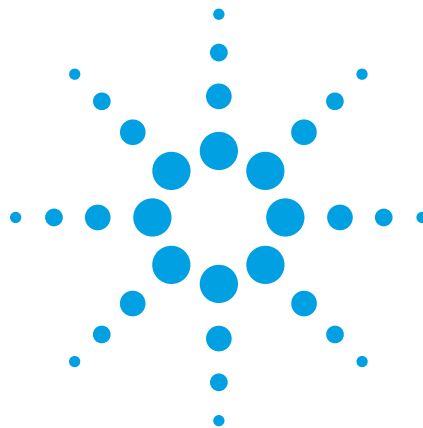




**Agilent**  
**E3640A – E3649A**  
**Programmable DC Power Supplies**

**Data Sheet**



**Agilent Technologies**

## Reliable Power, Repeatable Results

- Single and dual outputs
- Dual range output
- 30 W to 100 W output power
- Front and rear output terminals
- Over-voltage protection
- Remote Sensing
- GPIB and RS-232 standard
- Save and recall functions



## Great Performance, Outstanding Price

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

## Steady Output

With 0.01 percent load and line regulation, Agilent E364xA power supplies are able to maintain a steady output when power line and load changes occur. They also specify 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. The easy-to-use SCPI (Standard Commands for Programmable Instruments) allow fast and simple programming procedures. Besides, the user manual provides sufficient information on programming for all end users, from beginners to veterans.

## Broad Support

VXI *plug and play* software drivers are available for Agilent VEE, National Instruments LabView™ and LabWindows™. With these drivers, integration of the E364xA into your system can never be any easier. 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 set the output at your desired resolution without any effort. Also, both voltage and current levels can be set to a maximum resolution of 10 mV/1 mA from the front panel. In addition, you can store and recall for up to five complete power supply setups using the internal non-volatile memory.

The output on/off button sets the output to zero. If you own a dual output model, you can view two voltages or currents that are displayed simultaneously.

## Versatile Power

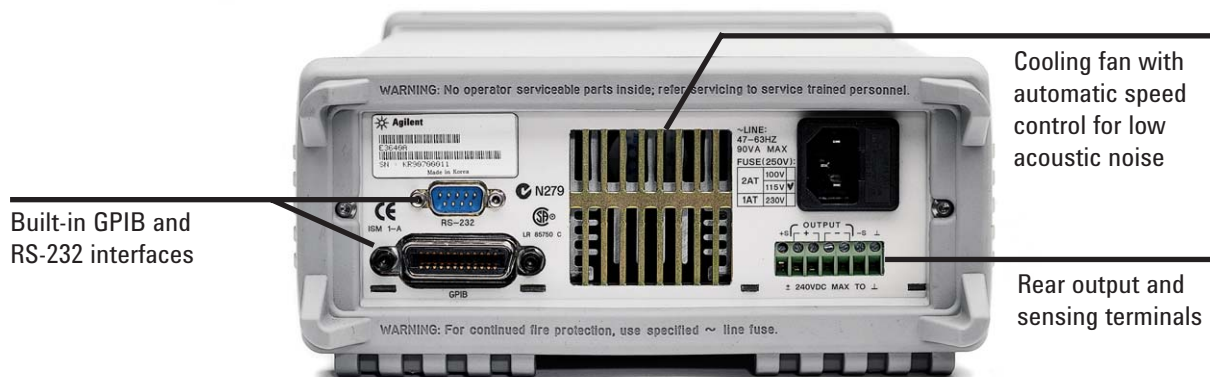
Agilent E364xA power supplies give you the flexibility to select from dual output ranges. Output load is protected against overvoltage, which can be easily monitored and adjusted from the front panel and remote interface. Remote sensing is available in the rear terminal to eliminate errors caused by 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 to reduce the acoustic noise.

*LabView and LabWindows are registered trademarks of National Instruments.*

*Microsoft Windows 98 and Windows NT are US registered trademarks of Microsoft Corporation.*



1 year warranty  
protects your  
investment



# Agilent E3640A – E3649A Programmable DC Power Supply Specifications

| Model Number                          | E3640A                              | E3641A                                | E3642A                             | E3643A                                | E3644A                           | E3645A                                |
|---------------------------------------|-------------------------------------|---------------------------------------|------------------------------------|---------------------------------------|----------------------------------|---------------------------------------|
| Maximum Power                         | 30 W                                |                                       | 50 W                               |                                       | 80 W                             |                                       |
| # of Outputs                          | 1                                   | 1                                     | 1                                  | 1                                     | 1                                | 1                                     |
| DC Output Rating<br>(@ 0 °C to 40 °C) | 0 to 8 V/3 A or<br>0 to 20 V/1.5 A  | 0 to 35 V/0.8 A or<br>0 to 60 V/0.5 A | 0 to 8 V/5 A or<br>0 to 20 V/2.5 A | 0 to 35 V/1.4 A or<br>0 to 60 V/0.8 A | 0 to 8 V/8 A or<br>0 to 20 V/4 A | 0 to 35 V/2.2 A or<br>0 to 60 V/1.3 A |
| Net Weight                            | 5.3 kg                              | 5.2 kg                                | 6.3 kg                             | 6.2 kg                                | 6.6 kg                           | 6.7 kg                                |
| Dimensions (without bumper)           | 212.6 mm W x 88.5 mm H x 348.3 mm D |                                       |                                    |                                       |                                  |                                       |

| Model Number                          | E3646A                                    | E3647A                                       | E3648A                                    | E3649A                                       |
|---------------------------------------|-------------------------------------------|----------------------------------------------|-------------------------------------------|----------------------------------------------|
| Maximum Power                         | 60 W                                      |                                              | 100 W                                     |                                              |
| # of Outputs                          | 2                                         | 2                                            | 2                                         | 2                                            |
| DC Output Rating<br>(@ 0 °C to 40 °C) | Two<br>0 to 8 V/3 A or<br>0 to 20 V/1.5 A | Two<br>0 to 35 V/0.8 A or<br>0 to 60 V/0.5 A | Two<br>0 to 8 V/5 A or<br>0 to 20 V/2.5 A | Two<br>0 to 35 V/1.4 A or<br>0 to 60 V/0.8 A |
| Net Weight                            | 8.2 kg                                    | 8.0 kg                                       | 9.2 kg                                    | 9.1 kg                                       |
| Dimensions (without bumper)           | 212.8 mm W x 133.0 mm H x 348.3 mm D      |                                              |                                           |                                              |

|                                                                                  |                                                                                                                                         |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Load and Line Regulation</b> ± (% of output + offset)                         |                                                                                                                                         |
| Voltage                                                                          | < 0.01% + 3 mV                                                                                                                          |
| Current                                                                          | < 0.01% + 250 µA                                                                                                                        |
| <b>Ripple and Noise</b> (20 Hz to 20 MHz)                                        |                                                                                                                                         |
| Normal Mode Voltage                                                              | < 5 mVpp/0.5 mVrms for 8 V/20 V models<br>< 8 mVpp/1 mVrms for 35 V/60 V models                                                         |
| Normal Mode Current                                                              | < 4 mArms                                                                                                                               |
| Common Mode Current                                                              | < 1.5 µArms                                                                                                                             |
| <b>Accuracy<sup>1</sup> 12 Months</b> (@ 25 °C ± 5 °C), ± (% output + offset)    |                                                                                                                                         |
| Programming                                                                      |                                                                                                                                         |
| Voltage                                                                          | < 0.05% + 10 mV (< 0.1% + 25 mV for output 2 of E3646/47/48/49 A)                                                                       |
| Current                                                                          | < 0.2% + 10 mA                                                                                                                          |
| Readback (over GPIB and with respect to actual output)                           |                                                                                                                                         |
| Voltage                                                                          | < 0.05% + 5 mV (< 0.1% + 25 mV for output 2 of E3646/47/48/49 A)                                                                        |
| Current                                                                          | < 0.15% + 5 mA (< 0.15% + 10 mA for output 2 of E3646/47/48/49 A)                                                                       |
| Meter <sup>2</sup> (over front panel with respect to actual output)              |                                                                                                                                         |
| Voltage                                                                          | < 0.05% + 2 counts (< 0.1% + 4 counts for output 2)                                                                                     |
| Current                                                                          | < 0.15% + 5 mA (< 0.15% + 10 mA for output 2)                                                                                           |
| <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<sup>3</sup></b>                                                 | < 90 msec                                                                                                                               |
| <b>OVP</b><br>Accuracy,<br>± (% output + offset)<br>Activation Time <sup>4</sup> | < 0.5% + 0.5 V<br><br>< 1.5 msec, OVP ≥ 3 V/< 10 msec, OVP < 3 V                                                                        |

<sup>1</sup> Accuracy specifications are valid after a 1-hour warm-up with no load and calibration at 25 °C.

<sup>2</sup> Meter accuracy specification is at minimum 10 mV decimal limited by front panel resolution.

<sup>3</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>4</sup> Average time for output to start and drop after an OVP condition occurred.

| Temperature Coefficient per °C ± (% output + offset)                |                                                                                                                                                          |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage                                                             | < 0.01% + 3 mV (< 0.02% + 5 mV for output 2 of E3646/47/48/49A)                                                                                          |
| Current                                                             | < 0.02% + 3 mA                                                                                                                                           |
| Stability, constant load & temperature ± (% output + offset), 8 hrs |                                                                                                                                                          |
| Voltage                                                             | < 0.02% + 2 mV                                                                                                                                           |
| Current                                                             | < 0.1% + 1 mA                                                                                                                                            |
| <b>Remote Sensing</b><br>Max. voltage drop in each load lead        | 1 V                                                                                                                                                      |
| <b>AC Input</b><br>(47 Hz – 63 Hz)                                  | 100 Vac ± 10% (Opt 0E9)/115 Vac ± 10% (Std)/230 Vac ± 10% (0E3)                                                                                          |
| <b>Warranty</b>                                                     | One year for E364xA series power supplies<br>Three months for standard shipped accessories                                                               |
| <b>Product Regulation</b>                                           | Designed to comply with UL3111-1; certified to CSA 22.2 No. 1010.1;<br>conforms to IEC 1010-1; complies with EMC directive 89/336/EEC (Group 1, Class A) |

## Ordering Information

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

## Standard Shipped Accessories

User's & Service guide, Product  
Reference CD, AC power cord

## Power Options

Opt. 0E3 230 Vac ± 10%  
Opt. 0EM 115 Vac ± 10%  
Opt. 0E9 100 Vac ± 10%

## Other Options

Opt. 1CM Rackmount kit\*  
– Single Output (P/N 5063-9240)  
– Dual Output (P/N 5063-9243)  
Opt. 0L2 Extra Manual  
Opt. UK6 Commercial calibration with  
test result data  
E3600A-100 Test lead kit

## 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  
Filter 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 support rails  
Agilent Support Rails-E3663AC



### Agilent Email Updates

[www.agilent.com/find/emailupdates](http://www.agilent.com/find/emailupdates)

Get the latest information on the products and applications you select.



### Agilent Direct

[www.agilent.com/find/agilentdirect](http://www.agilent.com/find/agilentdirect)

Quickly choose and use your test equipment solutions with confidence.



[www.agilent.com/find/open](http://www.agilent.com/find/open)

Agilent Open simplifies the process of connecting and programming test systems to help engineers design, validate and manufacture electronic products. Agilent offers open connectivity for a broad range of system-ready instruments, open industry software, PC-standard I/O and global support, which are combined to more easily integrate test system development.



LXI is the US registered trademark of the LXI Consortium.

### Remove all doubt

Our repair and calibration services will get your equipment back to you, performing like new, when promised. You will get full value out of your Agilent equipment throughout its lifetime. Your equipment will be serviced by Agilent-trained technicians using the latest factory calibration procedures, automated repair diagnostics and genuine parts. You will always have the utmost confidence in your measurements.

Agilent offers a wide range of additional expert test and measurement services for your equipment, including initial start-up assistance onsite education and training, as well as design, system integration, and project management.

For more information on repair and calibration services, go to

[www.agilent.com/find/removealldoubt](http://www.agilent.com/find/removealldoubt)

Product specifications and descriptions in this document subject to change without notice.

[www.agilent.com](http://www.agilent.com)

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office. The complete list is available at:

[www.agilent.com/find/contactus](http://www.agilent.com/find/contactus)

#### Phone or Fax Americas

|               |                |
|---------------|----------------|
| Canada        | (877) 894-4414 |
| Latin America | 305 269 7500   |
| United States | (800) 829-4444 |

#### Asia Pacific

|           |                |
|-----------|----------------|
| Australia | 1 800 629 485  |
| China     | 800 810 0189   |
| Hong Kong | 800 938 693    |
| India     | 1 800 112 929  |
| Japan     | 0120 (421) 345 |
| Korea     | 080 769 0800   |
| Malaysia  | 1 800 888 848  |
| Singapore | 1 800 375 8100 |
| Taiwan    | 0800 047 866   |
| Thailand  | 1 800 226 008  |

#### Europe & Middle East

|                |                     |
|----------------|---------------------|
| Austria        | 01 36027 71571      |
| Belgium        | 32 (0) 2 404 93 40  |
| Denmark        | 45 70 13 15 15      |
| Finland        | 358 (0) 10 855 2100 |
| France         | 0825 010 700*       |
|                | *0.125€/minute      |
| Germany        | 07031 464 6333      |
| Ireland        | 1890 924 204        |
| Israel         | 972-3-9288-504/544  |
| Italy          | 39 02 92 60 8484    |
| Netherlands    | 31 (0) 20 547 2111  |
| Spain          | 34 (91) 631 3300    |
| Sweden         | 0200-88 22 55       |
| Switzerland    | 0800 80 53 53       |
| United Kingdom | 44 (0) 118 9276201  |

Other European Countries:

[www.agilent.com/find/contactus](http://www.agilent.com/find/contactus)

Revised: October 6, 2008

© Agilent Technologies, Inc. 2009  
Printed in USA, July 29, 2009  
5968-7355EN



Agilent Technologies