



Agilent Technologies

SECTION I GENERAL INFORMATION

1-1 DESCRIPTION

1-2 Model 6434B DC Power Supply (Figure 1-1) is a completely solid-state, compact, well-regulated, constant voltage/constant current dc power supply suitable for either bench or relay rack operation. Input power is connected to a terminal strip at the rear of the power supply. The output is continuously variable between 0 and 40Vdc, and between 0 and 25 Amperes. Detailed specifications are given in Table 1-1.

1-3 OVERLOAD PROTECTION

1-4 A crossover feature protects both power supply and load in constant voltage operation. Automatic crossover circuitry switches the power supply from constant voltage to constant current operation if the output current exceeds a preset limit. This crossover circuitry also protects the load from overvoltage during constant current operation by automatically switching the power supply into constant voltage operation. The user can adjust the crossover point via the front panel controls (Paragraphs 3-7 and 3-8).

1-5 The power supply is protected from reverse voltage (positive voltage applied to negative terminal) by a diode that shunts current across the output terminals when this condition exists. The ac input components are protected by a dual circuit breaker in the ac input line. This circuit breaker is located on the front panel and serves as the on/off switch.

1-6 COOLING

1-7 A fan is used to blow air from left to right (facing front panel) through a compartment containing the major heat producing elements.

1-8 MONITORING

1-9 Two front-panel meters are provided for monitoring output voltage and current. The volt-

meter has a 0 to 50 Volt range and the ammeter has a 0 to 30 Ampere range. Each meter has a 2% accuracy at full scale.

1-10 OUTPUT TERMINALS


1-11 Output power is available via a terminal strip on the rear panel. The rear panel terminal strip also enables the power supply to be connected for different modes of operation (Paragraph 3-3). The output terminals are isolated from the chassis and either the positive or the negative terminal may be connected to the chassis via a separate ground terminal located adjacent to the output terminals. The power supply is insulated to permit operation up to 300Vdc off ground.

1-12 INSTRUMENT IDENTIFICATION

1-13 Hewlett-Packard power supplies are identified by a three-part serial number tag. The first part is the power supply model number. The second part is the serial number prefix, which consists of a number-letter combination that denotes the date of a significant design change. The number designates the year, and the letter A through L designates the month, January through December respectively. The third part is the power supply serial number.

1-14 If the serial number prefix on your power supply does not agree with the prefix on the title page of this manual, change sheets are included to update the manual. Where applicable, back-dating information is given in an appendix at the rear of the manual.

1-15 ORDERING ADDITIONAL MANUALS

1-16 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  stock number provided on the title page.



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Table 1-1. Specifications

<p>INPUT: 115Vac $\pm 10\%$, 57 to 63Hz, single phase, 19 Amperes, 1300 Watts max.</p> <p>RATED OUTPUT: Constant Voltage: 0 to 40Vdc Constant Current: 0 to 25 Amperes dc</p> <p>LINE REGULATION: Constant Voltage: Less than 18mV for 10% change in the nominal input voltage. Constant Current: Less than 200mA for 10% change in the nominal line voltage.</p> <p>LOAD REGULATION: Constant Voltage: Less than 40mV for 0 to 25 Ampere load change. Constant Current: Less than 200mA for 0 to 40Vdc load change.</p> <p>RIPPLE AND NOISE: 40mVrms</p> <p>OPERATING TEMPERATURE RANGE: 0°C to 55°C</p> <p>STORAGE TEMPERATURE RANGE: -40°C to +75°C</p> <p>TEMPERATURE COEFFICIENT: Constant Voltage: 0.03% plus 5mV per degree centigrade. Constant Current: 75mA per degree centigrade.</p> <p>OUTPUT STABILITY: (after 30-minute warm-up) Constant Voltage: 0.1% plus 20mV for 8 hours</p>	<p>at constant temperature. Constant Current: 250mA for 8 hours at constant temperature.</p> <p>REMOTE PROGRAMMING: Constant Voltage: 200 ohms per Volt $\pm 1\%$. Constant Current: 10 ohms per Ampere $\pm 10\%$.</p> <p>TYPICAL OUTPUT IMPEDANCE: Less than 0.01 ohm from dc to 0.5Hz. Less than 0.5 ohm from 0.5Hz to 100Hz. Less than 0.1 ohm from 100Hz to 1kHz. Less than 0.6 ohm from 1kHz to 100kHz.</p> <p>OUTPUT INDUCTANCE: 1.0 microhenry</p> <p>TRANSIENT RECOVERY TIME: In constant voltage operation, less than 200 mil- liseconds is required for output voltage recovery to within 200 millivolts of the nominal output volt- age following a load change equal to one half the maximum current rating of the power supply. Nominal output voltage is defined as the mean between the no-load and full-load voltages. The transient amplitude is less than 0.3 Volt per Ampere for any load change between 20% and 100% of rated output current. (Excluding the initial spike of approximately 100 microseconds duration which is significant only for load rise times faster than 0.1 Ampere per microsecond.)</p> <p>SIZE AND WEIGHT: 5-1/4 in. H x 19 in. W x 16-3/4 in. D, 67 lbs.</p> <p>FINISH: Light gray front panel with dark gray case.</p>
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Errata: Option 28

INPUT: 230V AC $\pm 10\%$