

KEYSIGHT TECHNOLOGIES (AGILENT HP)

E3600 Series - 30-60W

The Keysight Technologies (formerly Agilent, HP) E3600 Series 30-60W DC Bench Power Supplies are a family of compact, single-output instruments providing solid performance for a variety of laboratory and production test applications.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2) standard; RS-232 (some models)
Display	Dual 4-digit LED displays

Physical

Power Supply	100/120/220/240 VAC (selectable), 47-63 Hz (47-440 Hz for some models)
Operating Temperature	0 to 40 °C °C
Dimensions (W×H×D)	212.3 W × 132.6 H × 348.3 D mm mm
Weight	6.8 to 7.7 kg kg

General Specifications

Output Channels	1
Output Power	30 to 60 W (model dependent)
Input Type	AC
Output Type	DC

Output Ratings (Per Channel)

Output Voltage Range	0 to 120 V (model dependent)
Output Current Range	0 to 3 A (model dependent)
Maximum Output Power	30 W (E3610A, E3612A), 35 W (E3611A), 40 W (E3614A), 52.5 W (E3616A), 60 W (E3615A, E3617A)
Voltage Programming Resolution	10 mV
Current Programming Resolution	1 mA

Programming Accuracy (25°C ±5°C)

Voltage Programming Accuracy	0.05% + 10 mV (model dependent)
Current Programming Accuracy	0.2% + 10 mA (model dependent)

Ripple & Noise (20 Hz to 20 MHz)

Voltage RMS Ripple	< 0.5 mVrms
Voltage Peak-to-Peak Noise	< 10 mVp-p
Current RMS Noise	< 1 mArms

Load and Line Regulation

Voltage Load Regulation	< 0.01% + 2 mV
Current Load Regulation	< 0.01% + 2 mA
Voltage Line Regulation	< 0.01% + 2 mV
Current Line Regulation	< 0.01% + 2 mA

Transient Response

Voltage Transient Response Time	< 50 μ s
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Measurement Accuracy (25°C $\pm$ 5°C)

Voltage Measurement Accuracy	0.05% + 10 mV
Current Measurement Accuracy	0.2% + 10 mA
Voltage Measurement Resolution	10 mV
Current Measurement Resolution	10 mA

Output Characteristics

Output Isolation Voltage	240 VDC (output to chassis/ground)
Remote Sensing Capability	Yes (E3614A-E3617A)
Output Stability	0.01% + 2 mV (over 8 hours)
Primary Operating Modes	Constant Voltage (CV), Constant Current (CC)
Remote Sense Lead Current	<1 mA

Protection Features

Over Voltage Protection (OVP)	Yes (E3614A-E3617A)
Over Current Protection (OCP)	Yes (Constant Current mode)
Over Temperature Protection (OTP)	Yes
Reverse Polarity Protection	Yes

Remote Control & Interfaces

Standard Interfaces	GPIB (IEEE-488.2)
Optional Interfaces	RS-232 (available on some models as option or standard)
Programming Language	SCPI (Standard Commands for Programmable Instruments)
Driver Support	IVI-COM, LabVIEW

Front Panel Operation

Controls	Keypad, Rotary knob
Output Connectors	Safety binding posts

Environmental Conditions

Storage Temperature Range	-40 to 70 °C
Operating Humidity	Up to 80% RH (non-condensing) to 30°C, 50% RH at 40°C
Operating Altitude	Up to 2000 m
Pollution Degree	Pollution Degree 2

Safety & Compliance

Safety Standards	EN 61010-1 (IEC 61010-1)
EMC Standards	EN 61326-1 (IEC 61326-1)
Certifications	CE, CSA (or equivalent UL/cUL)
RoHS Compliance	Yes

Physical Specifications

Rack Mount Kit Availability	Yes (optional)
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AC Input Requirements

Input Voltage Range	100/120/220/240 VAC, selectable
Input Frequency Range	47-63 Hz
Maximum Input Power Consumption	Up to 200 VA (model dependent)
Input Fuse Rating	Input fuse ratings vary by model: E361x models are 1.6 A (220/240V) and 2.5 A (100/120V); E3620A is 2.0 A (220/240V) and 3.15 A (100/120V); E3630A/E3631A are 2.5 A (220/240V) and 4.0 A (100/120V).

Calibration Interval

Recommended Calibration Interval	1 year
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Output Performance

Ripple & Noise Measurement Bandwidth	20 Hz to 20 MHz
Transient Response Test Condition	50% load change

Programming Characteristics

Voltage Programming Slew Rate (Full Scale)	<50 ms (typical)
Current Programming Slew Rate (Full Scale)	<50 ms (typical)

User Interface

Voltage Display Digits	3 digits (LED)
Current Display Digits	3 digits (LED)

Protection

Remote Sense Protection Feature	Automatic shutdown upon disconnect
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Power Input

Input Fuse Location	Rear panel accessible
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Environmental

Typical Acoustic Noise	<40 dBA (typical)
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General Characteristics

Required Warm-up Time	30 minutes
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Connectivity

Common Standard Digital Interface	GPIB (IEEE-488.2, SCPI-compatible) (model option dependent)
Common Optional Digital Interfaces	RS-232 (model option dependent)

Display

Display Type	7-segment LED
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Performance

Voltage Temperature Coefficient	$\leq (0.02\% \text{ of } V_{\text{out}} + 2 \text{ mV}) / \text{C}$ (typical over 0-55 C)
Current Temperature Coefficient	$\leq (0.02\% \text{ of } I_{\text{out}} + 2 \text{ mA}) / \text{C}$ (typical over 0-55 C)

Power

Hold-up Time	>10 ms (at full load, min AC input)
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TECHNOLOGY

Linear Regulated Power Supply

APPLICATIONS

Bench Testing, Education, Production Test, R&D

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