarded Resistance Element Chamber
- ◆ Custom Values / Models Available
- ◆ CE Marked
- ◆ Values up to 100 T Ω with Guildline Model 6636

GUILDLINE INSTRUMENTS 6634A SERIES is a modular series of Resistance Standards that are rack mountable or simply set on a bench. The 6634A Series provides a set of precision resistance standards in a temperature controlled chamber of $30 \pm 0.01^{\circ}\text{C}$.

There are 10 standard resistance values covering the range of 0.1 ohm to 100 Megohm. Each resistance element is isolated and has a 4-terminal connection at the back panel. Chamber temperature set points of 35°C and $40^{\circ}\text{C} \pm 0.01^{\circ}\text{C}$ are available on request. Temperature monitoring is provided by a precision PRT sensor installed in the chamber with a 4-terminal connectors on the front panel. The Model 6634A is intended to be used as a Working Standard Resistance Reference for automated resistance measurement systems.

Four standard model variations are available with 5, 8, 9 or 10 resistance elements installed. Special values or other sets of standard resistance values may be ordered.

The 6634A Series is an Excellent Solution as Working Resistance Standard for Automated Resistance Measurement Systems or a Laboratory Primary Resistance Standard!

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 with a guard terminal at the back panel.

Design of the 6634A reduces thermal bridges between the control and monitoring circuits and the resistance elements. The individual resistance element design is based on the proven Guildline Model 9334 Resistance Standards and achieves excellent long term stability and low power coefficients.

Gold plated 5-way binding posts provide for very low thermal EMF when connected to bare copper cables or gold plated connections. When used with a low thermal scanner and automated DCC Resistance Bridge such as the Guildline Model 6622A Series, full automation of resistance measurements to 1G ohms is attainable.

6634A SERIES OF TEMPERATURE STABILIZED RESISTANCE STANDARDS

6634A SPECIFICATIONS

Nominal Resistance (Ω)	Nominal Initial Tolerance ¹ (± ppm)	Calibration Uncertainty ² (±ppm)	24 Hour Stability (± ppm)	12 Month Stability ³ (± ppm)	Temperature Coefficient (± ppm/°C)	Maximum Voltage (V)
0.1	10	0.5	0.1	3	0.01	0.1
1	10	0.3	0.01	2	0.005	0.32
10	10	0.3	0.01	2	0.005	1.0
100	10	0.35	0.01	2	0.005	3.2
1k	10	0.3	0.01	2	0.005	10
10k	10	0.3	0.01	2	0.005	32
100k	15	1	0.02	2.5	0.01	100
1M	25	6	0.04	3	0.02	320
10M	35	9	0.2	4	0.2	1000
100M	50	15	0.5	15	0.2	1000

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: 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.

Note 3: 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.

GENERAL SPECIFICATIONS

Temperature Stability	± 0.01 °C over 1 year, exclusive of self heating effects of the resistors							
Output Resistance Range	0.1 Ω to 100MΩ . (Special values between 0.1Ω and 100M Ω available at time of order. For higher values see Guildline 6636 Temperature Stabilized Resistance Standard Series.							
PRT Sensor:	1 Year Stability ± 0.01 °C		Resistance 100Ω ± 0.1% at 0°C			0-100°C Temperature Coefficient 0.392 Ω/°C		
Power Requirements	100, 120, 220, 240V ± 10%			Frequency: 50/60 Hz ± 10%		15 VA Maximum		
Environmental:	Operating		18 °C to 28 °C (64 ~ 80°F), < 70% RH, non-condensing					
	Storage		-20 °C to 60 °C (-4 ~ 140 °F), < 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							

6634A-10	Standard with 10 Decade Elements 0.1Ω to 100MΩ
6634A-9	Standard with 9 Decade Elements 0.1Ω to 10MΩ
6634A-8	Standard with 8 Decade Elements 1Ω to 10MΩ
6634A-7	Standard with 7 Decade Elements 1Ω to 1MΩ
6634A-6	Standard with 6 Decade Elements 1Ω to 100kΩ
6634A-5	Standard with 5 Decade Elements 1Ω to 10kΩ
Note: Report of Calibration and Calibration Certificate Included (ISO17025 accredited)	
6634A/SSRV	Single element substitution of any decade value between 0.1 to 100MΩ
6634A/SPRV	Single element substitution of any special value between 0.1 to 100MΩ
/TM6634A	Technical Manual (Included)
/ST-X	Optional Internal Temperature Set point (Specify 35°C or 40°C)
/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 Available – Call and tell us your requirements	
Optional Calibration Services (Charge)	
/Cal	Additional CAL Point (Specify level of power dissipation other than 10mW)

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