

# Section I

## GENERAL INFORMATION

### 1-1 DESCRIPTION

1-2 This power supply is completely transistorized and suitable for either bench or relay rack operation. It is a compact, well-regulated, Constant Voltage/Constant Current supply that will furnish full rated output voltage at the maximum rated output current or can be continuously adjusted throughout the output range. The front panel CURRENT control can be used to establish the output current limit (overload or short circuit) when the supply is used as a constant voltage source and the VOLTAGE controls can be used to establish the voltage limit (ceiling) when the supply is used as a constant current source. The supply will automatically crossover from constant voltage to constant current operation and vice versa if the output current or voltage exceeds these preset limits.

1-3 Either the positive or negative output terminal may be grounded or the power supply can be operated floating at up to a maximum of 300 volts off ground.

1-4 A single meter is used to measure either output voltage or output current in volts or mA. The voltage or current range is selected by the METER SELECTION switch on the front panel.

### 1-5 SPECIFICATIONS

1-6 Detailed specifications for the power supply are given in Table 1-1.

### 1-7 OPTIONS

1-8 Options are factory modifications of a standard instrument that are requested by the customer. The following options are available for the instrument covered by this manual. Where necessary, detailed coverage of the options is included throughout the manual.

Option No.	Description
028	230 V, 50-400 Hz, Single-Phase Output. Factory modification consists of reconnecting the input transformer for 230 Vac operation. Refer to Section II for further details.

910 One additional operating and service manual shipped with the power supply.

### 1-9 ACCESSORIES

1-10 The accessories listed in the following chart may be ordered with the power supply or separately from your local Hewlett-Packard field sales office (refer to list at rear of manual for addresses).

HP Part No.	Description
14521B	3 1/2" High Rack Kit for mounting up to three BENCH supplies. (Refer to Section II for details.)

### 1-11 INSTRUMENT AND MANUAL IDENTIFICATION

1-12 Hewlett-Packard power supplies are identified by a two-part serial number. The first part is the serial number prefix, a number-letter combination that denotes the date of a significant design change and the country of manufacture. The first two digits of the prefix indicate the year (20 = 80, 21 = 81, etc.), the second two digits indicate the week, and the letter "A" designates the USA as the country of manufacture. The second part of the serial number is a different sequential number assigned to each power supply, starting with 00101.

1-13 If the serial number on your instrument does not agree with those on the title page of this manual, a yellow change sheet supplied with the manual defines the difference between your instrument and the instrument described by this manual.

### 1-14 ORDERING ADDITIONAL MANUALS

1-15 One manual is shipped with each power supply. Additional manuals may be purchased from your local Hewlett-Packard field office (see list at rear of this manual for addresses). Specify the model number, serial number prefix, and HP stock number provided on the title page.

**INPUT:****6212B**

115 Vac,  $\pm 10\%$ , 48-  
440 Hz, 0.29A, 28W

**6216B**

115 Vac,  $\pm 10\%$ , 48-  
440 Hz, 0.25A, 26W

**6214B**

115 Vac,  $\pm 10\%$ , 48-  
440 Hz, 0.3A, 28W

**6218B**

115 Vac,  $\pm 10\%$ , 48-  
440 Hz, 0.25A, 26W

**OUTPUT:****6212A**

0 to 100 Vdc, 0 to  
0.1 A

**6216B**

0 to 25 Vdc, 0 to  
0.4 A

**6214B**

0 to 10 Vdc, 0 to  
1A

**6218B**

0 to 50 Vdc, 0 to  
0.2 A

**LOAD REGULATION:**

**Constant Voltage** – Less than 4 mV (8 mV, 6212B) for a load current change equal to the current rating of the supply.

**Constant Current** – Less than 500  $\mu$ A for a load voltage change equal to the voltage rating of the supply.

**LINE REGULATION:**

**Constant Voltage** – Less than 4 mV for  $\pm 10\%$  change in the nominal line voltage at any output voltage and current within rating.

**Constant Current** – Less than 500  $\mu$ A for a  $\pm 10\%$  change in the normal line voltage at any output voltage and current within rating.

**RIPPLE AND NOISE:**

**Constant Voltage** – Less than 200  $\mu$ V rms/1 mV p-p (dc to 20 MHz).

**Constant Current** – Less than 150  $\mu$ A p-p (dc to 20 MHz).

**TEMPERATURE RANGES:**

**Operating:** 0° to 55° C.

**Storage:** -40° to +75° C.

**TEMPERATURE COEFFICIENT:**

**Constant Voltage** – Less than 0.02% + 1 mV output change per degree centigrade change in ambient following 30 minutes warm-up.

**Constant Current** – Less than (see table) output change per degree centigrade change in ambient following 30 minutes warm-up.

6212A	–	0.5 mA
6214B	–	6 mA
6216B	–	2 mA
6218B	–	1 mA

**STABILITY:**

**Constant Voltage** – Less than 0.1% + 5 mV total drift for 8 hours following 30 minutes warm-up at constant ambient, constant line voltage, and constant load.

**Constant Current** – Less than (see table) total drift for 8 hours following 30 minutes warm-up at constant ambient, constant line voltage, and constant load.

6212B	–	1.3 mA
6214B	–	15 mA
6216B	–	5 mA
6218B	–	2.5 mA

**TRANSIENT RECOVERY TIME:**

Less than 50  $\mu$ sec for output voltage recovery in constant voltage operation to within 15 mV of the nominal output voltage following a change in output current equal to the current rating of the supply.

**OVERLOAD PROTECTION:**

A fixed current limiting circuit protects the power supply for all overloads including a direct short circuit placed across the output terminals in constant voltage operation.

**METER:**

The front panel meter can be used as a voltmeter or an ammeter.

**OUTPUT CONTROLS:**

Concentric coarse and fine voltage controls and concentric coarse and fine current controls set desired output voltage/current. Meter switch selects voltage or current.

**OUTPUT TERMINALS:**

Three "five-way" output terminals are provided on the front panel. They are isolated from the chassis and either the positive or negative terminal may be connected to the chassis through a separate ground terminal.

**COOLING:**

Convection cooling is employed. The supply has no moving parts.

**SIZE:**

See Figure 2-1.

**WEIGHT:**

4.75 lbs./1,2 kg. net, 6.75 lbs./3,1 kg. shipping.

**FINISH:**

Dark gray.

**POWER CORD:**

A 3-wire, 5 foot (1,52 cm) power cord is provided with each unit.

# Section II INSTALLATION

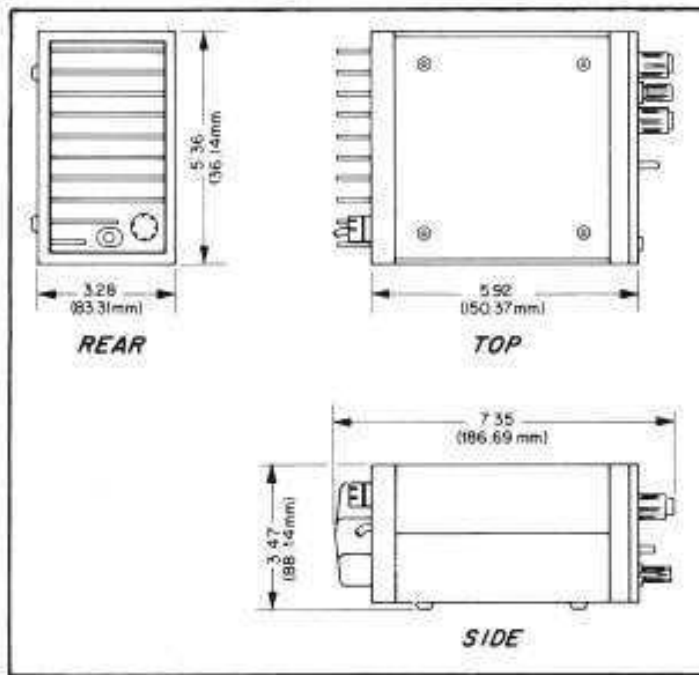


Figure 2-1. Outline Diagram

## 2-1 INITIAL INSPECTION

2-2 Before shipment, this instrument was inspected and found to be free of mechanical and electrical defects. As soon as the instrument is unpacked, inspect for any damage that may have occurred in transit. Save all packing materials until the inspection is completed. If damage is found, file claim with carrier immediately. Hewlett-Packard Sales and Service office should be notified as soon as possible.

## 2-3 Mechanical Check

2-4 This check should confirm that there are no

broken knobs or connectors, that the cabinet and panel surfaces are free of dents and scratches, and that the meter is not scratched or cracked.

## 2-5 Electrical Check

2-6 The instrument should be checked against its electrical specifications. Section V includes an "in-cabinet" performance check to verify proper instrument operation.

## 2-7 INSTALLATION DATA

2-8 The instrument is shipped ready for bench operation. It is necessary only to connect the instrument to a source of power and it is ready operation.

## 2-9 Location

2-10 This instrument is air cooled. Sufficient space should be allotted so that a free flow of cooling air can reach the rear of the instrument when it is in operation. It should be used in an area where the ambient temperature does not exceed 55° C.

## 2-11 Outline Diagram

2-12 Figure 2-1 illustrates the outline shape and dimensions of Models 6211B through 6218B.

## 2-13 Rack Mounting

2-14 This instrument may be rack mounted separately or with a maximum of two other BENCH Series supplies as shown in Figure 2-2. The units are placed in the Rack Mounting Frame. The Rack Mounting Frame is then fastened to the rack frame.



Figure 2-2. Rack Kit with three BENCH supplies.