

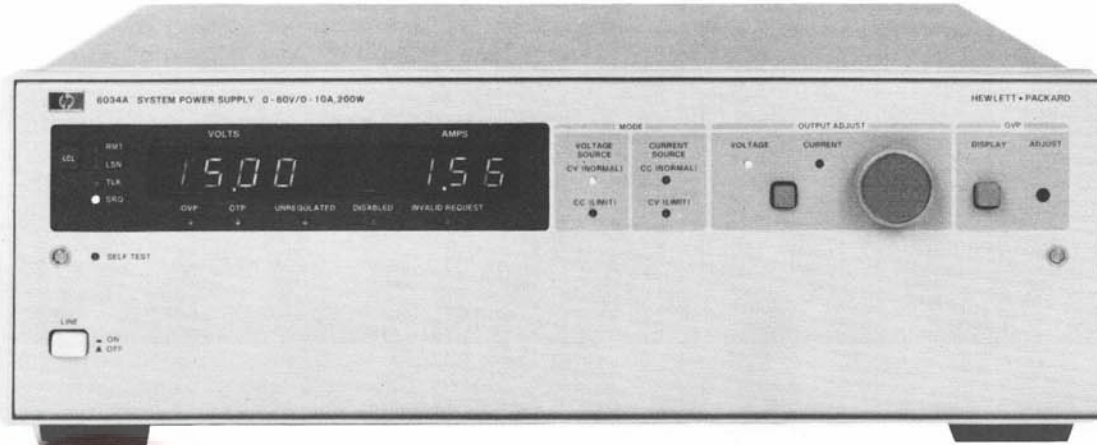


POWER SUPPLIES

200 Watt System Power Supply

Model 6034A

- HP-IB programming of voltage, current and OVP
- HP-IB measurement of voltage and current
- Read back of status information
- Autoranging output
- Programmable "soft" limits
- Self-Test and diagnostics



Description

The 6034A DC power supply has a combination of features and specifications that characterize it as a **Comprehensive Solution** to HP-IB system power supply applications. The 6034A combines FET switching technology with an internal microprocessor-based HP-IB programmer to yield the first bidirectional programmable autoranging DC power supply.

Consider these features when selecting your next system power supply. FET switching technology provides you with laboratory-grade performance specifications and autoranging capability in a compact lightweight package. The high electrical efficiency, obtained through the use of flyback switching, reduces your overall system cooling requirements. The microprocessor-based HP-IB interface provides you with a friendly programming format. Output voltage and current can be programmed directly in volts and amperes with 12-bit resolution. Information regarding the output and load is available through remote metering over the HP-IB. The output voltage is monitored through the voltage sensing leads of the power supply, thus the actual voltage across the load is measured. Current measurements are taken using the power supply's internal precision shunt resistor. Remote metering of voltage and current is provided with 15 mV and 2.5 mA resolution respectively. Eight status parameters can be read back via the HP-IB to enhance your system versatility.

These status parameters permit identification of the operational mode and fault conditions of the 6034A. They also can be used to initiate corrective action for fault conditions without operator intervention. The overvoltage trip point can be programmed directly in volts with 8-bit resolution.

This combination of programming, metering, and status monitoring features can significantly reduce the hardware and software necessary to construct your next automated test system.

Autoranging

The basic difference between an autoranging power supply and conventional Constant Voltage/Constant Current (CV/CC) power supplies can be seen by comparing the output characteristics of each. A conventional CV/CC power supply can provide maximum output power at only one combination of output voltage and current. The 6034A autoranging power supply provides maximum output power over a wide and continuous range of voltage and current combinations, without the operator having to program the proper output range.

You would have to combine a 20-volt 10-amp supply, a 40-volt 5-amp supply, and a 60-volt 3-amp supply in order to approximate the

same output capability as the 6034A. The extended range of the 6034A makes it a convenient and cost-effective unit capable of satisfying many different systems DC power supply requirements.

Switching Technology

Many of the important benefits of the 6034A system power supply are derived from the use of FET switching technology. This power supply operates in flyback mode at a switching frequency of 20 kHz. The inductive flyback switching topology provides the 6034A with its autoranging output characteristic and its high electrical efficiency. The 20 kHz switching frequency allows most power handling components as well as the filter capacitors, to be substantially reduced in size, thus decreasing the volume and weight of the 6034A.

Protection

Because of the delicate nature of many loads, several levels of output protection have been included in the 6034A. When operating in the constant voltage mode, a maximum output current can also be programmed. Similarly, when operating in the constant current mode, a maximum output voltage can be programmed. "Soft" voltage and current limits can also be programmed into the 6034A. If an output command is sent which is greater than the pre-programmed "soft" limit, an error is indicated and a service request may be initiated by the 6034A. The output would not change in this case.

If an overtemperature condition occurs, the power supply will be disabled, a front panel LED will indicate the condition and a service request can be transmitted over the HP-IB. In that case, a serial poll can be performed by the controller, revealing the status of the offending power supply, allowing the controller to react to the situation.

If the power supply load is sensitive to overvoltages, as most semiconductors are, overvoltage protection is desirable. The 6034A has a front panel "hard" adjustment potentiometer used to set the trip point. The overvoltage trip point can also be programmed through the HP-IB. The output voltage at which the overvoltage protection circuit will trip is the lower of the two settings. The trip point can be displayed via a second functional level of the voltage digital panel meter (DPM). If an overvoltage condition occurs, the power supply will downprogram the output circuit, a front panel LED will indicate the condition and a service request can be initiated by the 6034A over the HP-IB. The overvoltage status of the power supply can be revealed to the controller by a serial poll of the instruments on the HP-IB. Reset can then be initiated by the controller, and the power supply will return to normal operation, if the overvoltage condition has also been cleared.



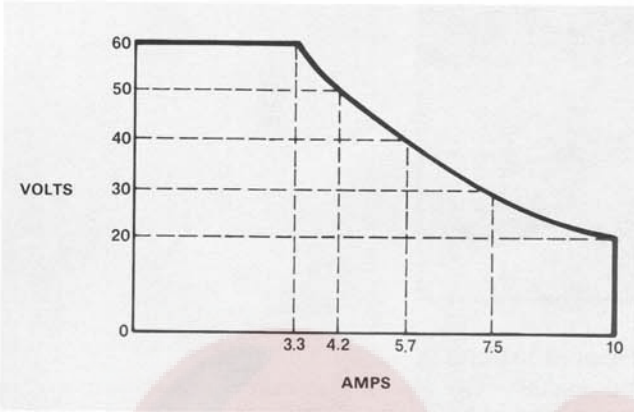
Specifications

All performance specifications are measured at the rear terminals with a resistive load and at 25°C ± 5°C.

DC Output: Voltage and current output can be programmed with the HP-IB or the front panel control over the following ranges:

Voltage: 0-60 V **Current:** 0-10 A

Maximum available output power from 20 V to 60 V is indicated below.



Load Effect: (Load Regulation):

Voltage: ±0.01% ± 3 mV **Current:** 0.01% + 3 mA

Source effect:

Voltage: 0.01% + 2 mV **Current:** 0.01% + 2 mA

PARD: (Ripple and Noise) RMS/p-p, 20 Hz to 20 MHz:

Voltage: 3 mV/30 mV **Current:** 5 mA RMS

Temperature coefficient: Δ/°C after 30 minute warmup:

Voltage: ±0.009% ± 0.7 mV **Current:** ±0.009% ± 0.8 mA

Load transient recovery time: Less than 1 ms is required for output voltage recovery (in constant voltage operation) to within 75 mV of the nominal output following a change in output current from 90% to 100% or 100% to 90% of maximum current.

Programming resolution:

Voltage: 15 mV **Current:** 2.5 mA

Programming settability:

Voltage: 30 mV **Current:** 5.0 mA

Programming accuracy (25 ± 5°C):

Constant Voltage: ±0.07% ± 28 mV

Constant Current: ±0.085 ± 12.5 mA

Output impedance: Typical value is 1 mΩ in series with 30 μH, but less than 1 Ω for all frequencies less than 1 MHz.

Drift: (Stability) change in output over an 8 hour interval with fixed conditions after 30 minute warmup.

Voltage: ±0.03% ± 3 mV **Current:** ±0.03% ± 3 mA

Programmable time delay:

Range: 0-65,535 ms

Resolution: 1 ms

Accuracy: ± 5% nominal

Amplified current monitor: Scale Factor 0-5 V monitor output for 0-10 A output current:

Accuracy: 0.1% + 7 mV typical

Output Impedance: 10 kΩ nominal

RFI Specifications: Meets VDE 0871/6.78 Level A

Programming response time: Maximum time for output voltage to change from 0 V to 60 V or 60 V to 2 V and settle within a 60 mV band (0.1% of maximum rated output):

		Band:	60 mV(*)	15 mV(**)
Up:	Full Load	(18 Ω)	200 ms	225 ms
	No Load	(18 Ω)	200 ms	225 ms
Down:	Full Load	(18 Ω)	300 ms	450 ms
	No Load	(18 Ω)	600 ms	750 ms

*Max, **(Typical)

Front panel meters:

Output Voltage: Low Range: ± 20.00 V

High Range: ± 200.0 V

Range switch points: Up: above 19.99 V ± 0 V

Down: below 17.5 V nominal

Resolution: Low Range: 10 mV

High Range: 100 mV

Accuracy: Low Range: ± 20 mV ± 0.07%

High Range: ± 200 mV ± 0.09%

Temperature coefficient: ± 0.01%/°C

Output current:

Range: ± 19.99 A

Resolution: 10 mA

Accuracy: ± 17 mA ± 0.1%

Temperature coefficient: ± 0.01%/°C ± 0.7 mA/°C

OVP Setting: (with reference to A2, not to -S)

Range: 200.0 V

Resolution: 100 mV

Accuracy: 0.5% + 150 mV (at 0.0 A load current)

Remote Meters:

Output voltage:

Range: 0-60 V

Resolution: 15 mV

Accuracy: ± 0.08% ± 35 mV

Temperature coefficient: ± 0.007%/°C ± 0.35 mV/°C

Output current:

Range: 0-10 A

Resolution: 2.5 mA

Accuracy: ± 0.125% ± 8.5 mA

Temperature Coefficient: ± 0.006%/°C ± 0.6 mA/°C

Settling time: < 200 ms

Overvoltage protection:

Local OVP adjustment: The lower of the two OVP trip points will dominate.

Range: 1.7 V to 64.5 V

Resolution: 0.2 V

Remote OVP adjustment:

Range: 2.0 V to 64.5 V (the OVP trip point = 2 V + 1.04 × soft voltage limit)

Resolution: 0.25 V

Accuracy: ± 0.7 V. The OVP circuit will trip when the voltage between the + output and the outboard side of the current monitoring resistor equals the set voltage. This could be as much as 1.35 V above the voltage between the ± S terminals.

Temperature coefficient: 250 PPM/°C

DC Output isolation: ± 240 Vdc from ground.

Temperature rating: Operating 0-55°C

Storage: -40 to 75°C, Fan cooled

AC Input: 87 to 106 VAC Option 100

104 to 127 VAC Option 120

191 to 233 VAC Option 220

208 to 250 VAC Option 240

All are 48 to 63 Hz

(Two internal switches and one internal jumper permit line voltage selection except for Option 100)

325 watts @ 200 watts output

600 VA @ 200 watts output

Weight: Net 9.9 kg (20 lbs) Shipping: 10.4 kg (23 lbs)

Ordering Information

6034A System Power Supply

Opt 100 (100 VAC input. Max 50 V, 150 W output)

Opt 100, 120, 220 and 240

Opt 907: Front Handle Kit (Part No. 5061-0089)

Opt 908: Rack Flange Kit (Part No. 5061-0077)

Opt 909: Opt. 907, 908 combined (Part No. 5061-0083)

Opt 910: Additional Operating and Service Manual

Price

\$2,700

N/C

N/C

\$32

\$25

\$55

\$15