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6640A Series Single-Output, 200 W DC Power Supplies, GPIB

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
- Parallel and series connections of multiple units
- Built-in measurements and advanced programmable features
- Protection features to ensure DUT safety

This series of 200 W linear-regulated DC power supplies is designed to maximize the throughput of DUTs through the manufacturing test process with fast up and down programming time.

Valuable assemblies can be destroyed by a minor component failure that can allow a surge of voltage or current to flow to the DUT. Fast protection features, including fast crowbar, mode crossover protection, and the ability to connect the protection circuitry of multiple power supplies can increase production yield.

Programming of the DC output and the 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 be using the VXI*plug&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 helps to minimize acoustic noise.

Agilent Technologies

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Specifications

Specifications *(at 0 ° to 55 °C unless otherwise specified)*		**6641A**	**6642A**	**6643A**	**6644A**	**6645A**
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 (40°C)		0 to 20 A	0 to 10 A	0 to 6 A	0 to 3.5 A	0 to 1.5 A
Maximum current (50 °C/55 °C)		18 A/17 A	9 A/8.5 A	5.4 A/5.1 A	3.2 A/3 A	1.4 A/1.3 A
Programming accuracy (at 25 °C ± 5 °C)						
Voltage	0.06% +	5 mV	10 mV	15 mV	26 mV	51 mV
Current	0.15% +	26 mA	13 mA	6.7 mA	4.1 mA	1.7 mA
Ripple and noise from 20 Hz to 20 MHz						
Voltage	rms	300 µV	300 µV	400 µV	500 µV	700 µV
	peak-to-peak	3 mV	3 mV	4 mV	5 mV	7 mV
Current	rms	10 mA	5 mA	3 mA	1.5 mA	1 mA
Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed)						
Voltage	0.07% +	6 mV	15 mV	25 mV	40 mV	80 mV
+Current	0.15% +	18 mA	9.1 mA	5 mA	3 mA	1.3 mA
–Current	0.35% +	40 mA	20 mA	12 mA	6.8 mA	2.9 mA
Load regulation						
Voltage		1 mV	2 mV	3 mV	4 mV	5 mV
Current		1 mA	0.5 mA	0.25 mA	0.25 mA	0.25 mA
Line regulation						
Voltage		0.5 mV	0.5 mV	1 mV	1 mV	2 mV
Current		1 mA	0.5 mA	0.25 mA	0.25 mA	0.25 mA

Transient response time

Less than 100 µs for the output voltage to recover to its previous level (within 0.1% of the voltage rating of the supply or 20 mV, whichever is greater) following any step change in load current of up to 50% of the output current rating of the supply

Supplemental characteristics *(Non-warranted characteristics determined by design and useful in applying the product)*	**6641A**	**6642A**	**6643A**	**6644A**	**6645A**
Average programming resolution					
Voltage	2 mV	5 mV	10 mV	15 mV	30 mV
Current	6 mA	3 mA	2 mA	1.2 mA	0.5 mA
OVP	13 mV	30 mV	54 mV	93 mV	190 mV
OVP accuracy	160 mV	400 mV	700 mV	1.2 V	2.4 V

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Specifications, continued

Specifications *(at 0 ° to 55 °C unless otherwise specified)*	**6641A-J04** Special order option	**6643A-J11** Special order option	**6644A-J09** Special order option	**6645A-J05** Special order option	**6645A-J06** Special order option
Number of outputs	1	1	1	1	1
GPIB	Yes	Yes	Yes	Yes	Yes
Output ratings					
Output voltage	13 V	40 V	70 V	150 V	170 V
Output current (40 °C)	15.3 A	5 A	3 A	1.2 A	1 A
Maximum current (50 °C/55 °C)	13.77 A/13 A	4.5 A/4.25 A	2.7 A/2.55 A	1.08 A/1.02 A	0.9 A/0.85 A
Programming accuracy (at 25 °C ± 5 °C)					
Voltage 0.06% +	8.5 mV	17.5 mV	31 mV	65 mV	74 mV
Current 0.15% +	21 mA	6.7 mA	4.1 mA	1.7 mA	1.7 mA
Ripple and noise from 20 Hz to 20 MHz					
Voltage rms	300 µV	450 µV	600 µV	900 µV	1 mV
peak-to-peak	3 mV	3.5 mV	6 mV	9 mV	10 mV
Current rms	8 mA	53 mA	1.5 mA	1 mA	1 mA
Readback accuracy at 25 °C ± 5 °C (percent of reading plus fixed)					
Voltage 0.07% +	10 mV	30 mV	47 mV	100 mV	140 mV
+Current 0.15% +	15 mA	5 mA	3 mA	1.3 mA	1.3 mA
–Current 0.35% +	40 mA	12 mA	6.8 mA	2.9 mA	2.9 mA
Load regulation					
Voltage	1 mV	3 mV	4.5 mV	7 mV	8 mV
Current	1 mA	0.25 mA	0.25 mA	0.25 mA	0.25 mA
Line regulation					
Voltage	0.5 mV	1 mV	1.5 mV	2.5 mV	3 mV
Current	1 mA	0.25 mA	0.25 mA	0.25 mA	0.25 mA

Transient response time

Less than 100 µs for the output voltage to recover to its previous level (within 0.1% of the voltage rating of the supply or 20 mV, whichever is greater) following any step change in load current of up to 50% of the output current rating of the supply

Supplemental characteristics *(Non-warranted characteristics determined by design and useful in applying the product)*	**6641A-J04** Special order option	**6643A-J11** Special order option	**6644A-J09** Special order option	**6645A-J05** Special order option	**6645A-J06** Special order option
Average programming resolution					
Voltage	3.5 mV	12 mV	1.4 mV	37.5 mV	42.5 mV
Current	5 mA	2 mA	1.2 mA	0.5 mA	0.5 mA
OVP	23 mV	62 mV	110 mV	250 mV	285 mV
OVP accuracy	260 mV	800 mV	1.5 mV	3 V	3.4 V

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Supplemental characteristics for all model numbers

DC floating voltage: Output terminals can be floated up to ± 240 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 the power supplies connected directly to the GPIB

Output programming response time: The rise and fall time (10/90% and 90/10%) of the output voltage is less than 15 ms. The output voltage change settles within 1 LSB (0.025% x rated voltage) of final value in less than 60 ms.

Down programming: An active down programmer sinks approximately 20% of the rated output current

Modulation: (Analog programming of output voltage and current)
Input Signal: 0 to –5 V
Input Impedance: 10 kΩ nominal

AC input:
(AC input frequency 47 to 63 Hz)

Voltage	100 VAC	120 VAC	220 VAC	240 VAC
Current	4.4 A	3.8 A	2.2 A	2.0 A

InpInput power: 480 VA, 400 W at full load; 60 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
• VXI*plug&play*

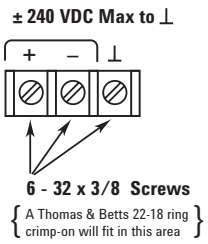
Regulatory compliance: Conforms to UL 1244 and IEC61010-1.

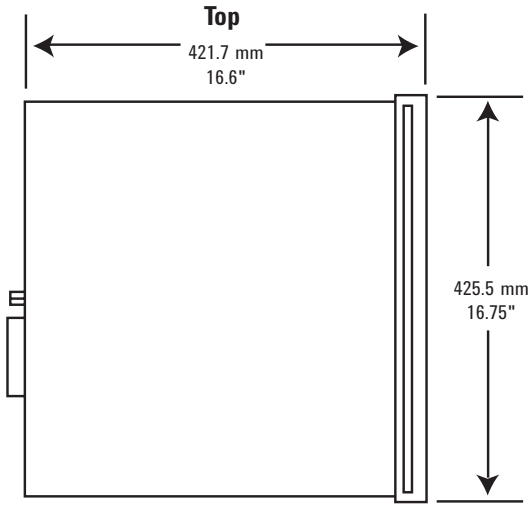
Size:
425.5 mm W x 88.1 mm H x 439 mm D
(16.75 in x 3.5 in x 17.3 in)

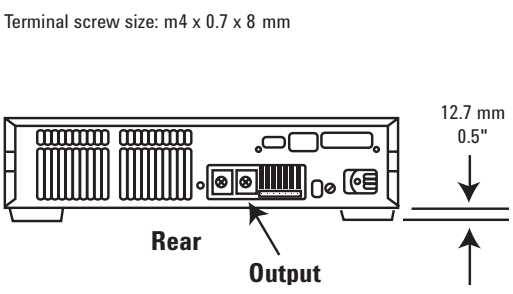
Weight: Net, 14.2 kg (31.4 lb); shipping, 16.3 kg (36 lb)

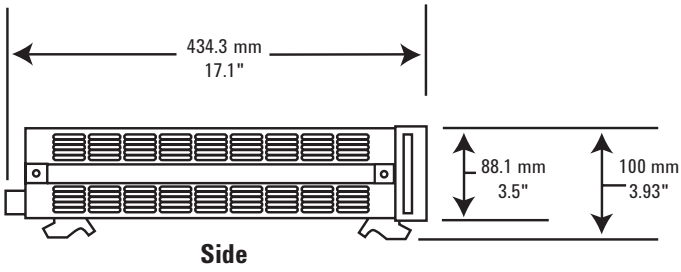
Warranty: One year

Agilent models: 6641A, 6642A, 6643A, 6644A, 6645A









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Ordering information

Opt 100 87 to 106 VAC, 47 to 63 Hz
Opt 120 104 to 127 VAC, 47 to 63 Hz
Opt 220 191 to 233 VAC, 47 to 63 Hz
Opt 240 209 to 250 VAC, 47 to 63 Hz

Opt 0L1 Full documentation on CD-ROM and printed user's and programming guides. CD-ROM includes user's guide, programming guide, service manual, and quick start guide

Accessories

1CM002A* Rack mount flange kit 88.1 mm H (2U), 1.75 inch hole spacing, two flange brackets
1CP001A* Rack mount flange and handle kit 88.1 mm H (2U) – two brackets and front handles
E3663AC Support rails for Agilent rack cabinets
p/n 1494-0060 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

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

10 Hints for Using Your Power Supply to Decrease Test Time, 5968-6359E

Understanding Linear Power Supply Operation (AN1554), 5989-2291EN

Modern Connectivity–Using USB and LAN I/O Converters (AN 1475-1) 5989-0123EN

* Support rails required

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	*0.125 €/minute
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Spain	34 (91) 631 3300
Sweden	0200-88 22 55
United Kingdom	44 (0) 118 927 6201

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Revised: January 6, 2012

Product specifications and descriptions in this document subject to change without notice.

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Published in USA, February 14, 2012
5990-9304EN

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