

# Keysight E363xA Series Programmable DC Power Supplies

Data Sheet



# Clean and Stable Power with Programmability at an Affordable Price

## Affordable programmable power supplies to meet your needs

The Keysight Technologies, Inc. E363xA Series of programmable DC power supplies gives you the performance of the system power supplies at a decent price. All models provide clean power, excellent regulation and a fast transient response with built-in GPIB and RS-232 interfaces. The E363xA Series is designed to meet the requirements of the most demanding applications in R&D design verifications, production testing, and QA verifications with traditional quality and reliability which you can count on.

## Excellent performance you can trust

With the 0.01% load and line regulation, the E363xA Series can maintain a steady output when power line and load changes occur. The power supplies specify both normal mode voltage/current noise and 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.

## Remote interface

If you have an IEEE-488 card or RS-232 in a PC, these power supplies will work for you. Every model comes equipped with both GPIB and RS-232 as standard. All programming is done in easy-to-use SCPI (Standard Commands for Programmable Instruments). The user's guide describes the process for the first-time programmers.

## Front panel operation

A knob and self-guiding keypads allow you to set the output at your desired resolution quickly and easily. You can store and recall for up to three complete setups using the internal non-volatile memory. The output on/off button sets the output to zero.

## E3631A triple-output power supply

This famous 80-watt triple output supply offers three independent outputs: 0 to 6 V/5A, 0 to +25V/1A and 0 to -25V/1A. The 6 V output is electrically isolated from the  $\pm 25$  V supply to minimize any interference between circuits under test. The  $\pm 25$  V outputs can be set to track each other.

## E3632A/33A/34A single-output dual range power supplies

These single output power supplies give you the flexibility to select from a dual output range. The output load is protected against overvoltage and overcurrent, which are easily monitored and adjusted from the front panel and remote interface. Remote sensing is available to eliminate the errors caused by voltage drops on the load leads. The E3633A/34A offer front and rear output terminals for easy wiring.



## Reliable Power, Repeatable Results

- Single and triple output
- 80 W to 200 W output power
- Dual range output (except E3631A)
- Low noise and excellent regulation
- Remote sensing (except E3631A)
- Front and rear output terminals (E3633A/34A only)
- GPIB and RS-232 standard
- Save and recall functions
- Overvoltage protection, overcurrent protection (except E3631A)

# E3631A/32A/33A/34A Programmable DC Power Supply Specifications

| Model Number  | E3631A   |                         |                         | E3632A                             | E3633A                             | E3634A                             |
|---|--|-------------------------|-------------------------|------------------------------------|------------------------------------|------------------------------------|
|   | 1  | 2                       | 3                       |                                    |                                    |                                    |
| <b>DC output</b><br>Rating (0 to 40 °C)                                     | 0 to +6 V,<br>0 to 5 A   | 0 to +25 V,<br>0 to 1 A | 0 to -25 V,<br>0 to 1 A | 0 to 15 V/7 A or<br>0 to 30 V/4 A  | 0 to 8 V/20 A or<br>0 to 20 V/10 A | 0 to 25 V/7 A or<br>0 to 50 V/ 4 A |
| <b>Load regulation</b><br>± (% of output + offset)                          |  |                         |                         | < 0.01% + 2 mV<br>< 0.01% + 250 µA |                                    |                                    |
| <b>Line regulation</b><br>± (% of output + offset)                          |  |                         |                         | < 0.01% + 2 mV<br>< 0.01% + 250 µA |                                    |                                    |
| <b>Ripple and noise</b> (20 Hz to 20 MHz)                                   |  |                         |                         |                                    |                                    |                                    |
| Normal mode voltage   | < 350 µVrms/2 mVpp   |                         |                         |                                    | < 350 µVrms/3 mVpp                 | < 500 µVrms/ 3 mVpp                |
| Normal mode current   | < 2 mArms  | < 500 µArms             |                         | < 2 mArms                          |                                    |                                    |
| <b>Accuracy<sup>1</sup> 12 months</b> (25 °C + 5 °C), ± (% output + offset) |  |                         |                         |                                    |                                    |                                    |
| Programming   |  |                         |                         |                                    |                                    |                                    |
| Voltage   | 0.1% + 5 mV  | 0.05% + 20 mV           |                         | 0.05% + 10 mV                      |                                    |                                    |
| Current   | 0.2% + 10 mA   | 0.15% + 4 mA            |                         | 0.2% + 10 mA                       |                                    |                                    |
| Readback <sup>2</sup>   |  |                         |                         |                                    |                                    |                                    |
| Voltage   | 0.1% + 5 mV  | 0.05% + 10 mV           |                         | 0.05% + 5 mV                       |                                    |                                    |
| Current   | 0.2% + 10 mA   | 0.15% + 4 mA            |                         | 0.15% + 5 mA                       |                                    |                                    |
| Transient response  | 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 |                         |                         |                                    |                                    |                                    |

## Supplemental Characteristics

| Model Number   | E3631A   |                | E3632A        |  | E3633A        | E3634A   |
|--|--|----------------|---------------|--|---------------|----------|
|  | 1  | 2              | 3             |  |               |          |
| AC input (47 Hz – 63 Hz)   | 100 Vac ±10% (Opt 0E9)/115 Vac ±10% (Std)/230 Vac ±10% (0E3)   |                |               |  |               |          |
| Dimensions   | 213 x mm W x 133 mm H x 348 mm D<br>(8.4 x 5.2 x 13.7 in)  |                |               |  |               |          |
| Weight   | 8.2 kg (18 lbs) net, 11 kg (24 lbs) shipping   |                |               | 9.5 kg (21 lbs) net, 12 kg (26 lbs) shipping             |               |          |
| Warranty   | Three years for E363xA series power supplies<br>Three months for standard shipped accessories  |                |               |  |               |          |
| Product regulation   | Certified to CSA 22.2 No. 231 (for E3631A), No. 1010.1 (for E3632A/33A/34A);<br>conforms to IEC 1010-1; carries CE marks; complies with CISPR-11, Group 1, Class A |                |               |  |               |          |
| Common mode current  | < 1.5 µArms  |                |               |  |               |          |
| Resolution   |  |                |               |  |               |          |
| Program  | 0.5 mV/0.5 mA  | 1.5 mV/0.1 mA  | 1 mV/0.5 mA   | 1 mV/1 mA  | 3 mV/0.5 mA   |          |
| Readback   | 0.5 mV/0.5 mA  | 1.5 mV/0.1 mA  | 0.5 mV/0.1 mA | 0.5 mV/1 mA  | 1.5 mV/0.5 mA |          |
| Meter  | 1 mV/1 mA  | 10 mV/1 mA     | 1 mV/1 mA     | 1 mV/1 mA (< 10A), 10 mA (≥ 10 A)                        |               |          |
| Command processing time <sup>3</sup>                                   | < 50 msec  |                |               | < 100 msec   |               |          |
| OVP/OCP  |  |                |               |  |               |          |
| Accuracy<br>± (% output + offset)                                      | N/A  |                |               | 0.5% + 0.5 V/0.5% + 0.5 A                                |               |          |
| Activation time  | N/A  |                |               | 1.5 msec, OVP ≥3 V/< 10 msec, OVP < 3 V and OCP <10 msec |               |          |
| Temperature coefficient per °C (% output + offset)                     |  |                |               |  |               |          |
| Voltage  | 0.01% + 2 mV   | 0.01% + 3 mV   |               |  |               |          |
| Current  | 0.02% + 3 mA   | 0.02% + 0.5 mA | 0.02% + 3 mA  |  |               |          |
| Stability, constant load & temperature ± (% of output + offset), 8 hrs |  |                |               |  |               |          |
| Voltage  | 0.03% + 1 mV   | 0.02% + 2 mV   | 0.02% + 1 mV  |  |               |          |
| Current  | 0.1% + 3 mA  | 0.05% + 1 mA   | 0.1% + 1 mA   |  |               |          |
| Remote Sense (max.<br>voltage in each load lead)                       | N/A  |                |               | 1 V  | 0.7 V         |          |
| Voltage programming speed, to within 1% of total excursion             |  |                |               |  |               |          |
| Up   | Full load  | 11 msec        | 50 msec       | 50 msec  | 95 msec       | 80 msec  |
|  | No load  | 10 msec        | 20 msec       | 20 msec  | 45 msec       | 100 msec |
| Down   | Full load  | 13 msec        | 45 msec       | 45 msec  | 30 msec       | 30 msec  |
|  | No load  | 200 msec       | 400 msec      | 400 msec   | 450 msec      | 450 msec |

1. Accuracy specifications are valid after a 1-hour warm-up and calibration at 25 °C.
2. Accuracy refers to readback over GPIB and RS-232 or front panel with respect to actual output.
3. Maximum time for output to change after receipt of commands.

## Ordering Information

E3630 Series Power Supplies  
E3631A 80-Watt Triple Power Supply  
E3632A 120-Watt Single Power Supply  
E3633A/34A 200-Watt Single Power Supply

## Standard Shipped Accessories

User's & Service guide, Product  
Reference CD, 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. 0L2 Extra manual sets  
Opt. 1CM Rackmount kit\*  
Opt. UK6 Commercial calibration with test result data  
E3600A-100 Test lead kit

## Rackmount Kits\*

Keysight E3631A/32A/33A/34A  
To rackmount two instruments side-by-side  
    Lock-link Kit (P/N 5061-9694)  
    Flange Kit (P/N 5063-9214)  
To rackmount one or two instruments in a sliding support shelf  
    Support Shelf (P/N 5063-9256)  
    Slide Kit (P/N 1494-0015) required for support shelf

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