

# POWER SUPPLIES

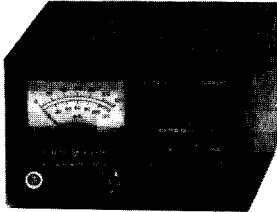
Laboratory: Single & Multiple Output, 10W to 38W

Models 6200B-6218B and 6234A-6237B

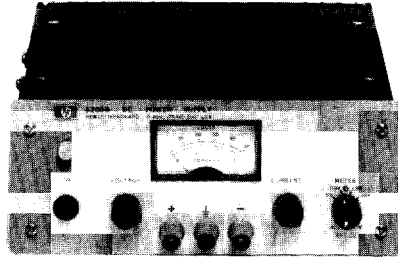


- 6212B-6218B... 10 watts output
- Compact, impact-resistant stackable case
- Short-circuit proof

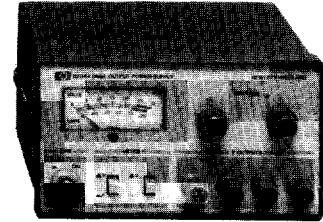
- 6200B-6209B... 30 watts output
- Auto series, parallel, and tracking
- Remote sensing



Single Output: 6212B-6218B



Single Output: 6200B-6209B



Dual Output: 6234A

## Description—Single Output Models Models 6212B-6218B

These popular low-cost CV/CC bench supplies are designed for general laboratory use and are equipped with front-panel mounted voltage and current controls, a combination volt/ammeter, and output binding posts. Output voltage and current are continuously variable, via coarse and fine controls from 0 to 15% above the maximum rated output. A switch selects either output voltage or current for display on the panel meter.

Load connections are made via three binding posts. Either the + or the - post may be grounded through an adjacent GND terminal or the supply may be operated floating at up to 300 volts above ground.

The supplies can also be operated as constant current sources with 500  $\mu$ A load regulation. All of these models can be connected in series or parallel.

The molded, impact-resistant case includes an interlocking feature for stacking several units vertically, thus minimizing bench space required for multiple supplies. Alternatively, up to three units can be mounted side by side in a 19" rack using Rack Mounting Kit 14521B. These supplies measure 86 H x 133 W x 368 mmD (3.40" x 5.25" x 8") and weigh 2 kg (4.4 lb).

## Models 6200B-6209B

This series of low-cost bench supplies includes five models covering an output voltage range from 0-7.5 V to 0-320 V. All models are equipped with ten-turn voltage and current controls, (except the 6206B, which does not have a current control), volt/ampere meter, meter function/range switch, and front and rear output terminals. In addition, on the dual-range models (6200B and 6206B), an output range switch permits the selection of either a high or a low output voltage range.

The constant voltage/current limiting supply, 6206B, is short-circuit protected by a fixed current limiting circuit which is activated at approximately 110% of rated load current. The current-limit point can be reduced by changing the value of a single internal resistor. For the constant voltage/constant current supplies, ten-turn current controls allow the current-limit point to be set to any value within the current rating. Using these controls the CV/CC supplies can also be operated as constant-current sources.

Units may be bench operated or rack mounted individually or in pairs using accessory rack mounting hardware.

All models in this group of supplies measure 89 H x 216 W x 317 mm D (3.50" x 8.50" x 12.50") and weigh 4.5 kg (10 lb).

## Description—Dual Output Models Model 6234A

Model 6234A is a low-cost, dual-output bench power supply with two independently adjustable and isolated power sources in one compact unit. Both of the dc power sources are of the constant voltage/current limit type with each output voltage being adjustable continuously over a 0 to 25 V range. The maximum current available per output is 0.2 A and is limited automatically to prevent over-load.

The HP 6234A offers considerable flexibility to the user with output voltages that can be arranged to provide identical or different voltages in any polarity combination with respect to 0 or other common positive or negative voltage points. The outputs can also be connected in series to provide up to 50 V at 0.2 A. Both sources are fully isolated to permit either of the output terminals to be grounded.

With pushbutton switches, users can select either voltage or current for each output to be monitored on the unit's meter. Other features include two multiple-turn controls for precise voltage setting, regulation to 0.01% and ripple and noise of less than 200 microvolts rms.

With dimensions of only 93 mm high, 157 mm wide and 210 mm deep (3.64" x 6.17" x 8.25"), the HP 6234A supply takes up a minimum amount of bench space. Its weight is 2.3 kg (5 lbs.). The unit can be powered from a 115 V or an optional 230 V, 47-63 Hz ac input, (Option 028).

## Model 6205C

This low-cost bench supply is equipped with ten-turn output voltage controls, volt/ampere meter, meter function/ range switch, and front and rear output terminals. In addition, an output range switch permits the selection of either a high or a low output voltage range.

Model 6205C combines the versatility of a dual power supply with the flexibility of auto-parallel and auto-series operation to extend the output ratings of this supply to 20 V/1.2 A, 40 V/0.6 A, and 80 V/0.3 A. In addition, using the supply's auto-tracking capability, opposite



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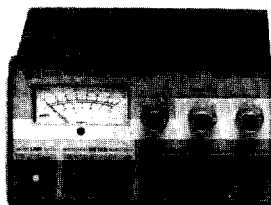
Laboratory: Single & Multiple Output, 10 W to 38 W

Models 6200B-6218B and 6234A-6237B

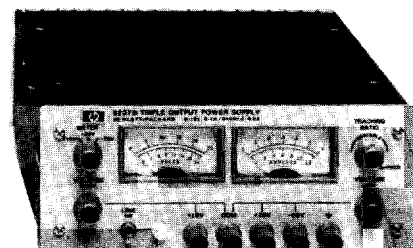
- Dual output to 24 watts
- Short-circuit proof
- Independent voltage controls
- Triple output to 38 watts
- Short circuit proof
- Tracking  $\pm 20$  volt outputs



Dual Output: 6205C



Triple Output: 6235A



Triple Output: 6236B, 6237B

polarity voltages ( $\pm 20$  V,  $\pm 40$  V) can conveniently be obtained from this one supply.

This constant voltage/current limiting supply is short-circuit protected by a fixed current limiting circuit which is activated at approximately 110% of rated load current. The current-limit point can be reduced by changing the value of a single internal resistor. Units may be bench operated or rack mounted individually or in pairs using accessory rack mounting hardware.

### Description—Triple Output Models 6235A

This compact, low-cost, three-in-one power supply is a handy addition to the lab bench where single or multiple voltages are needed for designing and testing breadboards and prototypes. The Hewlett-Packard Model 6235A delivers three adjustable dc output voltages: 0 to +6 V at 1 A, 0 to +18 V at 0.2 A, and 0 to -18 V at 0.2 A. A single 0 to 36 volt output at 0.2 A can also be obtained by connecting across the +18 V and -18 V terminals.

The controls, meter, and binding posts are conveniently arranged on the front panel. One voltage control simultaneously adjusts the +18 V and -18 V outputs, which track one another and can be used to power operational amplifiers and other circuits requiring balanced positive and negative voltages. The supply's dual outputs have added versatility with an adjustable tracking ratio control (TRACK) that can set the negative output to a lower voltage than the positive output. Once the tracking ratio control has established a voltage ratio between the positive and negative outputs, the ratio remains constant as the +18 V voltage control is adjusted. A third control sets the 0 to +6 V output voltage.

The supply is a constant voltage/current limit type with each output voltage continuously adjustable over its range, while the maximum current available is automatically limited to prevent overloading. The power supply's outputs share a common terminal and are isolated from chassis ground so that any output terminal can be grounded if desired. Each output voltage or current can be quickly selected and monitored with the push-button meter switches.

Model 6235A measures 89 H x 157 W x 210 mm D (3.5" x 6.17" x 8.25") and weighs 2.3 kg (5 lb).

### 6236B and 6237B

Microprocessors, digital and linear integrated circuits, and displays used in lab development frequently require triple output power supplies for operating prototypes. The 6236B and 6237B are valued additions to the design bench due to their multiple output voltages, small size, ease of operation and application-related performance.

These compact constant voltage/current limiting supplies combine 0 to  $\pm 20$  V tracking outputs rated at 0.5 amps with a single output rated at 0 to +6 volts at up to 2.5 amps in the 6236B, and 0 to +18 volts at 1 amp in the 6237B.

Controls, meters, and binding posts are logically arranged on a neatly laid out front panel. One voltage control simultaneously adjusts the 20 V and -20 V outputs, which track within 1% to power operational amplifiers and circuits requiring balanced voltages. A tracking ratio control can disable the 1:1 tracking feature and set the negative output to a lower voltage than that of the positive output. Once the tracking ratio control has established a voltage ratio between the positive and negative outputs, the ratio remains constant as the  $\pm 20$  V voltage control varies both outputs. Another voltage control sets the 0 to +6 V (6236B) or 0 to +18 V (6237B) output.

All outputs are protected against overload and short-circuit damage by fixed current limiting circuits. For any overload condition, the +20 V and -20 V outputs in both models are limited to 0.55 amps and the +18 V output in the 6237B is limited to 1.1 amps. The overload protection circuit for the +6 V output in the 6236B has a current foldback characteristic that reduces the maximum available current from about 2.75 amps at a 6 V terminal voltage to 1 amp at zero volts (or short circuited). This foldback limiting characteristic maximizes the available current in the important 5 to 6-volt range while minimizing dissipation during overloads.

Another protective feature safeguards sensitive load circuitry by preventing an output voltage overshoot when the supply is turned on or off.

Separate dual-range panel meters allow both the voltage and current of any output to be monitored simultaneously. A three-position switch selects the output which the meters will monitor.

Both models measure only 89 H x 216 W x 319 mm D (3.5" x 8.5" x 12.5") and weigh 4.3 kg (9.5 lb).

# POWER SUPPLIES

**General Purpose: Laboratory Bench Applications**  
**Models 6200B-6218B and 6234A-6237B**



## Specifications

RATINGS		Model	PERFORMANCE						GENERAL	
DC Output			Load Effect	Source Effect	PARD rms/p-p	Control Mode and Resolution	Remote Control Coefficients	Power* 115 V ac ± 10%	Options	Price
Volts	Amps									
<b>SINGLE OUTPUT—10 WATTS</b>										
0-10	0-1	6214B	4 mV	4 mV	200 μV/1 mV	CV/CC 5mV/75μA	**	48-440 Hz 0.3 A, 28 W	28	\$295
0-25	0-0.4	6216B	4 mV	4 mV	200 μV/1 mV	CV/CC 5mV/20μA	**	48-440 Hz 0.3 A, 28 W	28	\$295
0-50	0-0.2	6218B	4 mV	4 mV	200 μV/1 mV	CV/CC 10mV/10μA	**	48-440 Hz 0.3 A, 28 W	28	\$295
0-100	0-0.1	6212B	8 mV	4 mV	200 μV/1 mV	CV/CC 20mV/10μA	**	48-440 Hz 0.3 A, 28 W	28	\$350
<b>SINGLE OUTPUT—UP TO 30 WATTS</b>										
0-7.5	0-3	6203B	5 mV	3 mV	200 μV/1 mV	CV/CC 5 mV/2 mA	200Ω/V ± 1% 500Ω/A ± 10%	48-440 Hz 0.9 A, 70 W	11, 28	\$550
Dual range 0-20 or 0-40	0-1.5 0-0.75	6200B	0.01% + 4 mV	0.01% + 4 mV	200 μV/1 mV	CV/CC 10 mV/2 mA	200Ω/V ± 1% 0.5 kΩ/A ± 10% or 1 kΩ/A ± 10%	48-440 Hz 0.9 A, 70 W	11, 28	\$500
Dual range 0-30 or 0-60	0-1 0-0.5	6206B	0.01% + 4 mV	0.01% + 4 mV	200 μV/1 mV	CV/CL 10 mV/*	300Ω/V ± 1%	48-440 Hz 1 A, 66 W	11, 28	\$500
0-160	0.2	6207B	0.02% + 2 mV	0.02% + 2 mV	500 μV/40 mV	CV/CC 25 mV/500 μA	300Ω/V ± 1% 75 kΩ/A ± 10%	48-63 Hz 1 A, 60 W	28	\$625
0-320	0-0.1	6209B	0.02% + 2 mV	0.02% + 2 mV	1 mV/40 mV	CV/CC 40 mV/200 μA	300Ω/V ± 1% 150 kΩ/A ± 10%	48-63 Hz 1 A, 60 W	28	\$625
<b>DUAL OUTPUT—10 WATTS</b>										
Dual output 0-25 and 0-25	0.2 0.2	6234A	0.01% + 1 mV	0.01% + 1 mV	200 μV/1 mV	CV/CL	**	104-127 Vac 47-63 Hz 0.26A, 35 W	28	\$350
<b>DUAL OUTPUT—24 WATTS</b>										
Two dual ranges 0-20/0-40 and 0-20/0-40	0-0.6/0.3 0-0.6/0.3	6205C	0.01% + 4 mV	0.01% + 4 mV	200 μV/1 mV	CV/CL 10 mV/*	200Ω/V ± 1%	48-440 Hz 0.5 A, 50 W	11, 28 40	\$550
<b>TRIPLE OUTPUT—13 WATTS</b>										
Triple output 0 to 6 and 0 to 18 and 0 to -18	0-1 0-0.2 0-0.2	6235A	8 mV 10 mV 10 mV	8 mV 15 mV 15 mV	1 mV/5 mV 1 mV/5 mV 1 mV/5 mV	CV/CL	** ** **	47-63 Hz 0.26 A, 35 W	28	\$375
<b>TRIPLE OUTPUT—35 WATTS</b>										
Triple output 0 to +6 and 0 to +20 and 0 to -20	2.5 0.5 0.5	6236B	0.01% + 2 mV	0.01% + 2 mV	350 μV/1.5 mV	CV/CL 70 mV/*	**	104-127 Vac 47-63 Hz 1.2 A, 112 W	100 220 240	\$580
<b>TRIPLE OUTPUT—38 WATTS</b>										
Triple Output 0 to +18 and 0 to +20 and 0 to -20	1 0.5 0.5	6237B	0.01% + 2 mV	0.01% + 2 mV	350 μV/1.5 mV	CV/CL 70 mV/*	**	104-127 Vac 47-63 Hz 1.2 A, 112 W	100 220 240	\$580

\* fixed current limit  
 \*\* remote control not available

## Option Descriptions

**011:** internal overvoltage protection crowbar. Protects delicate loads against power supply failure or operator error. Dual output models have dual crowbars.

6200B, 6203B, 6206B add \$100  
 6205C add \$150

**028:** 230 V ac ± 10%, single phase input. Consists of reconnecting power transformer taps, and other components where necessary.

**040:** Multiprogrammer interface. Prepares 6205C power supplies for resistance programming by the 6940B or 6942A Multiprogrammer add \$75

**100:** 87-106 Vac, 47-63 Hz, single phase input  
**220:** 191-233 Vac, 47-63 Hz, single phase input  
**240:** 208-250 Vac, 47-63 Hz, single phase input

**910:** one additional operating and service manual is shipped with each power supply

6200B-6235A add \$5  
 6236B-6237B add \$3

### Accessories

**14513A:** rack kit for one 6200-6209B, 6236B, or 6237B supply \$55

**14523A:** rack kit for two of the above power supplies \$30

**14521B:** rack kit for one, two or three 6212B-6218B power supplies \$85