



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°C ± 1 °C, < 70 % relative humidity.

Range (dc)	Full Scale (dc)	Resolution (dc)	Absolute Accuracy \pm (ppm of setting + μ 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.

SAFETY

The Model 523 is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control and laboratory use: IEC61010-1, EN61010-1.

ELECTROMAGNETIC COMPATIBILITY

Emissions and Immunity: EN61326-1, EMC, 61000-4-2; ESD, 61000-4-3; Radiated Immunity, 61000-4-4; EFT, 61000-4-5; Surge, 61000-4-6; Conducted Immunity, 61000-4-8; Magnetic Immunity, 61000-4-11; Voltage Interruption EN61010-1. CE Compliant for Class B Equipment.

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.