

Keysight Technologies

6670A Series Single-Output, 2000 W DC Power Supplies, GBIP

Data Sheet



Speed and accuracy for test optimization

- Fast, low-noise outputs
- Analog control of output voltage and current
- Fan-speed control to minimize acoustic noise
- Built-in measurements and advanced programmable features
- Protection features to ensure DUT safety



Introduction

This series of 2000 watt DC power supplies has the exceptional, proven reliability that test system engineers look for. It also has the unusual combination of high efficiency and low noise operation.

Programming of the DC output and the extensive protection features can be done either from the front panel or using industry standard SCPI commands, via the GPIB. Using the serial link, up to 16 power supplies can be connected through one GPIB address. Test system integration can be further simplified by using the *VXIplug&play* drivers.

The output voltage and current can also be controlled with analog signals. This is helpful for certain types of noisy environments, and also immediate reactions to process changes.

Lab-bench use is enhanced by the fan-speed control, which minimizes acoustic noise. The extremely low ripple and noise helps the built-in measurement system make extremely accurate current and voltage measurements.

Specifications

| Specifications (at 0 ° to 55 °C unless otherwise specified) | 6671A | 6672A | 6673A | 6674A | 6675A | |
|---|---|--------------|--------------|--------------|--------------|--------|
| Number of outputs | 1 | 1 | 1 | 1 | 1 | |
| GPIB | Yes | Yes | Yes | Yes | Yes | |
| Output ratings | | | | | | |
| Output voltage | 0 to 8 V | 0 to 20 V | 0 to 35 V | 0 to 60 V | 0 to 120 V | |
| Output current | 0 to 220 A | 0 to 100 A | 0 to 60 A | 0 to 35 A | 0 to 18 A | |
| Programming accuracy (at 25 °C ± 5 °C) | | | | | | |
| Voltage | 0.04% + | 8 mV | 20 mV | 35 mV | 60 mV | 120 mV |
| Current | 0.1% + | 125 mA | 60 mA | 40 mA | 25 mA | 12 mA |
| Ripple and noise from 20 Hz to 20 MHz | | | | | | |
| Voltage | rms | 650 μV | 750 μV | 800 μV | 1.25 mV | 1.9 mV |
| | peak-to-peak | 7 mV | 9 mV | 9 mV | 11 mV | 16 mV |
| Current | rms | 200 mA | 100 mA | 40 mA | 25 mA | 12 mA |
| Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed) | | | | | | |
| Voltage | 0.05% + | 12 mV | 30 mV | 50 mV | 90 mV | 180 mV |
| ± Current | 0.1% + | 150 mA | 100 mA | 60 mA | 35 mA | 18 mA |
| Load and line regulation | | | | | | |
| Voltage | 0.002% + | 300 μV | 650 μV | 1.2 mV | 2 mV | 4 mV |
| Current | 0.005% + | 10 mA | 7 mA | 4 mA | 2 mA | 1 mA |
| Transient response time | Less than 900 μs for the output voltage to recover to within 100 mV following a change in load from 100% to 50% or 50% to 100% of the output current rating of the supply | | | | | |

| Supplemental characteristics (Non-warranted characteristics determined by design and useful in applying the product) | 6671A | 6672A | 6673A | 6674A | 6675A |
|--|--------------|--------------|--------------|--------------|--------------|
| Average programming resolution | | | | | |
| Voltage | 2 mV | 5 mV | 10 mV | 15 mV | 30 mV |
| Current | 55 mA | 25 mA | 15 mA | 8.75 mA | 4.5 mA |
| OVP | 15 mV | 35 mV | 65 mV | 100 mV | 215 mV |
| Output voltage programming response time* (excluding command processing time) | 30 ms | 60 ms | 130 ms | 130 ms | 195 ms |

* Full load programming rise/fall time (10% to 90% or 90% to 10%) with full resistive load equal to rated output voltage/rated output current.

Specifications, continued

| Specifications (at 0 ° to 55 °C unless otherwise specified) | 6671A-J03 Special order option | 6671A-J04 Special order option | 6671A-J08 Special order option | 6671A-J17 Special order option | 6672A-J04 Special order option | 6673A-J03 Special order option | |
|---|---|--|--|--|--|--|--------|
| Number of outputs | 1 | 1 | 1 | 1 | 1 | 1 | |
| GPIB | Yes | Yes | Yes | Yes | Yes | Yes | |
| Output ratings | | | | | | | |
| Output voltage | 14 V | 10 V | 3 V | 15 V | 24 V | 37.5 V | |
| Output current | 150 A | 200 A | 300 A | 120 A | 85 A | 45 A | |
| Programming accuracy (at 25 °C ± 5 °C) | | | | | | | |
| Voltage | 0.04% + 14 mV | 10 mV | 4 mV | 15 mV | 25 mV | 37.5 V | |
| Current | 0.1% + 90 mA | 125 mA | 250 mA | 90 mA | 60 mA | 40 A | |
| Ripple and noise from 20 Hz to 20 MHz | | | | | | | |
| Voltage | rms | 1.5 mV | 750 μV | 1 mV | 1.5 mV | 1 mV | 800 μV |
| | peak-to-peak | 15 mV | 9 mV | 25 mV | 15 mV | 11 mV | 9 mV |
| Current | rms | 150 mA | 200 mA | 275 mA | 150 mA | 100 mA | 40 mA |
| Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed) | | | | | | | |
| Voltage | 0.05% + 25 mV | 15 mV | 6 mV | 27 mV | 40 mV | 53.5 mV | |
| ± Current | 0.1% + 110 mA | 150 mA | 250 mA | 110 mA | 100 mA | 60 mA | |
| Load and line regulation | | | | | | | |
| Voltage | 0.002% + 600 μV | 300 μV | 300 μV | 650 μV | 650 μV | 1.2 mV | |
| Current | 0.005% + 7 mA | 10 mA | 15 mA | 7 mA | 7 mA | 4 mA | |
| Transient response time | Less than 900 μs for the output voltage to recover to within 100 mV following a change in load from 100% to 50% or 50% to 100% of the output current rating of the supply | | | | | | |

| Supplemental characteristics (Non-warranted characteristics determined by design and useful in applying the product) | 6671A-J03 Special order option | 6671A-J04 Special order option | 6671A-J08 Special order option | 6671A-J17 Special order option | 6672A-J04 Special order option | 6673A-J03 Special order option |
|--|--|--|--|--|--|--|
| Average programming resolution | | | | | | |
| Voltage | 4 mV | 2.5 mV | 1 mV | 4 mV | 6 mV | 10 mV |
| Current | 40 mA | 55 mA | 75 mA | 35 mA | 22 mA | 15 mA |
| OVP | 28 mV | 20 mV | 8 mV | 30 mV | 42 mV | 65 mV |
| Output voltage programming response time* (excluding command processing time) | 30 ms | 35 ms | 30 ms | 35 ms | 70 ms | 130 ms |

* Full load programming rise/fall time (10% to 90% or 90% to 10%) with full resistive load equal to rated output voltage/rated output current.

Specifications, continued

| Specifications (at 0 ° to 55 °C unless otherwise specified) | 6673A-J08 Special order option | 6674A-J03 Special order option | 6674A-J07 Special order option | 6675A-J04 Special order option | 6675A-J06 Special order option |
|---|---|--|--|--|--|
| Number of outputs | 1 | 1 | 1 | 1 | 1 |
| GPIB | Yes | Yes | Yes | Yes | Yes |
| Output ratings | | | | | |
| Output voltage | 40 V | 56 V | 50 V | 160 V | 135 V |
| Output current | 50 A | 38 A | 42 A | 13 A | 16 A |
| Programming accuracy (at 25 °C ± 5 °C) | | | | | |
| Voltage | 0.04% + | 40 mV | 60 mV | 60 mV | 160 mV |
| Current | 0.1% + | 35 mA | 28 mA | 30 mA | 10 mA |
| Ripple and noise from 20 Hz to 20 MHz | | | | | |
| Voltage | rms | 1 mV | 1.25 mV | 1.25 mV | 2.8 mV |
| | peak-to-peak | 10.5 mV | 11 mV | 11 mV | 20 mV |
| Current | rms | 40 mA | 280 mA | 25 mA | 18 mA |
| Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed) | | | | | |
| Voltage | 0.05% + | 60 mV | 90 mV | 90 mV | 240 mV |
| ± Current | 0.1% + | 60 mA | 38 mA | 42 mA | 14 mA |
| Load and line regulation | | | | | |
| Voltage | 0.002% + | 1.4 mV | 2 mV | 2 mV | 6 mV |
| Current | 0.005% + | 4 mA | 2 mA | 2 mA | 1 mA |
| Transient response time | Less than 900 μs for the output voltage to recover to within 100 mV following a change in load from 100% to 50% or 50% to 100% of the output current rating of the supply | | | | |

| Supplemental characteristics (Non-warranted characteristics determined by design and useful in applying the product) | 6673A-J08 Special order option | 6674A-J03 Special order option | 6674A-J07 Special order option | 6675A-J04 Special order option | 6675A-J06 Special order option |
|--|--|--|--|--|--|
| Average programming resolution | | | | | |
| Voltage | 10.5 mV | 14 mV | 12 mV | 40 mV | 34 mV |
| Current | 12.5 mA | 9.5 mA | 11 mA | 3.25 mA | 4 mA |
| OVP | 75 mV | 100 mV | 85 mV | 300 mV | 242 mV |
| Output voltage programming response time* (excluding command processing time) | 130 ms | 130 ms | 130 ms | 280 ms | 250 ms |

* Full load programming rise/fall time (10% to 90% or 90% to 10%) with full resistive load equal to rated output voltage/rated output current.

Specifications, continued

| Specifications (at 0 ° to 55 °C unless otherwise specified) | 6675A-J07 Special order option | 6675A-J08 Special order option | 6675A-J09 Special order option | 6675A-J11 Special order option |
|---|---|--|--|--|
| Number of outputs | 1 | 1 | 1 | 1 |
| GPIB | Yes | Yes | Yes | Yes |
| Output ratings | | | | |
| Output voltage | 200 V | 100 V | 110 V | 150 V |
| Output current | 11 A | 22 A | 20 A | 15 A |
| Programming accuracy (at 25 °C ± 5 °C) | | | | |
| Voltage | 0.04% + 200 mV | 120 mV | 120 mV | 150 mV |
| Current | 0.1% + 8 mA | 15 mA | 13,5 mA | 11 mA |
| Ripple and noise from 20 Hz to 20 MHz | | | | |
| Voltage | rms 3.5 mV peak-to-peak 25 mV | 1.9 mV 16 mV | 1.9 mV 16 mV | 2.5 mV 18 mV |
| Current | rms 15 mA | 15 mA | 13.5 mA | 12 mA |
| Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed) | | | | |
| Voltage | 0.05% + 300 mV | 180 mV | 180 mV | 225 mV |
| ± Current | 0.1% + 12 mA | 22 mA | 20 mA | 15 mA |
| Load and line regulation | | | | |
| Voltage | 0.002% + 7 mV | 4 mV | 4 mV | 6 mV |
| Current | 0.005% + 1 mA | 4 mA | 4 mA | 1 mA |
| Transient response time | Less than 900 µs for the output voltage to recover to within 100 mV following a change in load from 100% to 50% or 50% to 100% of the output current rating of the supply | | | |

| Supplemental characteristics (Non-warranted characteristics determined by design and useful in applying the product) | 6675A-J07 Special order option | 6675A-J08 Special order option | 6675A-J09 Special order option | 6675A-J11 Special order option |
|--|--|--|--|--|
| Average programming resolution | | | | |
| Voltage | 50 mV | 30 mV | 30 mV | 37.5 mV |
| Current | 2.75 mA | 4.5 mA | 4.5 mA | 3.75 mA |
| OVP | 360 mV | 215 mV | 215 mV | 270 mV |
| Output voltage programming response time* (excluding command processing time) | 350 ms | 195 ms | 195 ms | 250 ms |

* Full load programming rise/fall time (10% to 90% or 90% to 10%) with full resistive load equal to rated output voltage/rated output current.

Supplemental Characteristics for All Model Numbers

DC floating voltage: Output terminals can be floated up to ± 240 VDC from chassis ground

Output common-mode noise current: (to signal ground binding post) 500 μ A rms, 4 mA peak-to-peak

Remote sensing: Up to half the rated output voltage can be dropped in each load lead. The drop in the load leads subtracts from the voltage available for the load.

Command processing time: Average time required for the output voltage to begin to change following receipt of digital data is 20 ms for the power supplies connected directly to the GPIB

Modulation: (Analog programming of output voltage and current)
 Input signal: 0 to -4 V for voltage, 0 to 7 V for current
 Input impedance: 60 k Ω or greater

Input power: 3,800 VA, 2,600 W at full load; 170 W at no load

GPIB interface capabilities: SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, E1, and C0. IEEE-488.2 and SCPI-compatible command set

Software driver:
 - IVI-COM
 - VXIplug&play

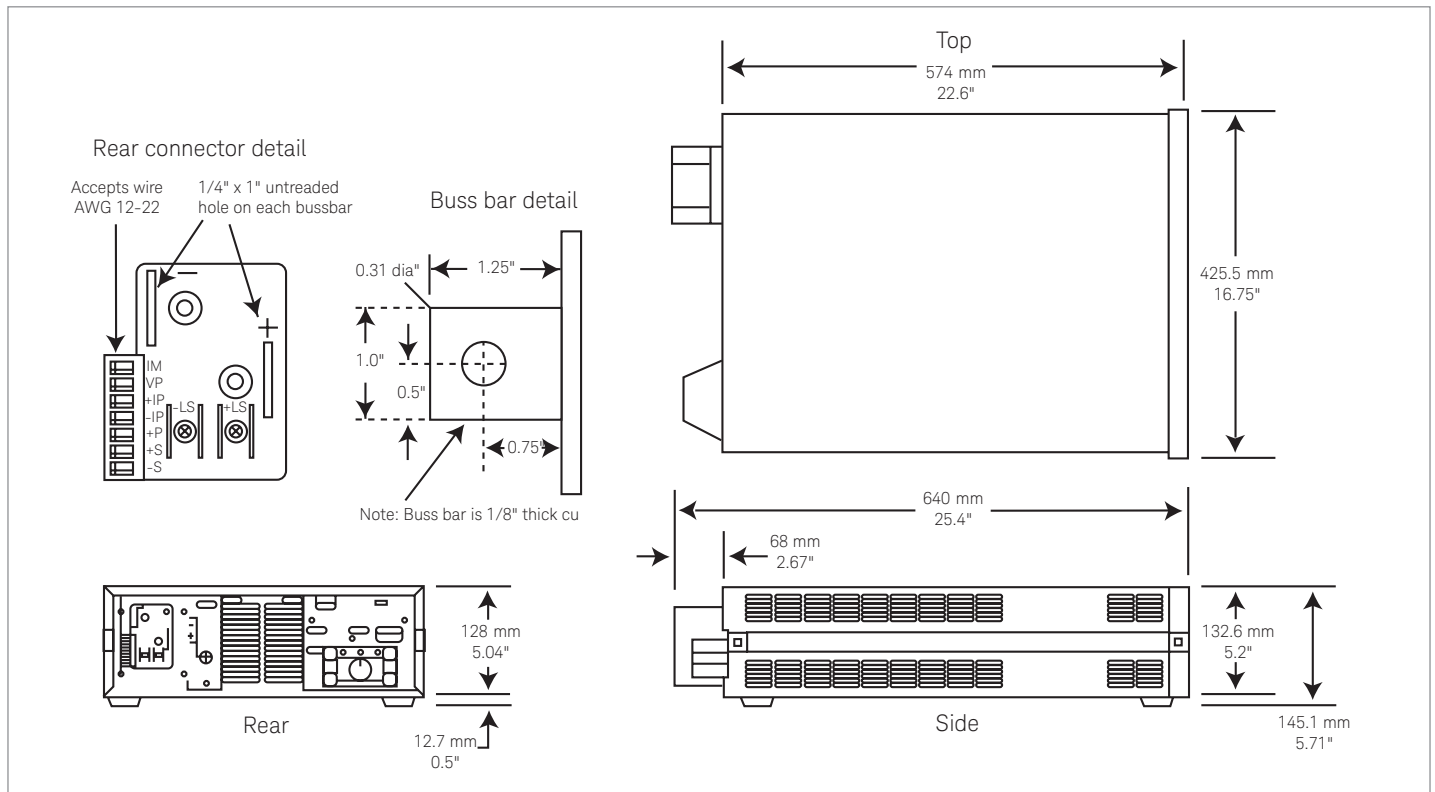
Regulatory compliance: Listed to UL1244; certified to CSA556B; conforms to IEC 61010-1

Size: 425.5 mm W x 132.6 mm H x 640 mm D
 (16.75 in x 5.22 in x 25.2 in)

Weight: Net, 28.2 kg (62 lb); shipping, 31.8 kg (70 lb)

Warranty: One year

Keysight Technologies, Inc. Models: 6671A, 6672A, 6673A, 6674A, 6675A



Ordering Information

The 6670 Series power supplies come with full documentation on CD-ROM. The CD-ROM includes user's guide, programming guide, service manual, quick start guide, and application notes.

Voltage options

| | |
|---------|--|
| Opt 200 | 174 to 220 VAC, 47 to 63 Hz (Japan only) |
| Opt 230 | 191 to 250 VAC, 47 to 63 Hz |

Documentation options

| | |
|---------|---------------------------------------|
| Opt 0L1 | Printed user's and programming guides |
| Opt 0B3 | Printed service manual |
| Opt S50 | Non-latching remote inhibit |

Power cord options

| | |
|---------|---|
| Opt 831 | Power cord, NO PLUG, 12AWG, 3-wire, 8.2 ft |
| Opt 832 | Power cord, Europe, NO PLUG, 4 mm, 3-wire, 2.5 m length |
| Opt 834 | Power cord, Japan, 250V, NO PLUG |
| Opt 842 | Power cord, Europe, IEC309, 32A, 220V/240V PLUG, 4 mm, 3 wire, 2.5 m length |
| Opt 844 | Power cord, Americas, Japan, NEMA L6-30P, 30A, 250V, PLUG, 10AWG, 8 ft |

Accessories

| | |
|----------|--|
| 1CM003A* | Rack mount flange kit 132.6 mm H (3U) – two flange brackets |
| 1CP002A* | Rack mount flange and handle kit 132.6 mm H (3U) – two brackets and front handles |
| E3663AC | Support rails for Keysight rack cabinets |
| | p/n 1494-0059 Accessory slide kit |
| | p/n 1252-3698 7-pin analog plug |
| | p/n 1252-1488 4-pin digital plug |
| | p/n 5080-2148 Serial link cable 2 m (6.6 ft) |

Application Notes

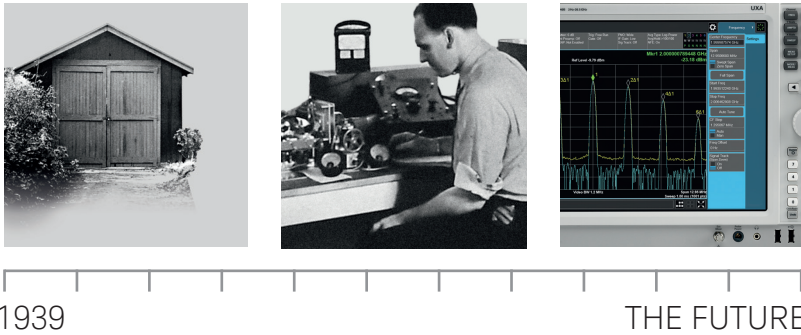
6671A/72A/81A/82A/90A System DC Power Supplies Product Overview, 5988-3050EN

Keysight DC Power Supplies for Base Station Testing, 5988-2386EN

10 Practical Tips You Need to Know About Your Power Products, 5965-8239E

* Support rails required

From Hewlett-Packard through Agilent to Keysight
 For more than 75 years, we've been helping you unlock measurement insights.
 Our unique combination of hardware, software and people can help you reach
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