

# Agilent E3640A – E3649A Programmable dc Power Supplies

Data Sheet



## Clean Programmable Power Supplies

- Single and Dual Output
- Dual Output Ranges
- 30W to 100W Output Power
- Front and Rear Output Terminals
- Over-voltage Protection
- Remote Sense
- GPIB and RS-232 Standard

## Great Performance, Outstanding Price

With 30 to 100W of output power, the Agilent E364xA-series of programmable dc power supplies provide great performance at a great price. All ten models deliver clean power, dependable regulation, fast transient response and built-in GPIB and RS-232 interfaces. They're designed to meet the needs of R&D design verification, production testing, QA verifications and other demanding applications with Agilent Technologies' quality and reliability.

## Steady Output

With 0.01 percent load and line regulation, Agilent E364xA power supplies keep output steady when power line and load changes occur. They also specify low normal mode voltage noise and low common mode current noise. The low normal mode noise specification assures clean power for precision circuitry applications, and the low common mode current provides isolation from

power line current injection. Agilent E364xA power supplies specify less than 90 msec of voltage settling time at any output load condition.

## Remote Interface

Agilent E364xA power supplies support any PC with a GPIB (IEEE-488) card or RS-232 interface. Every model ships standard with both GPIB and RS-232. Easy-to-use SCPI (Standard Commands for Programmable Instruments) keeps programming fast and simple. The user manual provides information for beginning programmers, yet includes enough detail to help veteran programmers as well.

## Broad Support

VXI*plug&play* software drivers are available for Agilent VEE and National Instruments LabView™ and LabWindows™, simplifying integration of the E364xA into your test system. The drivers are supported under Microsoft® Windows 98® and NT®.

## Front Panel Operation

An easy-to-use rotary knob and self-guiding keypads allow you to quickly and easily set output at the resolution you need. Voltage and current levels can be set to a maximum resolution of 10 mV/1 mA from the front panel. Up to five complete power supply setups can be stored and recalled from the internal non-volatile memory. The output on/off button sets the output to zero. Dual output models allow two voltages or currents to be displayed simultaneously.

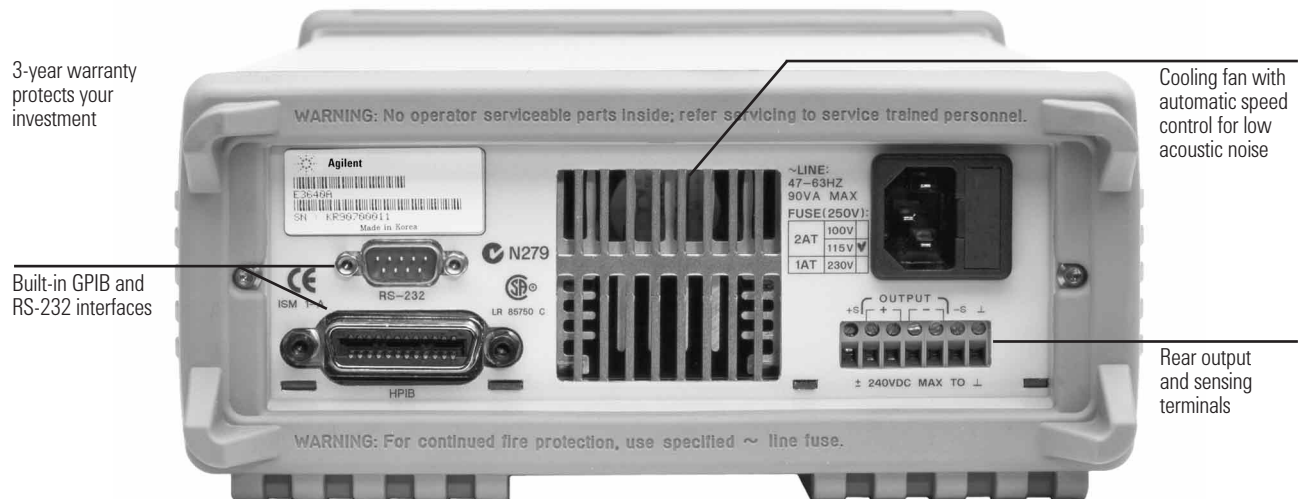
## Versatile Power

Agilent E364xA power supplies give you the flexibility to select from dual output ranges. Output load is protected against overvoltage, which is easily monitored and adjusted from the front panel and remote interface. Remote sensing is available in the rear terminal to eliminate errors due to voltage drops on the load leads. These power supplies offer new versatile binding posts on the front panel and

screw-type terminals on the rear panel. New front panel binding posts allow you to use safety test leads as well as conventional banana clips and stripped wires. An optional rackmount kit is available. The Agilent E364xA series employs a cooling fan with automatic speed control for reduced acoustic noise.

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## Agilent E3640A – E3649A Programmable dc Power Supply Specifications

Model Number	E3640A	E3641A	E3642A	E3643A	E3644A	E3645A
Maximum Power	30 W		50 W		80W	
# of Output	1	1	1	1	1	1
dc Output Rating (@ 0°C to 40°C)	0 to 8 V / 3 A or 0 to 20 V / 1.5 A	0 to 35 V / 0.8 A or 0 to 60 V / 0.5 A	0 to 8 V / 5 A or 0 to 20 V / 2.5 A	0 to 35 V / 1.4 A or 0 to 60 V / 0.8 A	0 to 8 V / 8 A or 0 to 20 V / 4 A	0 to 35 V / 2.2 A or 0 to 60 V / 1.3 A
Net Weight	5.3 kg (11.7 lbs)		6.2kg (13.7 lbs)		6.7 kg (14.7 lbs)	
Dimension	254.4 mm W x 103.6 mm H x 374 mm D (10 x 4.1 x 14.7 in)					

Model Number	E3646A	E3647A	E3648A	E3649A
Maximum Power	60 W		100 W	
# of Output	2	2	2	2
dc Output Rating (@ 0°C to 40°C)	Two 0 to 8 V / 3 A or 0 to 20 V / 1.5 A	Two 0 to 35 V / 0.8 A or 0 to 60 V / 0.5 A	Two 0 to 8 V / 5 A or 0 to 20 V / 2.5 A	Two 0 to 35 V / 1.4 A or 60 V / 0.8 A
Net Weight	7.3kg (16.1 lbs)		9.2kg (20.3 lbs)	
Dimension	228 mm W x 133 mm H x 374 mm D (8.9 x 5.2 x 14.7 in)			

<b>Load<sup>1</sup> and Line Regulation</b> ±(% of output + offset)	
Voltage	<0.01% + 3 mV
Current	<0.01% + 250 uA
<b>Ripple and Noise</b> (20 Hz to 20 MHz)	
Normal Mode Voltage	<5 mVpp / 0.5 mVrms for 8 V / 20 V models <8 mVpp / 1 mVrms for 35 V / 60 V models
Normal Mode Current	<4 mArms
Common Mode Current	<1.5 uArms
<b>Accuracy 12 Months</b> (@ 25°C ±5°C), ±(% output + offset)	
Programming	
Voltage	<0.05% + 10 mV (<0.1% + 25 mV for output 2 of E3646/47/48/49A)
Current	<0.2% + 10 mA
Readback	
Voltage	<0.05% + 5 mV (<0.1% + 25 mV for output 2 of E3646/47/48/49A)
Current	<0.15% + 5 mA (<0.15% + 10 mA for output 2 of E3646/47/48/49A)
<b>Resolution</b>	
Program	<5 mV / 1 mA
Readback	<2 mV / 1 mA
Meter	10 mV / 1 mA
<b>Transient Response</b>	Less than 50 µsec for output to recover to within 15 mV following a change in output current from full load to half load or vice versa.
<b>Settling Time</b> <sup>2</sup>	<90 msec
<b>OVP</b>	
Accuracy, ±(% output + offset)	<0.5% + 0.5 V
Activation time <sup>3</sup>	<1.5 msec, OVP ≥3 V / <10 msec, OVP <3 V
<b>Temperature Coefficient per °C</b> ± (% output + offset)	
Voltage	<0.01% + 3 mV (<0.02% + 5 mV for output 2 of E3646/47/48/49A)
Current	<0.02% + 3 mA
<b>Stability, constant output &amp; temperature</b> ±(% of output + offset), 8 hrs	
Voltage	<0.02% + 2 mV
Current	<0.1% + 1 mA
<b>Remote Sense</b>	1 V
Max voltage drop in each load lead	
<b>AC Input</b> (47 Hz – 63 Hz)	100 Vac ±10% (Opt 0E9) / 115 Vac ±10% (Std) / 230 Vac ±10% (Opt 0E3)
<b>Warranty</b>	1 year
<b>Product Regulation</b>	Designed to comply with UL3111-1; certified to CSA 22.2 No. 1010.1; conforms to IEC 1010-1; complies with EMC directive 89/336/EEC (Group1, Class A)

<sup>1</sup> With sense terminal connected.

<sup>2</sup> Maximum time required for the output voltage to change from 1% to 99% or vice versa following the receipt of VOLTage or APPLY command via direct GPIB or RS-232 interface.

<sup>3</sup> Average time for output to start to drop after OVP condition occurs.

Agilent E364xA-Series Power Supplies  
E3640A 30-Watt Single Power Supply  
E3641A 30-Watt Single Power Supply  
E3642A 50-Watt Single Power Supply  
E3643A 50-Watt Single Power Supply  
E3644A 80-Watt Single Power Supply  
E3645A 80-Watt Single Power Supply  
E3646A 60-Watt Dual Power Supply  
E3647A 60-Watt Dual Power Supply  
E3648A 100-Watt Dual Power Supply  
E3649A 100-Watt Dual Power Supply

### Accessories included

Users Guide, Quick Reference Guide and AC power cord

### Power Options

Opt. 0E3 230 Vac  $\pm$  10%  
Opt. 0EM 115 Vac  $\pm$  10%  
Opt. 0E9 100 Vac  $\pm$  10%

### Other Options

Opt. 1CM Rackmount kit\* . . . . . (Single output).  
. . . . . (Dual output).

Opt. 0L2 Extra manual  
Agilent E364xA Single Output Manual  
Agilent E364xA Dual Output Manual

### Rackmount Kits\*

Agilent E3640A/41A/42A/43A/44A/45A  
To rackmount two instruments side-by-side  
Lock-link Kit (P/N 5061-9694)  
Flange Kit (P/N 5063-9212)

To rackmount one or two instruments  
in a sliding support shelf  
Support Shelf (P/N 5063-9255)  
Slide Kit (P/N 1494-0015) required for  
support shelf  
For a single instrument, also order  
filler panel (P/N 5002- 3999)

Agilent E3646A/47A/48A/49A  
To rackmount two instruments side by side  
Lock-link Kit (P/N 5061-9694)  
Flange Kit (P/N 5063-9214)

To rackmount two instruments in a  
sliding support shelf  
Support Shelf (P/N 5063-9256)  
Slide Kit (P/N 1494-0015)

\*Rackmounting with 1CM or lock-link/flange kit requires  
Agilent or customer supplied support rails  
Agilent Support Rails - E3663AC

### Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

### Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

### Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

### Agilent T&M Software and Connectivity

Agilent's Test and Measurement software and connectivity products, solutions and developer network allows you to take time out of connecting your instruments to your computer with tools based on PC standards, so you can focus on your tasks, not on your connections. Visit [www.agilent.com/find/connectivity](http://www.agilent.com/find/connectivity) for more information.

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