

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

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
Current		0.1% +	125 mA	60 mA	40 mA	25 mA
Ripple and noise from 20 Hz to 20 MHz						
Voltage		rms	650 µV	750 µV	800 µV	1.25 mV
		peak-to-peak	7 mV	9 mV	9 mV	11 mV
Current		rms	200 mA	100 mA	40 mA	25 mA
Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed)						
Voltage		0.05% +	12 mV	30 mV	50 mV	90 mV
± Current		0.1% +	150 mA	100 mA	60 mA	35 mA
Load and line regulation						
Voltage		0.002% +	300 µV	650 µV	1.2 mV	2 mV
Current		0.005% +	10 mA	7 mA	4 mA	2 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
GPIO	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	37.5 V
Current	0.1% +	90 mA	125 mA	250 mA	90 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
Voltage	peak-to-peak	15 mV	9 mV	25 mV	15 mV	11 mV
Current	rms	150 mA	200 mA	275 mA	150 mA	100 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
± Current	0.1% +	110 mA	150 mA	250 mA	110 mA	100 mA
Load and line regulation						
Voltage	0.002% +	600 µV	300 µV	300 µV	650 µV	650 µV
Current	0.005% +	7 mA	10 mA	15 mA	7 mA	7 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	125 mV
Current	0.1% +	35 mA	28 mA	30 mA	10 mA	12 mA
Ripple and noise from 20 Hz to 20 MHz						
Voltage	rms	1 mV	1.25 mV	1.25 mV	2.8 mV	2 mV
	peak-to-peak	10.5 mV	11 mV	11 mV	20 mV	18 mV
Current	rms	40 mA	280 mA	25 mA	18 mA	12 mA
Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed)						
Voltage	0.05% +	60 mV	90 mV	90 mV	240 mV	185 mV
± Current	0.1% +	60 mA	38 mA	42 mA	14 mA	18 mA
Load and line regulation						
Voltage	0.002% +	1.4 mV	2 mV	2 mV	6 mV	4 mV
Current	0.005% +	4 mA	2 mA	2 mA	1 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)		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
GPIO		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	1.9 mV	1.9 mV	2.5 mV
	peak-to-peak	25 mV	16 mV	16 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

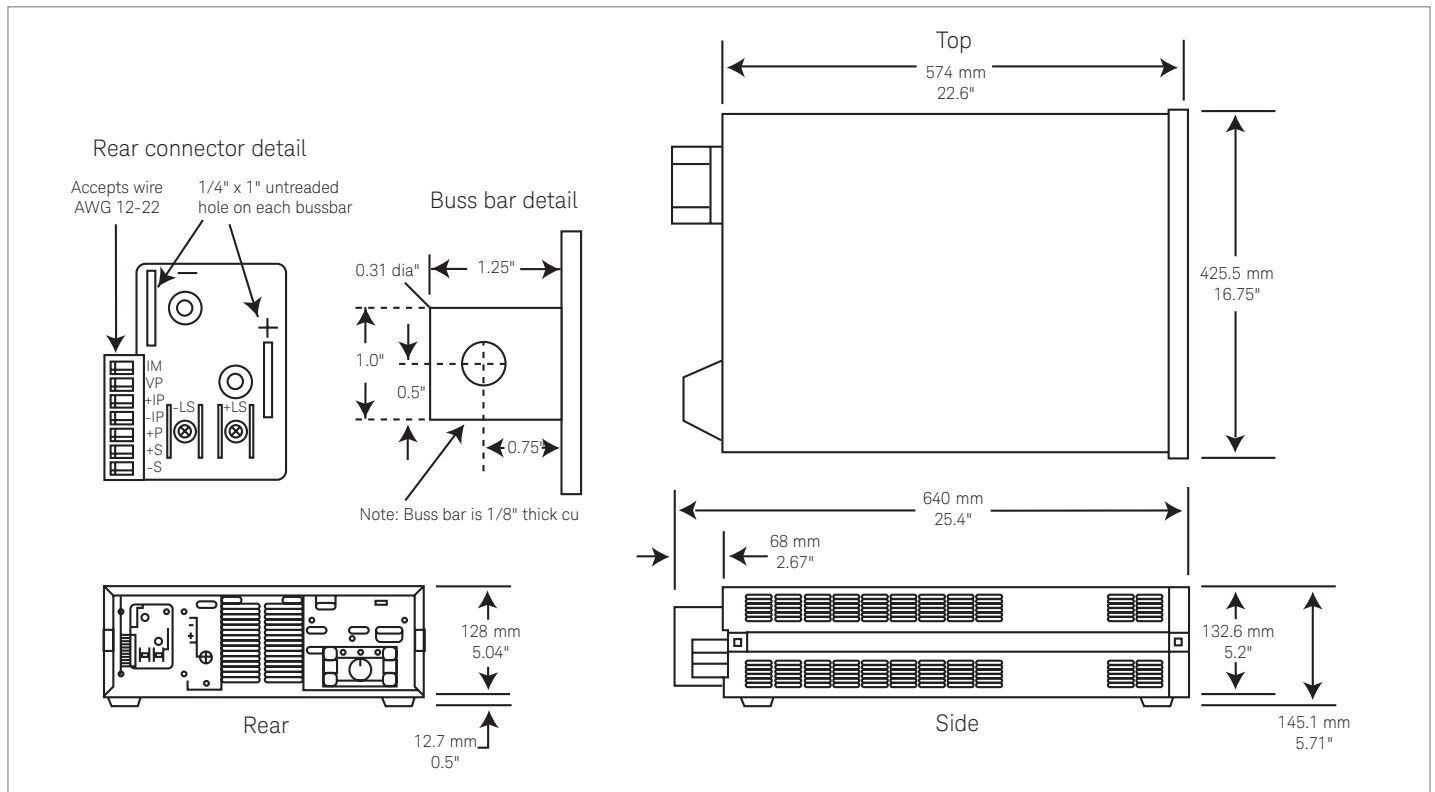
Software driver:
– IVI-COM
– VXIplug&play

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)

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

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

