# Keysight Technologies
# Models 6690A-6692A
# System DC Power Supply

Data Sheet

KEYSIGHT TECHNOLOGIES

# Minimize Your Testing Downtime With This Reliable, High Power DC Supply

- Low ripple & noise
- Fast up-and-down programming
- High accuracy current programming and read back
- Industry standard SCPI programming commands
- Analog programming
- Analog monitoring
- Parallel connection for more current output
- Full protection from overcurrent, overvoltage overtemperature
- Remote sense
- Electronic calibration

# You Have Better Things to Worry About Than DC Power.

Will failure of your DC power supply delay your testing?
Will failure of your DC power supply damage your DUT?
Will failure of your DC power supply keep you from meeting your customers' needs?

## The 6690A Series is DC power you can depend on.

At the 6600 watt power level, it's not easy to design a reliable DC power supply. Keysight Technologies, Inc. builds in ruggedness and durability, to meet even the grueling needs of continuous stress testing in harsh environments. During the development phase, Keysight power supplies undergo a battery of environmental tests such as 8-days temperature profile. Other tests include humidity, altitude, shock and vibration, ESD, ac line tests, EMC and RFI. The power supplies are designed with built-in margin so that they can meet their specifications over time, under all conditions, and withstand peak stress.

## Protect your DUT

At these high power levels, you want to protect your expensive DUT. Whether your DUT is a rack of data storage control units, or a base station ready for deployment, it is quite valuable and well worth recovery. The 6690 Series has a wide range of protection features available to protect your DUT from damaging conditions.

- Overvoltage protection
- Overcurrent protection
- Overtemperature protection
- Programmable shut-down
- Error status reporting
- DFI-RI
- External TTL shut-down input
- Linked power supply shutdown

## Easy GPIB programming

All Keysight system power supplies have SCPI (Standard Commands for Programmable Instruments) based command sets. This means that the same function would have the same command for any instrument.  For example, to program the output voltage on two power supplies, the command would be the same, and to measure the output voltage the command would be the same for the Keysight system power supply as any SCPI voltmeter. Using SCPI instruments makes your software simpler and quicker to design.

## Easy system configuration and enhancement

The 6600 watt DC power supplies of the Keysight 6690 Series are the same size as the 5000 watt power supplies of the Keysight 6680 Series. This means that system power can be upgraded without needing more rack space. All programming commands and features are 100% compatible between both series. Also, up to three same model 6690 Series power supplies can be connected in parallel, to provide additional power as your needs expand.

## Manual power supply control

Non-automated testing in R&D, or power for the repair bench in manufacturing, are no problem for the 6690 Series. The front panel has everything that is needed to control both the power supply output and the associated protection features. Both the output voltage and current can be easily monitored on the front panel meters.

## Analog programming and monitoring

Analog signals can be used to program the output voltage and current. This allows custom waveforms to be generated, and is also useful for process control applications. The output current and voltage can be monitored via analog signals on the rear panel, for custom interface applications, and process control implementations.

# Specifications

| Parameter | | | Keysight model number | | |
|---|---|---|---|---|---|
| | | | 6690A | 6691A | 6692A |
| Output ratings | | | | | |
| | Voltage | | 0-15 V | 0-30 V | 0-60 V |
| | Current*<br>*Derated linearly 1%/°C from 40 to 55 °C | | 0-440 A | 0-220 A | 0-110 A |
| Programming accuracy (@ 25 ±5 °C) | | | | | |
| | Voltage | 0.04% + | 15 mV | 30 mV | 60 mV |
| | Current | 0. 1% + | 230 mA | 125 mA | 65 mA |
| Ripple & noise | | | | | |
| | (from 20 Hz to 20 MHz with outputs ungrounded, or with either output terminal grounded) | | | | |
| | Constant Voltage | rms | 2.5 mV | 2.5 mV | 1.5 mV |
| | Constant Voltage | p-p | 15 mV | 25 mV | 25 mV |
| | Constant Current**<br>**With load inductance > 5 µH | rms | 200 mA | 50 mA | 30 mA |
| Readback accuracy | | | | | |
| | (from front panel or over GPIB with respect to actual output @ 25 ±5 °C) | | | | |
| | Voltage | 0.05% + | 22.5 mV | 45 mV | 90 mV |
| | ±Current | 0.1% + | 300 mA | 165 mA | 80 mA |
| Load regulation | | | | | |
| | (change in output voltage or current for any load change within ratings) | | | | |
| | Voltage | 0.002% + | 650 µV | 1.1 mV | 2.2 mV |
| | Current | 0.005% + | 40 mA | 17 mA | 9 mA |
| Line regulation | | | | | |
| | (change in output voltage or current for any line change within ratings) | | | | |
| | Voltage | 0.002% + | 650 µV | 650 µV | 650 µV |
| | Current | 0.005% + | 40 mA | 17 mA | 9 mA |
| Transient response time | | | | | |
| | (for the output voltage to recover to within 150 mV following any step change from 100% to 50% or 50% to 100% of the rated output current): < 900 µs | | | | |

| **Supplemental characteristics** | |
|---|---|
| DC floating voltage | Output terminal 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 at 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):<br>Input signal: 0 to –5 V for voltage, and 0 to +5 V for current.<br>Input impedance: 30 kΩ or greater. |
| AC input (47 to 63 Hz) | 180 to 235 VAC (line-to-line 3 phase) 36 Arms maximum worst case, 28 Arms nominal;<br>360 to 440 VACX, 18 Arms maximum worst case, 14 Arms nominal. (Maximum line current includes 5% unbalanced phase voltage condition). |
| CD ships with | IVI and VXI Plug n Play drivers, Operating, Programming, Service and Quick Start Guides. |
| Input power | 9000 VA and 7950 W maximum; 175 W at no load. |
| Size | 425.5 W x 221.5 H x 674.7 mm D (16.75 x 8.75 x 25.56 in). |

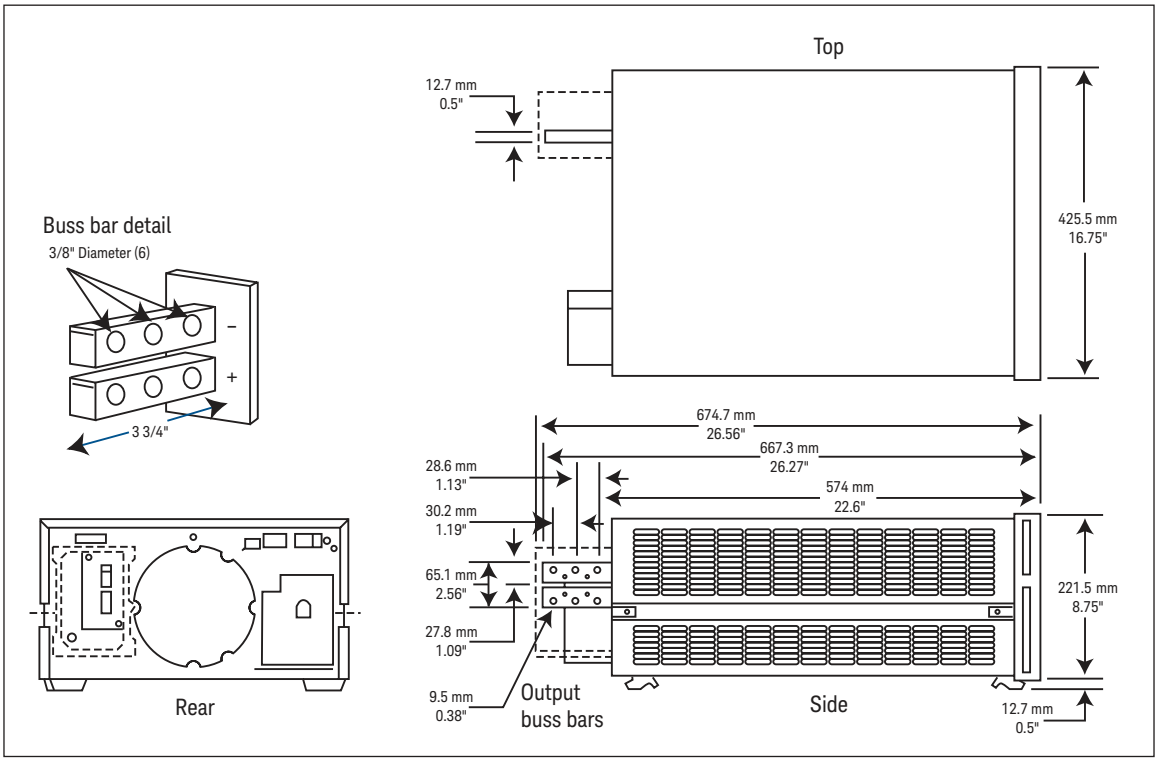
| **Specifications**<br>**(at 0 to 55 °C unless otherwise specified)** | | **6690A** | **6691A** | **6692A** |
|---|---|---|---|---|
| **Supplemental Characteristics**<br>**(Non-warranted characteristics determined by design that are useful in applying this product)** | | | | |
| Ripple and noise constant current mode from 20 Hz to 20 MHz | | | | |
| rms | | 200 mA | 50 mA | 30 mA |
| Average programming resolution | | | | |
| Voltage | | 4.1 mV | 8.1 mV | 16 mV |
| Current | | 118.5 mA | 59 mA | 30 mA |
| OVP | | 90 mV | 170 mV | 330 mV |
| Output voltage programming response time (excludes command-processing time)<br>Full-load programming rise or fall time (10 to 90% or 90 to 10%, resistive load) | | 45 ms | 60 ms | 100 ms |
| Output common-mode noise current (to signal-ground binding post) | rms | 3 mA | 3.5 mA | 4 mA |
| | peak-to-peak | 20 mA | 20 mA | 25 mA |

## Ordering information

| | |
|---|---|
| Option 208 | 180 to 235 VAC, 3 phase, 47 to 63 Hz |
| Option 400 | 360 to 440 VAC, 3 phase, 47 to 63 Hz |
| Option 602 | Two bus bar spacers for paralleling power supplies (p/n 5060-3514) |
| Option 1CM028A | Rackmount flange kit 88.1 mm H (3U) and 132.6 mm H (2U) - 4 brackets (5U total) |
| Option 1CP014A | Double rackmount flange and Handle Kit 88.1 mm H (2U) and 132.6 mm H (3U) |

## Accessories

| | |
|---|---|
| 5065-6935 | Replacement fuse kit for 360-440 VAC line. |
| 5065-6934 | Replacement fuse kit for 180-235 VAC line. |
| E3663AC | Support rails for Keysight rack cabinets. |
| 5080-2148 | Serial link cable 2 m (6.6 ft.) |




Keysight models: 6690A, 6691A, 6692A

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| | |
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