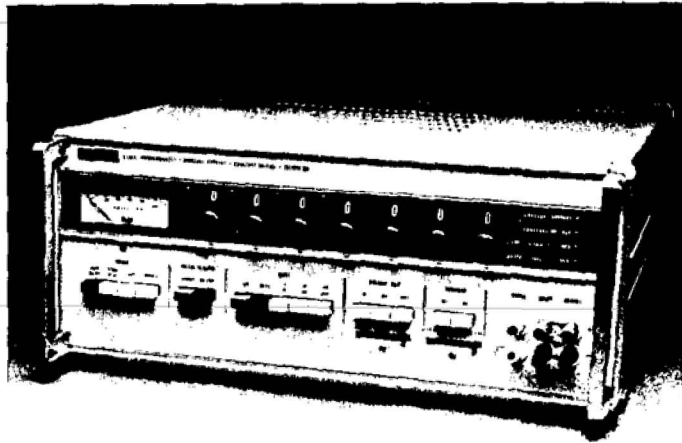


CALIBRATORS AND STANDARDS

Programmable DC Voltage/Current Calibrator 3330B



3330B

3330B Programmable DC Voltage/ Current Calibrator

Model 3330B combines high dc accuracy with the programmability required for automated calibration systems. The unit may be programmed for analog dc outputs within 0.003% of command from 0 to ± 1111 V dc in three ranges. In addition to analog voltage outputs, the 3330B is a programmable dc current calibrator accurate to $\pm 0.006\%$ of programmed value.

One input line programs voltage or current mode. Output in current mode is 0 to 111 mA in three ranges using the same control lines as in voltage mode. Compliance voltages up to 1000V dc are available on the 1 and 10 mA ranges, and 500V dc on the 100 mA range.

All program input lines to the unit are applied to semiconductors, not relay coils that require driving currents. Thus, interface with DTL and TTL solid-state logic is possible. Logic 1 (0V ± 0.5 V dc or contact closure) on any input line requires no current from the source; a small amount (2.5 mA) of current sinking is the only requirement.

Full control of the instrument is possible from the front panel as well as by programming lines. Remote programming can be overridden at the front panel if desired.

Specifications

Constant Voltage Mode

Analog Outputs:

- 10V range: 0 to 11.111110V (1 μ V steps)
- 100V range: 0 to 111.11110V (10 μ V steps)
- 1000V range: 0 to 1111.1110V (100 μ V steps)

Accuracy of Output (% of Programmed Level):

- 10V range: $\pm 0.003\%$ or $\pm 30 \mu$ V
- 100V range: $\pm 0.003\%$ or $\pm 300 \mu$ V
- 1000V range: $\pm 0.003\%$ or ± 3 mV

NOTE: Above accuracies apply for 90 days at standard reference conditions of 23°C $\pm 1^\circ$ C (nominal calibration temperature, constant line voltage, up to 70% relative humidity, and constant external load). With uninterrupted operation for more than one hour at loads greater than 25 mA, the specified accuracy is $\pm 0.005\%$ over an operating temperature range of 23°C $\pm 5^\circ$ C.

Output Current:

- 10V and 100V ranges: 0 to 100 mA programmed level
- 1000V range: 0 to 50 mA at any programmed level

Stability of Output (ppm of programmed level):

- 10V range: 5 ppm or 10 μ V/day, 15 ppm or 30 μ V/mo
- 100V range: 5 ppm or 100 μ V/day, 15 ppm or 300 μ V/mo
- 1000V range: 5 ppm or 1 mV/day, 15 ppm or 3 mV/mo

NOTE: Stabilities apply at standard conditions described under accuracy of output

Ripple and Noise:

Range	Up to 50 mA Load	Up to 100 mA Load
10V	60 μ V rms	100 μ V rms
100V	70 μ V	100 μ V
1000V	100 μ V	200 μ V

Constant Current Mode

Analog Outputs:

- 1 mA range: 0 to 1.1111110 mA (0.1 nA steps)
- 10 mA range: 0 to 11.111110 mA (1 nA step)
- 100 mA range: 0 to 111.11110 mA (10 nA steps)

Accuracy of Output: $\pm 0.006\%$ of programmed level or 0.0006% of current range.

NOTE: Accuracy applies for 90 days at standard reference conditions described under constant voltage mode

Stability of Output: 10 ppm of programmed level or 1 ppm of range/day. 30 ppm of programmed level or 6 ppm of range/mo

NOTE: Stabilities apply at standard conditions described under constant voltage mode.

Compliance Voltage: 1 mA and 10 mA ranges — up to 1000V, 100 mA range — up to 500V

Ripple and Noise: For negative ground or floating operations:

Range	Ripple
1 mA	20 nA
10 mA	100 nA
100 mA	1 μ A

Voltage Trip (voltage or current operation): Remote mode — programmable in 10% steps from 1% to 110% limit range. Local mode — continuously adjustable from 1% to 110% of range.

Response Time: (To within specs) 1, 10, 100 mA ranges — 500 ms typical — dependent on load resistance; 10V range — 60 ms; 100V range — 300 ms; 1000V range — 3s

Input Power: 115/230V ac $\pm 10\%$ 48-62 Hz single phase, approximately 130 VA fully loaded

Size: 17.8 cm H x 43.2 cm W x 45.7 cm D (7 in. H x 17 in. W x 18 in. D)

Weight: 26.3 kg (58 lbs)

Mounting: (Bench) Self-supported on included custom-designed feet, (Rack) Accepts optional brackets MEE-7003 for 19 in. rack mounting and optional 18 in. chassis slides MEE-8078 (24 in. slides also available)

Price

Model

3330B DC Voltage/Current Calibrator \$4995

Accessories

MEE-7003 7" Rack Adapter	40
MEE-8078 18" Rack Slides	60
MEE-8079 24" Rack Slides	60