



Specification Sheet: 1394A Thermal Voltage Converter

The **1394** series of Thermal Voltage Converters offer a high precision, coaxial configuration, inside a sturdy cylindrical, highly polished enclosure of nickel plated brass. These units, specifically for making ac voltage measurements using ac-dc transfer techniques, offer a fully shielded case with a highly polished reflective outer coating offering excellent isolation from thermal gradients. These units offer exceptionally flat frequency response from DC to 100 MHz and nearly constant input impedance.



Voltage and Frequency Ranges

Model	Usable Voltage Range	Frequency Range
1394A-0.25	0.1 to 0.25V	5 to 30 MHz
1394A-0.5	.16 to .67 V	dc, 10 to 100 MHz
1394A-1	.32 to 1.33 V	dc, 10 to 100 MHz
1394A-2	.63 to 2.66 V	dc, 10 to 100 MHz
1394A-3	.95 to 3.99 V	dc, 10 to 100 MHz
1394A-5	1.58 to 6.65 V	dc, 10 to 100 MHz
1394A-10	3.16 to 13.3 V	dc, 10 to 100 MHz
1394A-20	6.32 to 26.6 V	dc, 10 to 100 MHz
1394A-50	16 to 66.5 V	dc, 10 to 30 MHz

Calibration Uncertainty

Frequency response is calibrated with a standard converter traceable to NIST. Voltages are measured at a point equivalent to the center of a Type 874 Tee connected to the converter.

Frequency	Uncertainty of Correction Factor	Ref. Standard Uncertainty*
10 to 20 Hz	± 0.0160%	± 0.013%
20 to 20 kHz	± 0.0025%	± 0.0017%
20 k to 50 kHz	± 0.0040%	± 0.003%
50 k to 100 kHz	± 0.0065%	± 0.005%
100 M to 1 MHz	± 0.0095%	± 0.008%
1 M to 10 MHz	± 0.1%	± 0.1%
10 M to 30 MHz	± 0.2%	± 0.2%
30 M to 100 MHz	± 1.0%	± 1%

*Refers to combined uncertainties of NIST and Ballantine standards. Measurements Reference 23 °C ± 1 °C.

Input Impedance:

200 Ω ± 10% per nominal Volt.

Input Capacitance:

5 pF nominal

Thermoelement

Nominal Heater Current: 5 mA rms, Max.
Heater Current: 7.5 mA rms
Couple Output: 7 mV ± 12% at nominal heater current.
Couple Resistance: 8 Ω ± 20%.
Maximum DC Reversal Error: ± 0.04%
Couple Output Voltage to Heater (ground): ± 50 V (dc + ac pk-pk) max.

Connectors:

Signal Input: Type GR874PB
Couple Output: 3-pin male MS3102A-10SL-3P

Environmental:

Operating Temperature: 4 °C to 40 °C, Operating Humidity: 0 to 90% RH, Operating Altitude: Sea level to 10,000 ft

Size & Weight:

Dimensions: 5.08 cm (2") diam. x 11.8 cm (4-5/8") long, exclusive of connectors. Weight: 1.4 kg (3 lbs 1 oz)

Order Information

Model	Description
1394A-xx	Values of 0.25, 0.5, 1, 2, 3, 5, 10, 20 and 50 Volts
1394A-K20	Kit containing 1394A-0.25, -1, -3, -5, -10, low noise cable and case
Options	
-10	± 0.005% DC Reversal Error
-11	2 Pin Output Connector

All specifications are subject to change without notice.