



Model 511 DC Source/Calibrator

- Absolute Accuracy: ± 10 ppm
- Voltage Range: ± 100 nVdc to ± 10 Vdc
- Resolution: 1ppm of Range
- Wideband Noise: $< 5\mu$ Vrms
- 3 Voltage Ranges
- Max. Current: 100mA
- Impedance: 10μ ohm all ranges
- Floating Output
- Certified to N.I.S.T.

DESCRIPTION

Continuing with Electronic Development's (EDC) tradition, the NEW Krohn-Hite Model 511 Precision DC Source/Calibrator is a secondary standard that is highly stable and repeatable from ± 100 nVdc to ± 10 Vdc, providing N.I.S.T. traceable voltages for use in production, calibration labs, QA and QC departments, design labs, or any place where an accurate voltage is needed.

Using Krohn-Hite's state-of-the-art reference, the 511 provides extremely accurate (± 10 ppm) and stable (± 2 ppm for 24 hours) voltages over 3 ranges, allowing the output to be set from ± 100 nVdc to ± 11.11110 Vdc with a resolution of 1ppm of range.

The Model 511 is an extremely quiet source with $< 5\mu$ V of noise measured from 0.1Hz to 100kHz. Maximum load current is 100mA on all ranges.

RANGES

The 511 also provides 3 voltage ranges, ± 100 mV, ± 1.0 V and ± 10 V allowing the user to set the output from ± 100 nVdc to ± 11.11110 Vdc. Resolutions are 100nV, 1μ V and 10μ V respectively.

APPLICATIONS

The Model 511 can be used in many applications including the calibration of precision A/D converters, strip chart recorders and calibration of Kaye Instruments Data Logging Systems.

SPECIFICATIONS

OUTPUT

Specifications apply at $23^\circ\text{C} \pm 1^\circ\text{C}$, $< 70\%$ relative humidity.

Range (dc)	Full Scale (dc)	Resolution (dc)	Absolute Accuracy $\pm(\text{ppm of setting} + \mu\text{V})$
			1Year
100mV	± 111.11110 mV	100nV	10 + 2
1.0V	± 1.111110 V	1μ V	10 + 6
10V	± 11.11110 V	10μ V	10 + 42
Above specifications include stability, line regulation and load regulation.			

Noise and Ripple:

Range	0.1Hz-10Hz	10Hz-100kHz	Max. Load	Zo
100mV	2μ Vp-p max.	5μ Vrms	100mA	10μ ohms
1V	2μ Vp-p max.	5μ Vrms		
10V	2μ Vp-p max.	10μ Vrms		
Above specifications include stability, line regulation and load regulation.				

Temperature Coefficient, \pm (ppm of setting + μ V)/ $^{\circ}$ C:

0 $^{\circ}$ C to 10 $^{\circ}$ C	3 + 2
10 $^{\circ}$ C to 40 $^{\circ}$ C	2 + 1

Stability:

24hrs, \pm (2ppm of setting + 1 μ V).

1 year, \pm (10ppm of setting + 2 μ V).

Settling Time: 100ms max., typically 60ms.

Load Regulation (all ranges): \pm 1 μ V for a change from no load to full load.

Line Regulation (all ranges): \pm (1ppm + 1 μ V of range) for a \pm 10% change from normal line voltage.

GENERAL

Calibration Interval: 1 year for \pm 10ppm accuracy.

Warm-Up Time: 1 hour to rated accuracy.

Isolation: Floating 500V from chassis.

Protection: Will drive a short-circuit indefinitely.

Temperature:

Calibration	23 $^{\circ}$ C \pm 1 $^{\circ}$ C.
Operating	0 $^{\circ}$ C to 50 $^{\circ}$ C. Accuracy is de-rated above 40 $^{\circ}$ C due to loss of oven control.
Storage	-30 $^{\circ}$ C to 70 $^{\circ}$ C.

Power Requirements: 105-125 or 210-250 volts ac, single phase, 50Hz-400Hz, 20 watts.

Dimensions: 3.5" (9cm) high, 14" (36cm) wide, 12.5" (32.1cm) deep.

Weight: 12 lbs (5.4kg) net; 14 lbs (6.3kg) shipping.

Controls: Six decade rotary switches with indicator knobs from 0 to 10 and 10% over-range; 3 position range and polarity rotary switches; push-button power on, sense and ground switches.

Indicators: LEDs indicate voltage range, power on and overload.

Terminals: Output terminals are safety, low thermal, gold plated type, mounted on the front panel. Terminal sets are configured for remote sensing of the output as follows:

High Output and High Sense

Low Output and Low Sense

Case Ground

Output terminals conform to European Standard Specifications.

OPTIONS

Option 003: Provides both front and rear panel terminals for instrument outputs. Only one output set of terminals may be used at one time.

Option 004: Provide CE regulation safety terminals.

Rack Mount Kit: Part number RK-314 permits installation of the Model 511 into a 19" rack spacing.

Extended 1 Year Warranty: Part No. EX511

OPTIONAL ACCESSORIES

CAB-005: Cable, Two Conductor Shielded Balance Line

CAB-018: Cable, Multi-stacking Double Banana plug

CAB-023: Cable Set, Low Thermal EMF Retractable Banana

CAB-024: Cable Set, Low Thermal EMF Spade Lug

Specifications are subject to change without notice.