Keysight Technologies
6680A Series Single-Output, 5000 W DC Power Supplies, GPIB

Data Sheet

Reliable DC power for manufacturing test and long-term burn-in

- Low output ripple and noise
- Selectable compensation for inductive loads
- 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

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Introduction

This series of 5000 watt DC power supplies has the exceptional, proven reliability that test system engineers look for. It also has the features needed for easy test system integration.

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.

The 6680A series has extremely low ripple and noise for a 5000 watt DC power supply. This helps the built-in measurement system make extremely accurate current and voltage measurements.

Selectable compensation is provided for problem-free powering of inductive loads.

Specifications

Specifications (at 0 ° to 55 °C unless otherwise specified)		**6680A**	**6681A**	**6682A**	**6683A**	**6685A**	**6680A-J04** Special order option
Number of outputs		1	1	1	1	1	1
GPIB		Yes	Yes	Yes	Yes	Yes	Yes
Output ratings							
Output voltage		0 to 5 V	0 to 8 V	0 to 21 V	0 to 32 V	0 to 40 V	0 to 3.3 V
Output current		0 to 875 A	0 to 580 A	0 to 240 A	0 to 160 A	0 to 128 A	0 to 1000 A
Programming accuracy (at 25 °C ± 5 °C)							
Voltage	0.04% +	5 mV	8 mV	21 mV	32 mV	40 mV	5 V
Current	0.1% +	450 mA	300 mA	125 mA	85 mA	65 mA	450 A
Ripple and noise constant voltage mode from 20 Hz to 20 MHz							
Voltage	rms	1.5 mV	1.5 mV	1.5 mV	1.0 mV	1.0 mV	3.4 mV
	peak-to-peak	15 mV	10 mV	10 mV	10 mV	10 mV	15 mV
Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed)							
Voltage	0.05% +	7.5 mV	12 mV	32 mV	48 mV	60 mV	7.5 mV
±Current	0.1% +	600 mA	400 mA	165 mA	110 mA	90 mA	600 mA
Load and line regulation							
Voltage	0.002% +	0.19 mV	0.3 mV	0.65 mV	1.1 mV	1.5 mV	0.19 mV
Current	0.005% +	65 mA	40 mA	17 mA	12 mA	9 mA	77 mA
Transient response time		Less than 900 µs for the output voltage to recover to within 150 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)		**6680A**	**6681A**	**6682A**	**6683A**	**6685A**	**6680A-J04** Special order option
Ripple and noise constant voltage mode from 20 Hz to 20 MHz							
Current	rms	290 mA	190 mA	40 mA	28 mA	23 mA	—
Average programming resolution							
Voltage		1.35 mV	2.15 mV	5.7 mV	8.6 mV	10.8 mV	12 mV
Current		235 mA	155 mA	64 mA	43 mA	34 mA	260 mA
OVP		30 mV	45 mV	120 mV	180 mV	225 mV	25 mV
Output voltage programming response time* (excluding command processing time)		9 ms	12 ms	45 ms	60 ms	60 ms	9 ms
Output common-mode noise current							
(to signal-ground binding post)	rms	1.5 mA	1.5 mA	3 mA	3 mA	3 mA	2.0 mA
	peak-to-peak	10 mA	10 mA	20 mA	20 mA	20 mA	12.5 mA

* 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 ± 60 VDC from chassis ground

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 power supplies connected directly to the GPIB.

Modulation: (Analog programming of output voltage and current):
Input signal: 0 to –5 V for voltage, 0 to +5 V for current
Input impedance: 30 kΩ or greater

AC input (47 to 63 Hz):
180 to 235 VAC (line-to-line, 3 phase),
27.7 A rms maximum worst case,
21.4 A rms nominal; 360 to 440 VAC,
14.3 A rms maximum worst case,
10.7 A rms nominal (maximum line current includes 5% unbalanced phase voltage condition.) Output voltage derated 5% at 50 Hz and below 200 VAC

Input power: 7350 VA and 6000 W maximum; 160 W at no load

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

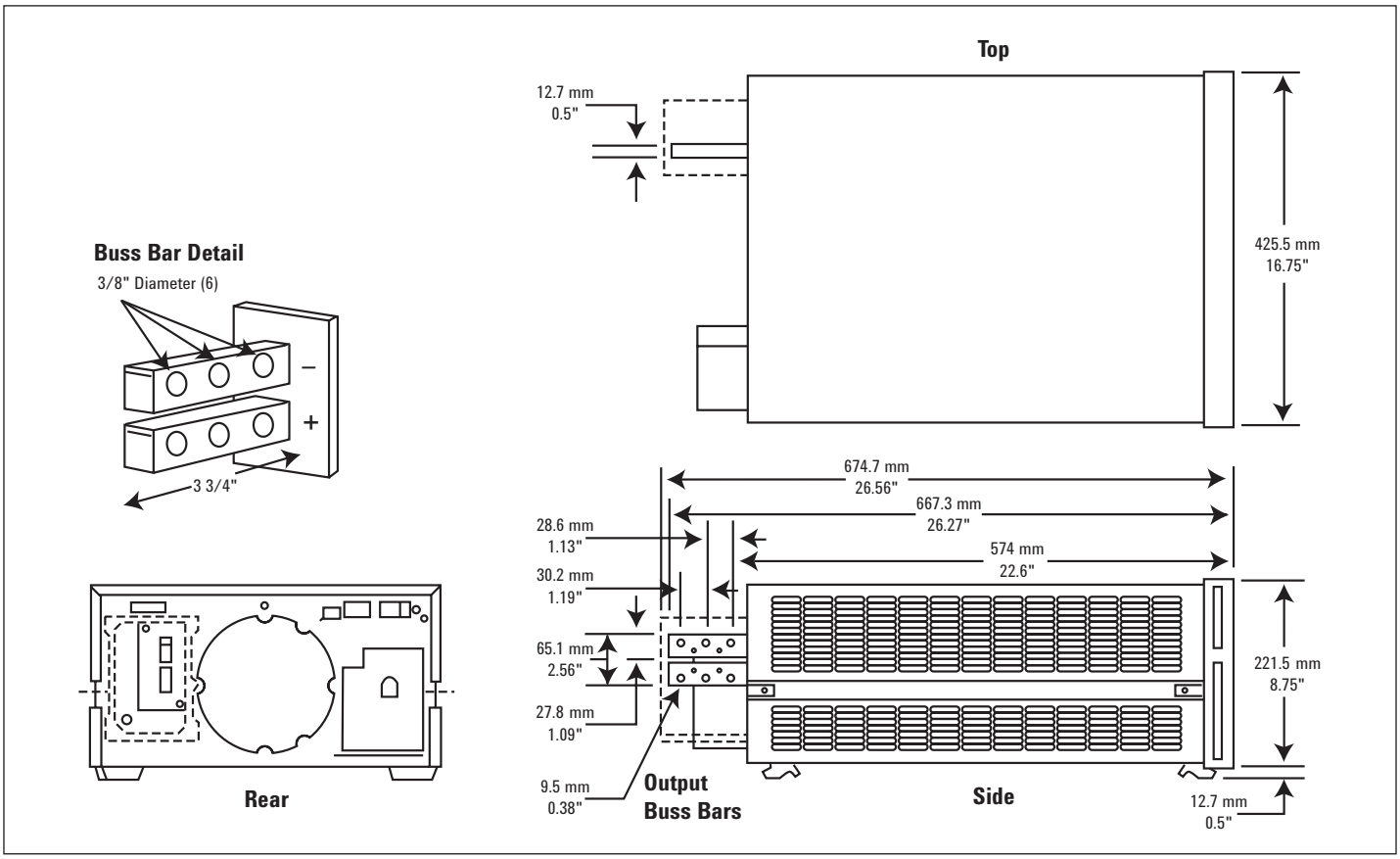
Software driver:
– IVI-COM
– VXIplug&play

Size: 425.5 mm W x 221.5 mm H x 674.7 mm D
(16.75 in x 8.75 in x 25.56 in)

Weight: Net, 51.3 kg (113 lbs); shipping, 63.6 kg (140 lbs)

Warranty: One year

Keysight Technologies, Inc. Models: 6680A, 6681A, 6682A, 6683A, 6684A



Ordering information

The 6680A 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.

Opt 208 180 to 235 VAC, 3 phase, 47 to 63 Hz
Opt 400 360 to 440 VAC, 3 phase, 47 to 63 Hz
Opt 602 Two bus bar spacers for paralleling power supplies (p/n 5060-3514)

Opt 0L1 Printed user's and programming guides
Opt 0B3 Printed service manual

Accessories

1CM028A* Rack mount flange kit 88.1 mm H (3U) and 132.6 mm H (2U) – 4 brackets (5U total)

1CP014A* Double rack mount flange and handle kit 88.1 mm H (2U) and 132.6 mm H (3U)

E3663AC Support rails for Keysight rack cabinets

P/n 5080-2148 Serial link cable 2 m (6.6 ft.)

P/n 5060-3513 Three 30 A replacement fuses for 180 to 235 VAC line

P/n 5060-3512 Three 16 A replacement fuses for 360 to 440 VAC line

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

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