HP E3600-series
Manual Power Supplies

Affordable, full-featured benchtop power supplies provide excellent performance and flexibility

- **Linear power supply**
- **Single, dual or triple output**
- **10-turn voltage and current controls**
- **Digital voltage and current meters**
- **Low noise and excellent regulation**

A whole family of low-cost power supplies to meet your needs

The HP E3600-series of low-cost benchtop power supplies give you the performance of system power supplies without the high price. All HP E3600 family members give you clean power with dependable regulation and fast transient response. HP E3600-series single-output models are described on this page. See page 2 for information on dual- and triple-output models.

Single-output models

All HP E3600-series single-output power supplies feature separate digital-panel meters for monitoring voltage and current simultaneously, giving you precise reading and control capability. All models also feature 10-turn potentiometers for accurate adjustment of voltage and current output settings.

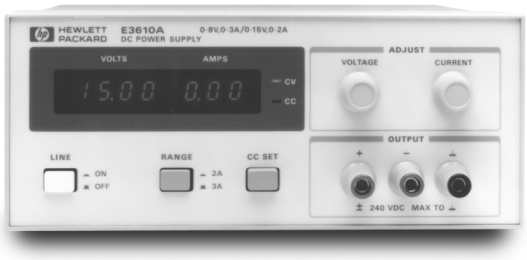
With 0.01 percent load and line regulation, these instruments keep the output steady when power line and load changes occur. The low normal-mode noise specification of less than 200µVrms ensures clean power for precision circuitry.

In all single-output models, either the positive or negative terminal can be connected to ground, providing a positive or negative voltage output. Outputs can also be floated up to 240V from ground.

These instruments also feature adjustable current limits, letting you set the safest current limit without having to short the output.

HP E3610A, E3611A, and E3612A single-output models

These popular 30-watt bench supplies are designed for general laboratory use. The constant-voltage, constant-current output allows operation as either a voltage or current source. The changeover occurs automatically, based on the load. Each of these models has two ranges, allowing more current at a lower voltage. For higher output voltages, supplies can be connected in series.



HP E3614A, E3615A, E3616A and E3617A models feature overvoltage protection

These flexible 60-watt, single-range power supplies can be used as either voltage or current sources. When output terminal voltage increases to a preset shut-down level, an overvoltage protection circuit disables the output to protect the device under test (DUT) from damage. The overvoltage protection feature is easily monitored and adjusted from the front panel.

Using remote sensing capability, these instruments automatically compensate for voltage drop in the load leads, so you get accurate voltage at the DUT.

You can combine multiple units in auto-parallel, auto-series and auto-tracking configurations for greater output voltage or current capacity. Front and rear output terminals allow flexible configuration. Output voltage and current can be controlled with external 0- to10-volt analog voltage or variable resistance.

Multi-output models

With multiple supplies in a compact unit, the HP E3620A and E3630A give you excellent performance while saving space on your bench. Both instruments feature tight 0.01 percent line and load regulation and a low normal-mode noise specification of less than 0.35mV to ensure clean power for precision circuitry. With a common-mode current specification of less than 1uA, both multiple-output power supplies minimize power line current injection.

Like the single-output models in the HP E3600 series, the HP E3620A and E3630A feature separate digital panel meters so you can monitor voltage and current simultaneously. They also protect your DUT against overload and short-circuit damage. Smooth turn-on and turn-off transitions keep power spikes out of your circuits.

HP E3620A dual-output power supply

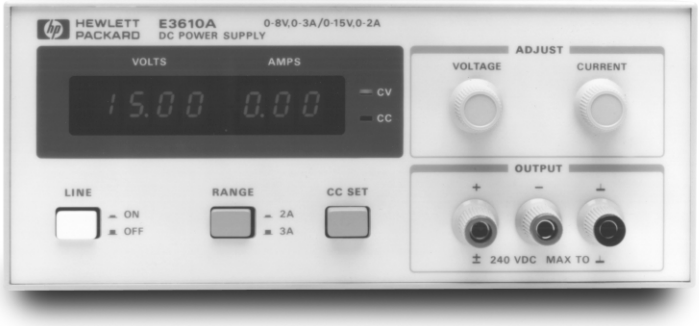
The 50-watt HP E3620A dual-output power supply provides two 0 V to 25 Vdc outputs to satisfy most bench requirements. The outputs are completely independent and isolated.

HP E3630A triple-output power supply

The 35-watt HP E3630A triple-output power supply provides three dc outputs: 0 to 6 V with a maximum current of 1 to 2.5A and 0 to 20 V and 0 to -20 V with a maximum current of 0.5A. An autotracking feature lets you use one voltage control to adjust the +20 V and -20 V outputs simultaneously. The outputs track each other to within 1 percent, making it easy to adjust the power supply for circuits requiring balanced voltages.

3-year warranty

To ensure maximum reliablity and long life, all HP 3600-series power supplies undergo the same rigerous tests as HP top-of-the-line power supplies. Each instrument comes with a full 3-year warranty.



Specifications

	E3610A	E3611A	E3612A	E3614A	E3615A	E3616A	E3617A	E3620A	E3630A
Features	Dual range, 10 turn pots, Constant Voltage (CV), Constant Current (CC) modes.			Adjustable overvoltage protection, voltage & resistance programming, remote sense, rear outputs, ten turn pots, CV, CC modes. Multiple supplies can be connected for tracking or higher power.				Isolated dual outputs, 10 turn pots CV, CL	Tracking, CV, CL (± 20V) CV, CF (6V)
Number of outputs	1							2	3
Number of output Ranges	2	2	2	1	1	1	1	1	1
DC Output Rating	8V, 3A 15V, 2A	20V, 1.5A 35V, .85A	60V, .5A 120V, 0.25A	8V, 6A	20V, 3A	35V, 1.7A	60V, 1A	25V, 1A 25V, 1A	6V, 2.5A +20V, 0.5A -20V, 0.5A
Load and Line Regulation	<.01% + 2mV								
Ripple and Noise (20 Hz to 20 MHz)									
Normal mode voltage	<200 µV rms, <2 mV p-p			<200 µV rms, <1 mVpp				<350 µV rms, <1.5 mVp-p	
Normal mode current	<200 µV rms / 1 mA p-p			<.02%+ 3mA	<.02%+ 1.5mA	<.02%+ 1mA	<.02%+ 0.5mA	–	
Common mode current	not specified							<1 µArms	
Transient Response Time:	<50µsec following change in output current from full load to half load for output to recover to within:								
	10 mV			15 mV					
Meter Accuracy	±0.5% + 2 counts at 25°C ±5°C								
Meter Resolution									
Voltage	10 mV	100 mV	100 mV	10 mV	10 mV (0-20 V), 100 mV (>20V)				10 mA
Current	10 mA	10 mA	1 mA	10 mA	10 mA	1 mA	1 mA	1 mA	10 mA
Isolation	240Vdc								

Supplemental Characteristics

Control Mode	CV/CC							CV/CL	CV/CL (±20V) CV/CF (+6V)
Temperature Coefficient per °C									
Voltage	< 0.02% + 1mV			< 0.02% + 500µV			<0.02%+1mV		
Current	< 0.02% + 2mA			< .02%+3mA	< .02%+1.5 mA	< .02%+1 mA	< .02%+.5mA	–	
Output Drift									
Voltage	Less than 0.1% + 5mV total drift for 8 hours after an initial warm-up of 30 minutes.								
Current:	Less than 0.1% + 10mA total drift for 8 hours after an initial warm-up of 30 minutes.								
Temperature Range	0 to 40°C for full rated output. Derate output current 1% per °C between 40°C and 55°C							Derate output current 3.3% per °C	
Cooling	Convection cooling								
Isolation	±240 Vdc								
AC Input	100Vac ±10%, 47– 63 Hz (opt. 0E9) 115Vac ±10%, 47– 63 Hz (std) 230Vac ±10%, 47– 63 Hz (opt. 0E3)								
Weight	3.8 kg (8.4 lb.) net, 5.1 kg (11.3 lbs) shipping			5.5 kg (12.1 lb.) net, 6.75 kg (14.9 lbs) shipping					Same as E3610A
Size	91mm H x 213mm W x 319mm D 3.6" H x 8.4" W x 12.6" D			91mm H x 213mm W x 373mm D 3.6" H x 8.4" W x 14.7" D					
Warranty	3 years								
Safety Agency Compliance	Complies with UL 1244, VDE 0411			Complies with IEC 1010, CSA 22.2 No. 231					

HEWLETT® PACKARD

Ordering Information
HP E3600-Series Power Supplies
HP E3610A 30-Watt Power Supply
HP E3611A 30-Watt Power Supply
HP E3612A 30-Watt Power Supply
HP E3614A 60-Watt Power Supply
HP E3615A 60-Watt Power Supply
HP E3616A 60-Watt Power Supply
HP E3617A 60-Watt Power Supply
HP E3620A Dual-output Power Supply
HP E3630A Triple-output Power Supply

Accessories included
Operating and service manuals and AC power cord

Power Options
Opt. 0E3 230 Vac ±10%
Opt. 0E9 100 Vac ±10%

Other Options
Opt. W50 Additional 2-year warranty (5-year total)

Extra manual sets
HP E3610A/11A/12A Manual (HP P/N 5959-5304)
HP E3614A/15A/16A /17A Manual (HP P/N 5959-5310)
HP E3620A Manual (HP P/N E3620-90001)
HP E3630A Manual (HP P/N 5959-5329)

Rack Mount Kits
HP E3610A/11A/12A/30A (HP P/N 5063-9767)
HP E3614A/15A/16A/17A/20A
To rack mount a single instrument (HP P/N 5063-9240)
To rack mount instruments side by side
Lock-link Kit (HP P/N 5061-9694)
Flange Kit (HP P/N 5063-9212)
To rack mount one or two instruments in a sliding support shelf
Shelf (HP P/N 5063-9255)
Slide Kit (HP P/N 1494-0015)
For a single instrument, also order filler panel (HP P/N 5002-3999)

Within Budget.
Without Compromise.

For more information about HP E3600-series manual power supplies and all other Hewlett-Packard basic instruments, and for a current sales office listing, visit our web site at **http://www.hp.com/go/tmdir.**
You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:
Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, Colorado 80155-4026
1 800 452 4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(905) 206 4725

Europe:
Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547 9900

Japan:
Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho,
Hachioji-Shi,
Tokyo 192, Japan
Tel: (81) 426 56 7832
Fax: (81) 426 56 7840

Latin America:
Hewlett-Packard
Latin American Region Headquarters
5200 Blue Lagoon Drive
9th Floor
Miami, Florida 33126
U.S.A.
Tel: (305) 267-4245
(305) 267-4220
Fax: (305) 267-4288

Australia/New Zealand:
Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130
Australia
1 800 629 485

Asia Pacific:
Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
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