Table 1-1. Specifications, Models 6826A and 6827A

**NOTE**

*Specifications apply to all models unless otherwise specified.*

## GENERAL SPECIFICATIONS

**Input Power:**

Model 6826A: 104-127/208-254Vac (switchable), 48-63Hz, 1.0A, 130W

Model 6827A: 104-127/208-254Vac (switchable), 48-63Hz, 1.2A, 150W

**Meters:**

Individual voltage and current meters. DC accuracy is 3% of full scale. AC accuracy is 5% full scale with sinusoidal, 100Hz input.

**Meter Ranges (DC):**

Model 6826A: ±6V, ±60V
±0.12A, ±1.2A

Model 6827A: ±12V, ±120V
±0.06A, ±0.6A

**Meter Ranges (AC):**

Model 6826A: 4V (uncal), 40V rms
0.08A rms, 0.8A rms

Model 6827A: 8V (uncal), 80V rms
0.04A rms, 0.4A rms

**Temperature Ratings:**

Operating: 0 to 55°C.
Storage: −40 to +75°C.

**Cooling:**

Convection cooling is employed. The supplies have no moving parts.

**Dimensions:**

See outline diagram, Figure 2-1.

**Weight:**

18 lbs. (8.2 kg.) net, 21 lbs. (9.5 kg.) shipping.

## POWER SUPPLY SPECIFICATIONS

**DC Output:**

Voltage and current spans indicate range over which output may be varied.

Model 6826A:
X1 Range: −5V to +5V, 0 to 1.0A
X10 Range: −50V to +50V, 0 to 1.0A

**DC Output (Continued):**

Model 6827A:
X1 Range: −10V to +10V, 0 to 0.5A
X10 Range: −100V to +100V, 0 to 0.5A

**Load Effect (Load Regulation):**

Voltage load effect is given for a load current change equal to the current rating of the supply. Current load effect is given for a load voltage change equal to the voltage rating of the supply.

Model 6826A:
Voltage (X1 Range): 0.01% + .5mV
Voltage (X10 Range): 0.01% + 1mV
Current: .01% + 250μA

**Load Effect (Load Regulation) Continued:**

Model 6827A:
Voltage (X1 Range): .01% + .3mV
Voltage (X10 Range): .01% + 1mV
Current: .01% + 250μA

**Source Effect (Line Regulation):**

For a change in line voltage between 104 and 127Vac/208 and 254Vac at any output voltage and current within rating.

Model 6826A:
Voltage (X1 Range): .01% + .5mV
Voltage (X10 Range): .01% + 5mV
Current: .01% + 250μA

Model 6827A:
Voltage (X1 Range): .01% + 1mV
Voltage (X10 Range): .01% + 10mV
Current: .01% + 250μA

**PARD (Ripple and Noise):**

Rms/p-p (20Hz to 20MHz) at any line voltage and under any load condition within rating.

Model 6826A:
Voltage (X1 Range): 2mV rms/10mV p-p
Voltage (X10 Range): 6mV rms/35mV p-p
Current: .8mA rms/5mA p-p

Model 6827A:
Voltage (X1 Range): 2.5mV rms/15mV p-p
Voltage (X10 Range): 10mV rms/50mV p-p
Current: .4mA rms/5mA p-p

Table 1-1. Specifications, Models 6826A and 6827A (Continued)

POWER SUPPLY SPECIFICATIONS (Continued)

**Temperature Coefficient:**
Output change per degree Centigrade change in ambient following 30 minutes warm-up.
Model 6826A:
Voltage (X1 Range): .01% + .35mV
Voltage (X10 Range): .01% + 3mV
Current: .02% + 50μA
Model 6827A:
Voltage (X1 Range): .01% + .7mV
Voltage (X10 Range): .01% + 6mV
Current: .02% + 50μA

**Drift (Stability):**
Change in output (dc to 20Hz) over 8 hour interval under constant line, load, and ambient following 30 minutes warm-up.
Model 6826A:
Voltage (X1 Range): .03% + 1mV (Pot wiper jump effect may add 5mV)
Voltage (X10 Range): .03% + 10mV (Pot wiper jump effect may add 50mV)
Current: .1% + 200μA (Pot wiper jump effect may add 1.5mA)
Model 6827A:
Voltage (X1 Range): .03% + 2mV (Pot wiper jump effect may add 5mV)
Voltage (X10 Range): .03% + 20mV (Pot wiper jump effect may add 100mV)
Current: .1% + 200μA (Pot wiper jump effect may add 1mA).

**Load Effect Transient Recovery (Load Transient Recovery):**
Time required for output voltage recovery to within the specified level of the nominal output voltage following a change in output current equal to the current rating of the supply.
Model 6826A:
100μsec is required for output voltage recovery within 50mV of nominal output voltage.
Model 6827A:
100μsec is required for output voltage recovery within 100mV of nominal output voltage.

**Resolution:**
Typical output voltage or current change that can be obtained using front panel controls.
Model 6826A:
Voltage (X1 Range): 10mV
Voltage (X10 Range): 100mV
Current: 3mA
Model 6827A:
Voltage (X1 Range): 20mV
Voltage (X10 Range): 200mV
Current: 1.5mA

**Output Impedance (Typical to 50kHz):**
Approximated by a resistance in series with an inductance (constant voltage operation).
Model 6826A: 1mΩ & 1.5μH
Model 6827A: 2mΩ & 4μH

**DC Output Isolation:**
Supply may be floated at up to 300V above ground.

**Remote Resistance Programming:**
Model 6826A (Resistance Coefficient):
Voltage (X1 Range): 2000Ω/V ± .1%
Voltage (X10 Range): 200Ω/V ± .1%
Current: 10Ω/mA ± .1%
Model 6827A (Resistance Coefficient):
Voltage (X1 Range): 1000Ω/V ± .1%
Voltage (X10 Range): 100Ω/V ± .1%
Current: 10Ω/mA ± .1%

**Remote Programming Speed:**
50μsec are required to change between 1% and 99% of the maximum + and − voltage limits.

**Remote Programming Temperature Coefficient:**
Output change per degree Centigrade change in ambient using an external control resistor ($R_F$) at output voltage ($V_O$) or current ($I_O$). % T.C. $R_F$ is the temperature coefficient of the control resistance $R_F$.
Model 6826A:
Voltage (X1 Range): .25mV + .007% ($V_O$) + % T.C. $R_F$ ($V_O$ + 5)
Voltage (X10 Range): 2.2mV + .007% ($V_O$) + % T.C. $R_F$ ($V_O$ + 50)
Current: .016% ($I_O$) + 33μA + % T.C. $R_F$ ($I_O$)

Model 6827A:
Voltage (X1 Range): .5mV + .007% ($V_O$) + % T.C. $R_F$ ($V_O$ + 10)
Voltage (X10 Range): 4mV + .007% ($V_O$) + % T.C. $R_F$ ($V_O$ + 100)
Current: .016% ($I_O$) + 33μA + % T.C. $R_F$ ($I_O$)

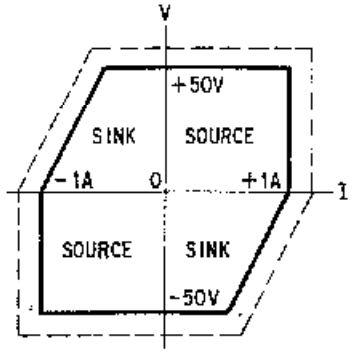
Table 1-1. Specifications, Models 6826A and 6827A (Continued)

## POWER SUPPLY SPECIFICATIONS (Continued)

**Sink Current Compliance:**

Maximum current that the supply can sink when connected to an active load.

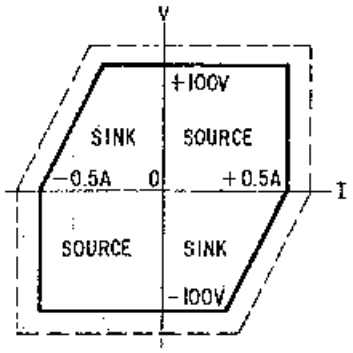
Model 6826A:




Sink current is limited to a value ranging linearly from 1A @ 0V to .5A @ 50V.

Externally applied voltages to output terminals in excess of 60V could damage the instrument.

Model 6827A:




Sink current is limited to a value ranging linearly from .5A @ 0V to .25A @ 100V.

Externally applied voltages to output terminals in excess of 125V could damage the instrument.

## POWER AMPLIFIER SPECIFICATIONS

**Output:**

Model 6826A:

Voltage (X1 Range): 10V p-p

Voltage (X10 Range): 100V p-p

Current: 1A peak

Model 6827A:

Voltage (X1 Range): 20V p-p

Voltage (X10 Range): 200V p-p

Current: .5A peak

**Voltage Gain (High/Low Range):**

Model 6826A:

Fixed Amplifier (Inverting): 10X (high range)/ 1X(low range)

Variable Gain (Non-Inverting): 0-20 (high range)/ 0-2 (low range)

Model 6827A:

Fixed Amplifier (Inverting): 20X (high range)/ 2X (low range)

Variable Gain (Non-Inverting): 0-40 (high range)/ 0-4 (low range)

**Frequency Response (+1, -3dB at full output):**

Model 6826A:

Fixed Gain: dc – 40kHz

Variable Gain: dc – 15kHz

Model 6827A:

Fixed Gain: dc – 30kHz

Variable Gain: dc – 15kHz

**Distortion:**

Total harmonic distortion is .1% (maximum) at 100 Hz and full output.

**Input Impedance:**

10KΩ (Typical)

**Fixed Gain Accuracy (at 100Hz):**

Model 6826A:

Low Range (X1): .1% + .5mV

High Range (X10): .1% + 5mV

Model 6827A:

Low Range (X1): .1% + 1mV

High Range (X10): .1% + 10mV

**Remote Resistance Programming Variable Gain ($A_V$):**

$A_V = \dfrac{KR_F}{10.24 \times 10^3\Omega}$, where K is the constant indicated and $R_F$ is the external control resistance.

Model 6826A:

$A_V$ at low range (X1): $\dfrac{R_F}{10.24 \times 10^3}$

$A_V$ at high range (X10): $\dfrac{10R_F}{10.24 \times 10^3}$

Model 6827A:

$A_V$ at low range (X1): $\dfrac{2R_F}{10.24 \times 10^3}$

$A_V$ at high range (X10): $\dfrac{20R_F}{10.24 \times 10^3}$

Table 1-1. Specifications, Model s6826A and 6827A (Continued)

| | |
|---|---|
| **Variable Accuracy:**<br>Accuracy in high range at 100Hz using an external control resistance ($R_F$) at output voltage ($V_O$). % $R_F$ is the accuracy of the control resistance $R_F$.<br>Model 6826A: (.05% + %$R_F$) $V_O$ + 5mV<br>Model 6827A: (.05% + %$R_F$) $V_O$ + 10mV<br><br>**Remote Voltage Control Coefficient:**<br>Fixed gain amplifier mode, voltage coefficient: | Model 6826A:<br>Voltage (X1 Range): 1 volt/volt ± .1%<br>Voltage (X10 Range): 10 volts/volt ± .1%<br>Model 6827A:<br>Voltage (X1 Range): 2 volts/volt ± .1%<br>Voltage (X10 Range): 20 volts/volt ± .1%<br>Constant Current, voltage coefficient (the following applies to variable gain amplifier, fixed gain amplifier, and power supply modes of operation):<br>Models 6826A and 6827A: 1 ampere/volt ± .5% |

## 1-14 OPTIONS

1-15 Options are customer-requested factory modifications of a standard instrument. The option described below applies to Models 6826A and 6827A.

| Option No. | Description |
|---|---|
| 007 | Ten-turn Output Voltage Control: Replaces standard single-turn voltage control to allow greater resolution in setting the output voltage ir gain of the 8PS/A. Shunt resistor A1R53 as well as standard VOLTAGE control (HP Part No. 2100-3272) A5R2 must be removed when the ten-turn output voltage control (HP Part No. 2100-1867) is installed in the A5R2 location. |

## 1-16 ACCESSORIES

1-17 The accessories listed in the following chart may be ordered with the instrument or separately from your local Hewlett-Packard sales office (refer to list at rear of manual for addresses).

| HP Part No. | Description |
|---|---|
| 5060-8762 | Dual Rack Adapter: Kit for rack mounting one or two supplies in standard 19-inch rack. |
| 5060-8760 | Blank Panel: Filler panel to block unused half of rack when mounting only one supply. |
| 11057A | Carrying handle easily attached for portability and handling convenience. |
| 1052A | Combining Case for mounting one or two units in standard 19-inch rack. |
| 5060-0789 | Cooling kit for above combining case, 115 Vac, 50-60Hz. |
| 5060-0796 | Cooling kit for above combining case, 230 Vac, 50-60Hz. |

## 1-18 INSTRUMENT IDENTIFICATION

1-19 Hewlett-Packard power supplies are identified by a three-part serial number. The first part is the power supply model number. The second part is the serial number prefix, consisting of a number-letter combination denoting the date of a significant design change and the country of manufacture. The first two digits indicate the year (12 = 1972, 13 = 1973, 20 = 1980, etc); the second two digits indicate the week (01 through 52); and the letter "A", "G", "J", or "U" designates the U.S.A., West Germany, Japan, or the United Kingdom, respectively, as the country of manufacture. The third part is the power supply serial number; a different 5-digit sequential number is assigned to each power supply, starting with 00101.

1-20 If the serial number prefix on your unit does not agree with the prefix on the title page of this manual, change sheets supplied with the manual or manual backdating changes in Appendix A define the differences between your instrument and the instrument described by this manual.

## 1-21 ORDERING ADDITIONAL MANUALS

1-22 One manual is shipped with each instrument. 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 part number shown on the title page.