

# Keysight U8030 Series Triple-Output DC Power Supplies



# Introduction

## Higher Power. Better Reliability. Unrivalled Performance.

Keysight Technologies, Inc. extends its family of basic DC power supplies to include a one of a kind power supply that offers up to 375 W power at three outputs. Equipped with output sequencing capability, it allows you to generate output sequences even with minimal programming skills. Each power supply is also built with excellent load regulation and clean output noise for continued stability. With these and many other features, you get a solid and reliable triple-output power supply at an unsurpassed performance.

The U8030 series offers two models – the U8031A and U8032A, each with different voltage and current ratings to cater to your needs. Both models are well-regulated compact bench-tops with total output of 375 W, making it an ideal power source alternative in electronics manufacturing, research and development as well as education sector.

### Generate power supply output sequences – No extensive programming skills necessary

The output sequencing capability is carefully thought out for your convenience and ease when operating. Designed to perform automation function, our U8030 series is well-suited even for those with minimal programming skills. With easy-to-use knob and intuitive keypads, you can now set your desired output sequences for margin test, burn-in test and other general purpose tasks in an industrial setting.

### Key Features

- Provides total power of 375 W for three outputs
- Output sequencing capability
- Excellent load and line regulation (CV:  $< 0.01\% + 2 \text{ mV}$ ; CC:  $< 0.02\% + 2 \text{ mA}$ ) ensures stable output
- Provides clean output with  $\leq 1 \text{ mVrms}$  (0.5 mVrms typical) noise
- Fast  $< 50 \mu\text{s}$  transient response for stable testing
- Dual display shows both voltage and current reading
- Over-voltage and over-current protection
- Security features: keypad lock and physical lock mechanism

## Unrivalled performance— with low output noise and excellent load regulation

The U8030 series provides excellent load and line regulation (CV:  $< 0.01\% + 2 \text{ mV}$ ; CC:  $< 0.02\% + 2 \text{ mA}$ ) to ensure stable output even when load changes. This is crucial especially when dealing with noise-sensitive circuits that demand clean power. At a wide bandwidth of 20 Hz to 20 MHz, our bench power supplies continue to provide clean output at the lowest  $V_{\text{rms}} \leq 1 \text{ mV}_{\text{rms}}$  (0.5  $\text{mV}_{\text{rms}}$  typical), leaving your signals uncontaminated and ensuring minimal interference to your Device-Under-Test (DUT).

## Added safety features— with OVP, OCP and physical lock mechanism

Safety is an important consideration when dealing with power. Users may not only want to protect themselves from exposure to current, but also the additional costs incurred to their investment (DUT). Our U8030 series power supplies are integrated with an array of security features such as over-voltage (OVP) and over-current (OCP) protection to mitigate these risks.

Additionally, security features such as keypad locking capability prevents accidental front panel usage while physical lock mechanism which is strategically located at the rear of the unit provides secure instrument storage.

## Differentiated features— allowing you to work better

Both models of the U8030 series come with a set of features to suit your needs while remaining easy to use. The LCD screen displays both voltage and current readings in a one-view panel while the all ON/OFF button allows multiple outputs to be controlled simultaneously. Additionally, the auto-track feature simplifies setup between output 1 and output 2. With these, you get a solid bench power supply plus a set of convenient and easy to use features.



Figure 1. Output sequencing made easy with intuitive keypads



Figure 2. Backlight on/off feature with dual reading (voltage and current) on an LCD display



Figure 3. Simplifies Output 1 and Output 2 setup with tracking feature

## Front Panel Description

Output sequencing function:  
Generates output sequences  
without a PC

LCD display:  
Allows dual reading  
(voltage and current) in one  
display

Backlight On/Off:  
Switches backlight off  
when not needed

Channel control:  
Allows channels to be controlled  
individually/simultaneously (ON/  
OFF)

Essential security features:  
Over-voltage protection (OVP)/  
Over-current protection (OCP),  
keypad lock and physical lock  
mechanism



Physical lock mechanism as illustrated

Rotary knob:  
Allows quick and easy  
voltage and current setting

Keypad lock/unlock:  
Locks front panel to  
prevent accidental  
change

Tracking:  
Auto-tracking between output 1  
and output 2 with single control

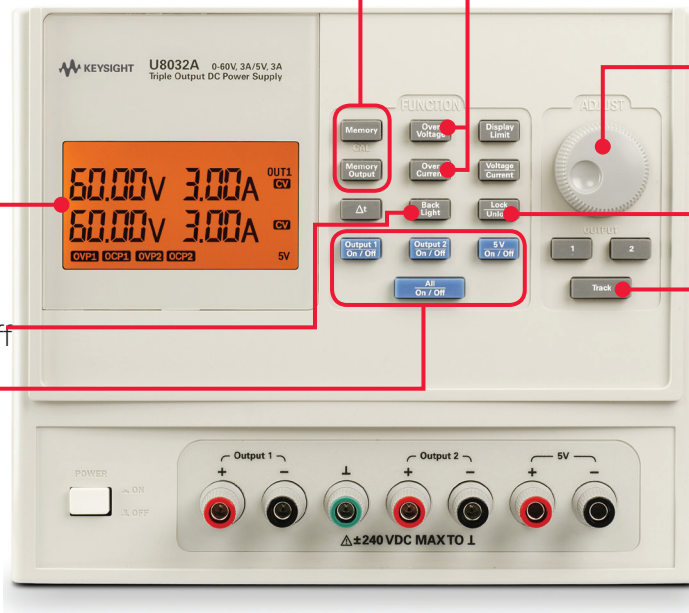


Figure 4. The U8032A as illustrated

# Key Specifications

## Electrical Specifications

Table 1.1 Electrical specifications <sup>1</sup>

| Parameter                                                                                                                                                                                                                                                  | U8031A                                                                                                                                                                                                                                                                                                                   | U8032A    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Total power output (W)                                                                                                                                                                                                                                     | 0 – 375 W                                                                                                                                                                                                                                                                                                                |           |
| Voltage output (V)<br>Output Channel 1 & 2 (@ 0 to 40 °C)                                                                                                                                                                                                  | 0 to 30 V                                                                                                                                                                                                                                                                                                                | 0 to 60 V |
| Current output (A)<br>Output Channel 1 & 2 (@ 0 to 40 °C)                                                                                                                                                                                                  | 0 to 6 A                                                                                                                                                                                                                                                                                                                 | 0 to 3 A  |
| Number of outputs                                                                                                                                                                                                                                          | Three isolated outputs<br>– Two variable: CV and CC operation<br>– One fixed: CV operation only                                                                                                                                                                                                                          |           |
| 5 V fixed output <sup>2</sup><br>Output Channel 3                                                                                                                                                                                                          | – Voltage/Current output: 5 V, 3A<br>– Output accuracy: $\leq 5\%$ or $(5\text{ V} \pm 0.25\text{ V})$<br>– $V_{\text{rms}}$ : $< 2\text{ mV}_{\text{rms}}$ , or $V_{\text{pp}}$ : $< 50\text{ mV}_{\text{pp}}$<br>– Load and line regulation: $\leq 5\text{ mV}$<br>– Overload condition: $3\text{ A} + 20\%$ (typical) |           |
| Line & load regulation<br>(for variable output)                                                                                                                                                                                                            | CV: $< 0.01\% + 2\text{ mV}$<br>CC: $< 0.02\% + 2\text{ mA}$                                                                                                                                                                                                                                                             |           |
| Ripple & noise<br>Based on calculation at temp 18 - 28 °C and<br>bandwidth at 20 Hz to 20 MHz                                                                                                                                                              | CV: $\leq 1\text{ mV}_{\text{rms}}$ , $0.5\text{ mV}_{\text{rms}}$ (typical)<br>or $\leq 10\text{ mV}_{\text{pp}}$ , $5\text{ mV}_{\text{pp}}$ (typical)<br>CC: $\leq 1\text{ mA}_{\text{rms}}$                                                                                                                          |           |
| Load transient response time<br>Within 15 mV from full load to half load<br>and from half load to full load                                                                                                                                                | $< 50\text{ us}$                                                                                                                                                                                                                                                                                                         |           |
| Stability (output drift)<br>Following a 30-minute warm-up, with the output in the ON state<br>according to the operating mode (CC with load or CV), and with a<br>change in the output over 8 hours under constant load, line, and ambient<br>temperature. | Voltage: $< 0.02\%$<br>Current: $< 0.1\%$                                                                                                                                                                                                                                                                                |           |
| Programming accuracy (23 °C $\pm 5$ °C)                                                                                                                                                                                                                    | CV: $\leq 0.25\% + 15\text{ mV}$<br>CC: $\leq 0.30\% + 15\text{ mA}$                                                                                                                                                                                                                                                     |           |
| Meter readback accuracy (23 °C $\pm 5$ °C)                                                                                                                                                                                                                 | CV: $\leq 0.25\% + 10\text{ mV}$<br>CC: $\leq 0.25\% + 10\text{ mA}$                                                                                                                                                                                                                                                     |           |
| Programming/meter resolution                                                                                                                                                                                                                               | Voltage: 10 mV (4 digits)<br>Current: 10 mA (3 digits)                                                                                                                                                                                                                                                                   |           |
| Maximum output float voltage                                                                                                                                                                                                                               | $\pm 240\text{ V}_{\text{dc}}$                                                                                                                                                                                                                                                                                           |           |

1. The specifications stated are based on a 1 hour warm-up period.

2. The specifications referenced in this row are for Output Channel 3 (5 V fixed output). All other specifications listed in this table are intended for Output Channel 1 and 2, unless otherwise stated. .

## Physical characteristics

Table 1.2 Physical characteristics

| Parameter                          | U8031A/U8032A            |
|------------------------------------|--------------------------|
| Display                            | LCD with amber backlight |
| Rotary knob for reading adjustment | Yes                      |
| Size                               | 4U, half rack            |
| Dimensions (H x W x D)             | 179.0 x 212.3 x 379.0 mm |
| Weight                             | 8.2 kg                   |

## Supplemental characteristics

Table 1.3 Supplemental characteristics

| Parameter                                                                                                  | U8031A                                                                                                               | U8032A |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------|
| Temperature coefficient (for 12 months)<br>±(% of output + offset)                                         | Output<br>– CV: (0.01% + 1 mV)/°C<br>– CC: (0.01% + 1 mA)/°C<br><br>OVP, OCP<br>– CV: < 0.05%/°C<br>– CC: < 0.05%/°C |        |
| Output voltage overshoot<br>During turn-on or turn-off of AC power, if output control is set less than 1 V | < 1 V                                                                                                                |        |
| Voltage programming speed to within 1 % of total excursion                                                 | 30 V                                                                                                                 | 60 V   |
| Up                                                                                                         |                                                                                                                      |        |
| Full load                                                                                                  | 80 ms                                                                                                                | 200 ms |
| No load                                                                                                    | 80 ms                                                                                                                | 100 ms |
| Down                                                                                                       |                                                                                                                      |        |
| Full load                                                                                                  | 30 ms                                                                                                                | 30 ms  |
| No load                                                                                                    | 150 ms                                                                                                               | 300 ms |
| Over temperature protection                                                                                | Yes                                                                                                                  |        |
| Last memory setting enabled                                                                                | Yes                                                                                                                  |        |
| Three memory storage locations for voltage and current settings                                            | Yes                                                                                                                  |        |
| Erasing non-volatile memory                                                                                | Yes, erasable through front panel                                                                                    |        |
| Rack mount capability                                                                                      | Yes, front panel and rear have rack-mountable support                                                                |        |

## AC power input specifications

Table 1.4 AC power input specifications

| Parameter                       | U8031A/U8032A                                                                                                              |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Input power option (selectable) | 100 V <sub>ac</sub> ± 10%, 47 to 63 Hz<br>115 V <sub>ac</sub> ± 10%, 47 to 63 Hz<br>230 V <sub>ac</sub> ± 10%, 47 to 63 Hz |
| Maximum input power             | 600 VA                                                                                                                     |
| Fuse                            | External, located at the rear panel                                                                                        |

## Environmental specifications

Table 1.5 Environmental specifications

| Parameter             | U8031A/U8032A                                                  |
|-----------------------|----------------------------------------------------------------|
| Operating temperature | 0 to 40 °C                                                     |
| Storage temperature   | –40 to 70 °C                                                   |
| Humidity              | 15% RH (relative humidity) to 85% RH at 40 °C (non condensing) |
| Altitude              | Up to 2000 m                                                   |
| Fan acoustic noise    | < 60 dB sound power                                            |
| Environment of use    | – Installation category II<br>– Pollution Degree 2             |

## Connection specifications

Table 1.6 Connection specifications

| Parameter          | U8031A/U8032A                                                                                                                                                                                                                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output connections | +Out, –Out, and chassis ground on the front panel.<br>(Either positive or negative output terminal may be grounded or can be operated floating at up to a maximum of 240 V off ground. Total output voltage to ground must not exceed 240 V <sub>dc</sub> .) |
| Binding posts      | Output binding post located horizontally and side by side                                                                                                                                                                                                    |
| I/O connections    | N/A                                                                                                                                                                                                                                                          |
| AC input           | 3 pins standard IEC AC power connector with fuse and line selection at the rear                                                                                                                                                                              |

## Protection Features

Table 1.7 Protection features

| Parameter                                                    | U8031A         | U8032A        |
|--------------------------------------------------------------|----------------|---------------|
| Overvoltage protection accuracy $\pm$ (% of output + offset) | < 0.5% +0.5 V  |               |
| Overvoltage protection programmable range                    | 0.1 to 33.0 V  | 0.1 to 66.0 V |
| Overvoltage protection response time                         | < 10 ms        |               |
| Overcurrent protection accuracy $\pm$ (% of output + offset) | < 0.5% + 0.5 A |               |
| Overcurrent protection programmable range                    | 0.1 to 6.6 A   | 0.1 to 3.3 A  |
| Overcurrent protection response time                         | < 10 ms        |               |

## Ordering Information

### Included documentation:

U8030 Series Product Reference CD-ROM

### Additional documentation:

U8031A-ACF Japanese language user guide, printed  
U8031A-ABA English language user guide, printed  
U8032A-ACF Japanese language user guide, printed  
U8032A-ABA English language user guide, printed

### Calibration document:

U8031A-UK6 Commercial calibration with test result data  
U8032A-UK6 Commercial calibration with test result data

### Other Options:

E3600A-100 Test lead kit  
Option 1CM Rack-mount kit

### Rack-mount kits:

To rack-mount a single instrument:  
Adapter kit (P/N 5063-9245)

Learn more at: [www.keysight.com](http://www.keysight.com)

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