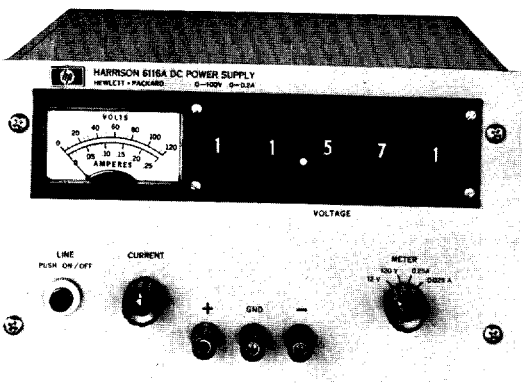
POWER SUPPLIES

HIGH STABILITY SUPPLY/CALIBRATOR

STB series

Models 6101A—6116A

Models 6101A - 6106A



Models 6110A - 6116A

Model		6101A	6102A	6106A	6110A	6111A	6112A	6113A	6116A
DC output		0-20V 0-1A	0-40V 0-500mA	0-100V 0-200mA	0-3000V 0-6mA	0-20V 0-1A	0-40V 0-500mA	0-10V 0-2A	0-100V 0-200mA
Load regulation: For full rated output current change	Front terminals	0.001% (10ppm) plus 600 μV	0.001% (10ppm) plus 350 μV	0.001% (10ppm) plus 200 μV	0.001% (10ppm) plus 100 μV	0.001% (10ppm) plus 200 μV	0.001% (10ppm) plus 350 μV	0.001% (10ppm) plus 1.1 mV	0.001% (10ppm) plus 200 μV
	Rear terminals	0.001% (10ppm) + 100 μV			—	0.001% (10ppm) + 100 μV			
Line regulation: For a 10% change in the nominal line voltage		0.001% (10ppm)		0.001% (10ppm)			0.001% (10ppm)		
Ripple and noise		40 μV RMS 100 μV P-P		40 μV RMS 100 μV P-P	400 μV RMS 1 mV P-P	40 μV RMS 100 μV P-P			
Temperature coefficient: Output voltage change per °C after 30 minute warm-up.	Front panel control	0.005% (50ppm) plus 30 μV	0.005% (50ppm) plus 50 μV	0.005% (50ppm) plus 100 μV	0.001% (10ppm) plus 50 μV	0.001% (10ppm) + 10 μV			
	Remote programming	0.001% (10ppm) plus 10 μV	0.001% (10ppm) plus 10 μV	0.001% (10ppm) plus 50 μV	—				
Stability: Total drift after 30 minute warm-up and with 3°C ambient variation.	Front panel control	For 8 hrs. 0.01% + 300 μV	For 8 hrs. 0.01% + 500 μV	For 8 hrs. 0.01% + 1 mV	For 8 hrs. 0.01% + 500 μV For 1 month 0.012% + 600 μV	For 8 hours: 0.01% + 100 μV For 1 month: 0.012% + 120 μV Controlled Environment **for 8 hours: (0.0005%) + 10 μV			
	Remote programming	For 8 hrs. — 0.10% + 100 μV For 1 month — 0.012% + 120 μV							
Output impedance		DC — 100 Hz; <0.002 Ω 100 Hz — 1 kHz; <0.02 Ω 1 kHz — 100 kHz; <0.5 Ω 100 kHz — 1 MHz; <3 Ω			At 3000 V DC — 1000 Hz; <50 Ω At 3 V DC — 100 Hz; <0.05 Ω	DC—100 Hz; <0.002 Ω 100 Hz—1 kHz; <0.02 Ω 1 kHz—100 kHz; <0.5 Ω 100 kHz—1 MHz; <3 Ω			
Remote programming: All programming terminals are located on rear barrier strip		Coefficient — 1000 ohms per volt Accuracy — 0.1% plus 1 mV Resettability — 0.01% + 200 μV			—	Coefficient—1000 ohms per volt Accuracy—0.1% plus 1 mV Resettability—0.01% + 200 μV			
Meters ranges Single meter with switch to select scale		0-2.5V/0-25V 0-120mA/0-1.2A	0-5V/0-50V 0-60mA/0-600mA	0-12V/0-120V 0-25mA/0-250mA	0-3500V 0-7mA	0-2.5V/0-25V 0-120mA/0-1.2A	0-5V/0-50V 0-60mA/0-600mA	0-1.2V/0-12V 0-250mA/0-2.5A	0-12V/0-120V 0-25mA/0-250mA
Size	Inches	8½W × 3½H × 12⅝D			8½W × 5¼H × 16D	8½W × 5¼H × 12⅝D			
	Centimeters	21.6W × 8.9H × 32D			21.6W × 14H × 40.6D	21,6W × 14H × 32D			
Weight: Net/Shipping (lb.)	Pounds	10/13	10/13	10/13	19/23	11/15	11/15	11/15	11/15
	Kilograms	4,5/5,9	4,5/5,9	4,5/5,9	7,7/10,4	5,0/6,8	5,0/6,8	5,0/6,8	5,0/6,8
Price		$265	$265	$265	$495	$375	$375	$375	$375
Options: Refer to p. 561 for description.		06 — $95 28 — $10	06 — $95 28 — $10	06 — $95 28 — $10	*05 — $50 18 — $50	06 — $95 28 — $10	06 — $95 28 — $10	06 — $95 28 — $10	06 — $95 28 — $10

*No charge if ordered with option 18

**Constant load current, line voltage, and ambient temperature

Advantages

Low output drift and temperature coefficient.

Low output ripple

Low output impedance

High accuracy remote programming (except 6110A)

Remote error sensing (except 6110A)

No overshoot on turn-on, turn-off, or power removal

Output continuously adjustable to zero volts

High output voltage resolution — ten-turn coarse and one-turn fine control (6101A, 6102A and 6106A)

In-line 5-digit thumb-wheel voltage programmer (6110A, 6111A, 6112A, 6113A, 6116A)

All silicon design

Positive or negative output

Short circuit proof

Continuously variable current limit control

Output voltage and current metering

Easily rack mounted for systems applications

Auto-series and auto-tracking operation

Multiple range meter

Resettability — 0.01% +200 μV

Description

The STB Series of high stability dc bench supplies has been designed for those applications requiring performance an order of magnitude better than well-regulated laboratory supplies. The performance advantages of the STB Series exist with regard to virtually every important aspect of power supply performance — ripple, stability, temperature coefficient, output resolution, programming accuracy, load and line regulation.

The all-silicon circuit uses as its reference element a temperature-compensated zener diode having a temperature coefficient of 20 ppm/°C. A high gain feedback amplifier employing a "diff-amp" (matched silicon differential amplifier package) monitors and controls the output voltage. Critical components, including the zener reference diode and low level portions of the feedback amplifier, are enclosed in an oven which is temperature-controlled entirely with solid-state components — no moving parts to wear out.

Models 6111A, 6112A, 6113A, and 6116A are similar to models 6101A, 6102A and 6106A except for the built-in 5-digit thumb-wheel voltage programmer.

Model 6110A is a high-voltage high-stability supply that is all silicon (no tubes) and also can provide a positive or negative output. The 6110A is ideally suited for high-voltage photomultipliers requiring an exceptionally stable power source. It can also be used as a 0-3000 volt calibrator.

Specifications

AC input: Model 6110A—115 Vac ±10%, 57-63 Hz, 1A, 50 W. Other Models—115 Vac ±10%, 48-63 Hz, 0.5A, 52 W.

Temperature ranges: operating: 0 to 50°C.
storage: −20°C to +85°C.

Transient recovery time: less than 50 μs is required for output voltage to recover to within 10 millivolts of the nominal output voltage following a full load change in output current.

Less than 100 μs is required for output voltage recovery to within the load regulation specification.

The nominal output voltage is defined as the means between the no load and full load voltage.

Controls: 6101A, 6102A & 6106A—A 10 turn pot permits continuous adjustment of the output voltage over its entire range. A single-turn pot allows fine trimming of the output voltage; resolution is 100 μV +0.002% of the output voltage. A single-turn front-panel pot permits the current limit setting to be varied continuously from zero to a value slightly in excess of the full current rating.
6110A, 6111A, 6112A, 6113A & 6116A—An in-line 5-digit (thumb-wheel) voltage programmer permits control of the output voltage with an accuracy of 0.1% +1 mV (6110A is 0.1% +100 mV and 6113A is 0.1% + 10 μV) of the output voltage. Resolution is 100 μV (except 6110A, which is 10 mV). The 6111A, 6112A, 6113A & 6116A have a single-turn front panel pot that permits the current limit setting to be varied continuously from zero to a value slightly in excess of the full current rating. The 6110A has a fixed current limit built-in to the supply.

Overload protection: an all electronic, continuously acting current limit protects the power supply for all overloads regardless of how long imposed, including a direct short circuit across the output terminals.

Output terminals: The dc output of the supply is floating; thus, the supply can be used as either a positive or negative source. Terminals for +OUT, −OUT, and GND are provided on both the front and back of the supply (except 6110A which has front terminals only). In addition, the rear barrier strip includes terminals for remote programming, remote sensing, Auto-Series, and Auto-Tracking operation (except 6110A).

Cooling: convection cooling is employed. The supply has no moving parts.

Finish: light gray front panel with dark gray case.

Power cord: a 3-wire 5-foot power cord is provided with each unit.

Accessories: see rack kits on page 561.