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# Agilent Power Products

## Selection Guide

A guide to power product solutions to match your test and measurement needs

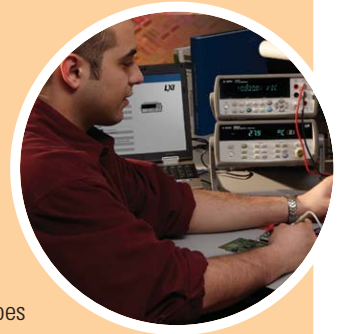


## Introduction

### **No surprises from Agilent –**

*delivering high-quality power products for more than 40 years.*

**Since power supplies** are used in such a wide variety of applications, Agilent offers a full line of DC and AC power supplies to meet your test requirements. Our family starts with high-value basic power supplies and goes up to high-performance products. In addition, we have specialty power supplies and three modular power supplies to give you the flexibility you need in test system development. For whatever application or industry you work in, Agilent power supplies offer excellent performance and high reliability to give you confidence when making your power supply purchase. Because Agilent knows how to make power supplies.



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## Power Supply Categories



### Basic

Affordable, quiet and stable power supplies for both manual and simple computer-controlled operation. The Agilent line of basic power supplies is optimized to provide DC power in applications where speed and accuracy are a low consideration. These power supplies are a high-value fit for the bench and in a system rack.

### Performance

Speed, accuracy and advanced programming features make the performance power supplies the right choice when the DC power supply is a factor in test performance. With features such as DUT protection, fast programming times and downloadable V and I sequences, these DC power supplies can reduce your risk during test and system development.

### Specialty

Sometimes it is best to have a power supply with unique capabilities that are tailored to a specific application. For example, the Agilent 66300 Mobile Communications DC Sources are designed to emulate the unique characteristics of a battery for mobile device testing and maintain those characteristics even when using long load leads, such as in an ATE system. The Agilent E4360 Solar Array Simulator simulates solar panel I-V characteristics for satellite development and testing.

### Modular

Agilent offers fully programmable power supplies in a modular format: the N6700 low-profile modular power system, N6705B DC power analyzer, and 66000 modular power system series. With this feature, you now have an extensive choice of power options—from basic through performance. Additionally, all modules interact in the same way at a single interface node, which simplifies system architecture and reduces cost when the test system inevitably changes.

### AC Sources

Agilent provides AC power products that provide precise power, accurate measurements, and efficient analysis for AC power applications. These one-box solutions are offered in a variety of power levels to help you test a variety of AC-powered devices.

### DC Electronic Loads

Electronic loads sink current and dissipate power in an accurate and controlled manner. Connected to circuit under test, an electronic load provides a convenient way to vary the load on the circuit's output in order to understand the circuit's performance. Agilent offers two families of electronic loads—a single output family and a modular, multiple output family.

# Selecting the Right DC Power Supply For Your Application

When you need just a **basic power supply**, it's quite easy to pick the right one based on your voltage and current requirements. The voltage and current tables are found on pages 8 – 9. From there you can go to the product page(s) for more detail.

When you have **specialized requirements** that need features such as source and measure, it is quite easy to select from a set of power supplies that are designed exactly for those requirements. Refer to page 19 for specialty power products.

But when you have **more complex requirements** and you know the power supply is an important part of your test bench, where do you start and what do you need to consider?

Of course you need to select the right voltage and current, but there are other factors to consider when selecting a DC power supply for your applications. This guide gives a definition of the feature, states why it's important, and tells you how to use that feature when specifying the right power supply. In addition, the product families are listed so you can quickly see which product best fits your application. With that information, you can go to the product pages for detailed specifications.

**Use the following information to help select the features you need in a DC power supply. Then go to the product page(s) for more detail.**

## OUTPUT CHARACTERISTICS

### RIPPLE AND NOISE

*Use the ripple and noise specification to determine what, if any, affects these variations will have on your circuit or device.*

	<b>LOW ripple and noise &lt;10 mVp-p</b>	<b>MEDIUM ripple and noise 5–500 mVp-p</b>
Ideally, an output is free from any variations in voltage. In practice, there are periodic variations, called ripple, and random variations, called noise. Typically specified as either $V_{rms}$ or $V_{p-p}$ , the most useful spec is $V_{p-p}$ . With $V_{p-p}$ you will know the maximum variation away from the DC setpoint.	<b>E3600 series</b> <small>p10</small> <b>U8031A-32A</b> <small>p10</small> <b>6541A-55A</b> <small>p12</small> <b>6611C-55A</b> <small>p12</small> <b>66309B-32A</b> <small>p22</small> <b>N6751A-66A</b> <small>p14</small> <b>N6781A-84A</b> <small>p19,25</small>	<b>6671A-92A</b> <small>p12</small> <b>66101A-06A</b> <small>p16</small> <b>N5700 Series</b> <small>p13</small> <b>N8700 Series</b> <small>p13</small> <b>N6731B-46B</b> <small>p14</small> <b>N6773A-77A</b> <small>p14</small> <b>U8001A-02A</b> <small>p10</small>

### PROGRAMMING ACCURACY

*Use programming accuracy to determine if the power supply can produce a voltage and current within the precision needed by your device.*

	<b>HIGH accuracy &lt;0.03%</b>	<b>MEDIUM accuracy &gt;0.05%</b>
Programming accuracy is a measure of how closely the output will be to the setpoint. Specified as a percent of output plus an offset, you can calculate whether or not the power supply has the precision required. In addition, many power supplies have built-in voltmeters and ammeters to measure its output.	<b>6620 Series</b> <small>p12</small> <b>N6751A-66A</b> <small>p14</small> <b>N6781A-82A</b> <small>p19</small> <b>N6784A</b> <small>p19</small>	<b>6600 Series</b> <small>p12</small> <b>66100 Series</b> <small>p16</small> <b>66300 Series</b> <small>p22</small> <b>E3600 Series</b> <small>p10</small> <b>N5700 Series</b> <small>p13</small> <b>N8700 Series</b> <small>p13</small> <b>N6731B-46B</b> <small>p14</small> <b>N6773A-77A</b> <small>p14</small> <b>N6783A</b> <small>p25</small> <b>U8000 Series</b> <small>p10</small>

OUTPUT CHARACTERISTICS CONTINUED

OUTPUT RESPONSE

Use this specification to select the power supply that is fast enough for your application.

	FAST output response <15 ms	MEDIUM output response <200 ms
When the setpoint changes it will take some time before the output reaches the setting. How fast it reaches the setpoint is a result of its regulation design and the output bandwidth. The specifications are typically for a voltage change from 10% to 90% of its rated output or a load change of 50% to 100%.	<b>6610A-55A</b> p12 <b>66300 Series</b> p22 <b>N6751A-66A</b> p14 <b>N6781A-84A</b> p19, 25	<b>6671A-92A</b> p12 <b>66100 Series</b> p16 <b>E3600 Series</b> p10 <b>N5700 Series</b> p13 <b>N8700 Series</b> p13 <b>N6731B-46B</b> p14 <b>N6773-77A</b> p14 <b>U8000 Series</b> p10

CONTROL

COMPUTER INTERFACE

Specify power supplies with the appropriate hardware and software interface for computer control.

	Manual only	Computer and manual control
Many DC power supplies have both manual and computer control. Some are only manually controlled. Hardware interfaces for DC power supplies include GPIB, USB, and LAN (LXI-C). Software interfaces include the SCPI language and drivers such as IVI-C, IVI-COM, and VXiplug&play.	<b>6500 Series</b> p12 <b>U8000 Series</b> p10 <b>E3610A-30A</b> p10	<b>All others</b>

ANALOG VOLTAGE CONTROL SIGNAL

Specify a power supply with an analog input whenever you need to amplify the power or need to track an analog voltage.

	WITH analog input	WITHOUT analog input
Some power supplies provide an analog voltage control input to cause the voltage output to follow this input. Essentially, it amplifies the power since the power supply can provide current up to its rated maximum.	<b>6540 Series</b> p12 <b>6550 Series</b> p12 <b>6640 Series</b> p12 <b>6650 Series</b> p12 <b>N5700 Series</b> p13 <b>N8700 Series</b> p13	<b>All others</b>

OUTPUT MEASUREMENTS

MEASURE V & I OUTPUT

Specify power supplies with built-in measurements whenever you need to check the actual voltage and current.

	Built-in measurement
Many power supplies have a built in voltmeter and ammeter to read back their own output. The measurements can be displayed on the front panel or queried by a computer connected to the interface. These measurements are particularly useful in computer-controlled systems. Measurement (or read back) accuracy is specified as a percent of full scale plus an offset.	<b>All models</b>

## PACKAGING

### PHYSICAL SIZE

*Use the size specification to match bench or system use.*

	HALF rack	FULL rack
Agilent power supplies have standard EIA 19-inch rack dimensions. The width is either half rack width or full rack width while the height ranges from 1U to 5U (1.75 in to 8.57 in). While any size can be used on the bench or in a system rack, the half rack width is generally better for bench applications while the full rack width works well in system racks. Of special note is the 1U height of the N5700 and N6700 Series.	<b>E3600 Series</b> p10 <b>6611C-14C</b> p12 <b>66300 Series</b> p22 <b>U8000 Series</b> p10	All others

### FRONT OR REAR OUTPUT TERMINALS

*Select the model with its output terminals in the best location for your application on either the bench or in a system rack.*

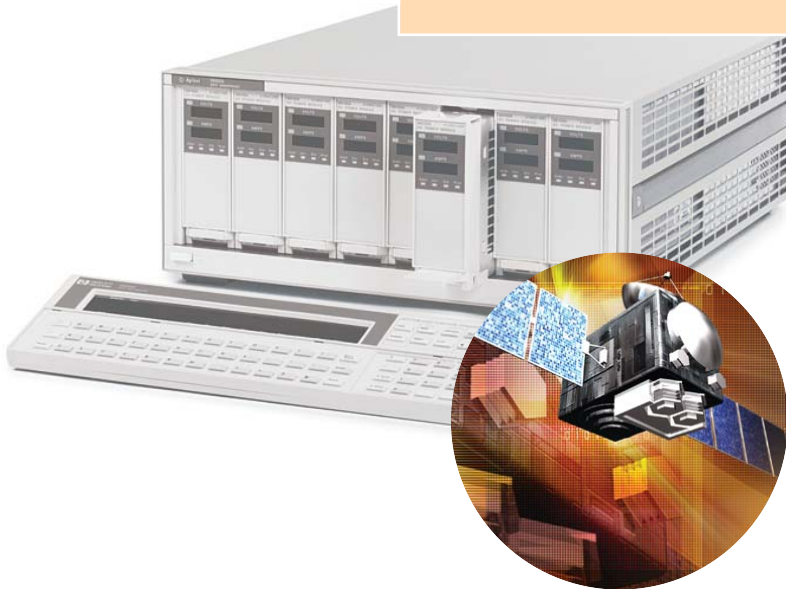
	FRONT terminals	REAR terminals
The output terminals can be located on the front of the power supply or the rear. System and high-current power supplies have their outputs located on the rear panel while bench and some low current power supplies have outputs on the front.	<b>E3620A-31A</b> p10 <b>U8000 Series</b> p10 <b>6611C-14C</b> p12 <b>N6705B</b> p15	All others

### NUMBER OF OUTPUTS

*Specify multiple outputs per unit when you need to save space on the bench or in a system rack.*

	SINGLE outputs	MULTIPLE outputs
Agilent power supplies are configured with 1 to 8 outputs per unit. Multiple output power supplies can save space on the bench or in a rack. Of special note are the 66000 and N6700 modular mainframes that can hold up to 8 and 4 modules respectively.	All others	<b>E3620-31A</b> p10 <b>E3646A-49A</b> p10 <b>U8031A-32A</b> p10 <b>E4360 mfr</b> p27 <b>N6700 mfr</b> p14 <b>66000 mfr</b> p16 <b>66300 Series</b> p22 <b>6620 Series</b> p12

*mfr = mainframes for the E4360, N6700 and 66000 modular power supplies*



## SPECIALTY

### DUT PROTECTION

Select power supplies with DUT protection whenever your load may be damaged by over voltage or over current.

	WITH DUT protection	WITHOUT DUT protection
Many power supplies can be set for a maximum voltage and current to protect the device under test (DUT). When set, the power supply will limit the voltage and/or current regardless of the load. This feature provides a margin of safety when something goes wrong.	All others	E3610A-12A, E3620A-31A <small>p10</small>

### POWER ARBITRARY WAVEFORMS

Select power supplies with a LIST feature whenever your device requires the power input to change over time.

	WITH LIST memory	WITHOUT LIST memory
To produce an output that changes over time, some power supplies have a built-in memory that can be pre-programmed with a list of set-points. This eliminates a step-by-step interaction between the host computer and the power supply while simplifying the test program.	E4360 Series <small>p27</small> N6705B <small>p15</small> N6700 Series <small>p14</small> 66000 Series <small>p16</small>	All others

### OUTPUT DISCONNECT OR POLARITY REVERSAL

Select power supplies with optional output relays when your application requires power to be physically disconnected from the device.

	WITH optional relays	WITHOUT optional relays
Automatic connect, disconnect, and polarity reversal can be accomplished with programmable output relays. By doing so, you will eliminate an external relay and have an easy method to programmatically actuate the relay.	N6700 Series <small>p14</small> 66000 Series <small>p16</small> 66300 Series <small>p22</small> 6630 Series <small>p12</small>	All others



# DC Voltage and Current At a Glance

Voltage ranges: 5 V to 40 V					
Model numbers	Page	Outputs	5 to 8 V	12 to 20 V	21 to 40 V
6611C-14C	12	1	0-8 V, 5 A (6611C)	0-20 V, 2 A (6612C)	
6621A-24A, 6627A	12	2 to 4	0-7 V, 5 A or 0-20 V, 2 A	0-7 V, 10 A or 0-20 V, 4 A	0-20 V, 2 A or 0-50 V, 0.8 A
6625A-26A, 6628A-29A	12	2 to 4	0-7 V, 15 mA or 0-50 V, 500 mA	0-16 V, 200 mA or 0-50 V, 1 A	
6631B-34B	12	1	0-8 V, 10 A (6631B)	0-20 V, 5 A (6632B)	
6541A-45A and 6641A-45A	12	1	0-8 V, 20 A (65/6641A)	0-20 V, 10 A (65/6642A)	0-35 V, 6 A (65/6643A)
6551A-55A and 6651A-55A	12	1	0-8 V, 50 A (65/6651A)	0-20 V, 25 A (65/6652A)	0-35 V, 15 A (65/6653A)
6571A-75A and 6671A-75A	12	1	0-8 V, 220 A (65/6671A)	0-20 V, 100 A (65/6672A)	0-35 V, 60 A (65/6673A)
6680A-84A	12	1	0-5 V, 875 A (6680A) 0-8 V, 580 A (6681A)	0-21 V, 240 A (6682A)	0-32 V, 160 A (6683A) 0-40 V, 128 A (6684A)
6690A-92A	12	1		0-15 V, 440 A (6690A)	0-30 V, 220 A (6691A)
66001A-6A	16	1 to 8*	0-8 V, 16 A (66601A)	0-20 V, 7.5 A (66602A) 0-20, 5 A (66603A)	0-35, 4.5 A (66603A)
66309B-32A	22	1 to 2		0-15 V, 3 A (all 663xx)	
E3610A-12A	10	1	0-8 V, 3 A (E3610A)	0-15 V, 2 A (E3610A) 0-20 V, 1.5 A (E3611A)	0-35 V, 0.85 A (E3611A)
E3614A-17A	10	1	0-8 V, 6 A (E3614A)	0-20 V, 3 A (E3615A)	0-35 V, 1.7 A (E3616A)
E3620A	10	2			0-25 V, 1 A (E3620A x2)
E3630A-31A	10	3	0-6 V, 2.5 (E3630A x1) 0-6 V, 5 A (E3631A x1)	0-±20 V, 0.5 A (E3630A x2)	0-±25 V, 1 A (E3631A x2)
E3632A-34A **	10	1	0-8 V, 20 A (E3633A r1)	0-15 V, 7 A (E3632A r1) 0-20 V, 10 A (E3633A r2)	0-30 V, 4 A (E3632A r2) 0-25 V, 7 A (E3634A r1)
E3640A-45A **	10	1	0-8 V, 3 A (E3640A r1) 0-8 V, 5 A (E3642A r1) 0-8 V, 8 A (E3644A r1)	0-20 V, 1.5 A (E3640A r2) 0-20 V, 2.5 A (E3642A r2) 0-20 V, 4 A (E3644A r2)	0-35 V, 0.8 A (E3641A r1) 0-35 V, 1.4 A (E3643A r1) 0-35 V, 2.2 A (E3645A r1)
E3646A-49A **	10	2	0-8 V, 3 A (E3646A r1) 0-8 V, 5 A (E3648A r1)	0-20 V, 1.5 A (E3646A r2) 0-20 V, 2.5 A (E3648A r2)	0-35 V, 0.8 A (E3647A r1) 0-35 V, 1.4 A (E3649A r1)
E4361A	23	1 to 2*			
E4362A	23	1 to 2*			
N5741A-52A	13	1	0-6 V, 100 A (N5741A) 0-8 V, 90 A (N5742A)	0-12.5 V, 60 A (N5743A) 0-20 V, 38 A (N5744A)	0-30 V, 25 A (N5745A) 0-40 V, 19 A (N5746A)
N5761A-72A	13	1	0-6 V, 180 A (N5761A) 0-8 V, 165 A (N5762A)	0-12.5 V, 120 A (N5763A) 0-20 V, 76 A (N5764A)	0-30 V, 50 A (N5765A) 0-40 V, 38 A (N5766A)
N6731B-36B	14	1 to 4*	0-5 V, 10 A (N6731B) 0-8 V, 6.25 A (N6732B)	0-20 V, 2.5 A (N6733B)	0-35 V, 1.5 A (N6734B)
N6741B-46B	14	1 to 4*	0-5 V, 20 A (N6741B) 0-8 V, 12.5 A (N6742B)	0-20 V, 5 A (N6743B)	0-35 V, 3 A (N6744B)
N6751A-52A N6761A-62A N6773A-77A	14	1 to 4*		0-20 V, 15 A (N6773A)	0-35 V, 8.5 A (N6774A)
N6753A-56A N6763A-66A	14	2*		0-20 V, 50 A (N6753A) 0-20 V, 50 A (N6755A) 0-20 V, 50 A (N6763A) 0-20 V, 50 A (N6765A)	
N6781A-84A	19, 25	1 to 4*	0-6 V, +3 to-2 A (N6783A-MFG) 0-8 V, +3 to-2 A (N6783A-BAT)	0-20 V, ±3 A (N6781A-82A) 0-±20 V, ±3 A (N6784A)	
N8731A-42A	13	1	0- 8 V, 400 A (N8771A)	0-10 V, 300 A (N8732A) 0-15 V, 220 A (N8733A) 0-20 V, 165 A (N8734A)	0-30 V, 110 A (N8735A) 0-40 V, 85 A (N8736A)
N8754A-62A	13	1		0-20 V, 250 A (N8754A)	0-30 V, 170 A (N8755A) 0-40 V, 125 A (N8756A)
U8001A	10	1			0-30 V, 3 A
U8002A	10	1			0-30 V, 5 A
U8031A	10	3			0 - 30 V, 6 A (Output 1 & 2); 5 V, 3 A (Output 3)
U8032A	10	3			

\* Power modules that require a modular mainframe (66000 Series, N6700 Series, N6705, E4360 Series)

\*\* Dual range power supplies; r1 denotes range 1; r2 denotes range 2



# DC Voltage and Current At a Glance CONTINUED

## Voltage ranges: 50 V to 600 V

Model numbers	Page	Outputs	50 to 80 V	100 to 150 V	200 to 600 V
6611C-14C	12	1	0-50 V, 1 A (6613C)	0-100 V, 0.5 A (6614C)	
6621A-24A, 6627A	12	2 to 4	0-20 V, 4 A or 0-50 V, 2 A		
6625A-26A, 6628A-29A	12	2 to 4			
6631B-34B	12	1	0-50 V, 2 A (6633B)	0-100 V, 1 A (6634B)	
6541A-45A and 6641A-45A	12	1	0-60 V, 3.5 A (65/6644A)	0-120 V, 1.5 A (65/6645A)	
6551A-55A and 6651A-55A	12	1	0-60 V, 9 A (65/6654A)	0-120 V, 4 A (65/6655A)	
6571A-75A and 6671A-75A	12	1	0-60 V, 35 A (65/6674A)	0-120 V, 18 A (65/6675A)	
6680A-84A	12	1			
6690A-92A	12	1	0-60 V, 110 A (6692A)		
66101A-6A	16	1 to 8*	0-60 V, 2.5 A (66104A)	0-120 V, 1.25 A (66105A)	0-200 V, 0.75 A (66106A)
66309B-32A	22	1 to 2			
E3610A-12A	10	1	0-60 V, 0.5 A (E3612A)	0-120 V, 0.25 A (E3612A)	
E3614A-17A	10	1	0-60 V, 1 A (E3617A)		
E3620A	10	2			
E3630A-31A	10	3			
E3632A-34A **	10	1	0-50 V, 4 A (E3634A r2)		
E3640A-45A **	10	1	0-60 V, 0.5 A (E3641A r2) 0-60 V, 0.8 A (E3643A r2) 0-60 V, 1.3 A (E3645A r2)		
E3646A-49A **	10	2	0-60 V, 0.5 A (E3647A r2) 0-60 V, 0.8 A (E3649A r2)		
E4361A	23	1 to 2*	0-65 V, 8.5 A		
E4362A	23	1 to 2*		0 - 130 V, 5 A	
N5741A-52A	13	1	0-60 V, 12.5 A (N5747A) 0-80 V, 9.5 A (N5748A)	0-100 V, 7.5 A (N5749A) 0-150 V, 5 A (N5750A)	0-300 V, 2.5 A (N5751A) 0-600 V, 1.3 A (N5752A)
N5761A-72A	13	1	0-60 V, 25 A (N5767A) 0-80 V, 19 A (N5768A)	0-100 V, 15 A (N5769A) 0-150 V, 10 A (N5770A)	0-300 V, 5 A (N5771A) 0-600 V, 2.6 A (N5772A)
N6731B-36B	14	1 to 4*	0-60 V, 0.8 A (N6735B)	0-100 V, 0.5 A (N6736B)	
N6741B-46B	14	1 to 4*	0-60 V, 1.6 A (N6745B)	0-100 V, 1 A (N6746B)	
N6751A-52A N6761A-62A N6773A-77A	14	1 to 4*	0-50 V, 5 A (N6751A) 0-50 V, 10 A (N6752A) 0-50 V, 1.5 A (N6761A) 0-50 V, 3 A (N6762A) 0-60 V, 5 A (N6775A)	0-100 V, 3 A (N6776A) 0-150 V, 2 A (N6777A)	
N6753A-56A N6763A-66A	14	2*	0-60 V, 20 A (N6754A) 0-60 V, 17 A (N6756A) 0-60 V, 20 A (N6764A) 0-60 V, 17 A (N6766A)		
N6781A-84A	19, 25	1 to 4*			
N8731A-42A	13	1	0-60 V, 55 A (N8737A) 0-80 V, 42 A (N8738A)	0-100 V, 33 A (N8739A) 0-150 V, 22 A (N8740A)	0-300 V, 11 A (N8741A) 0-600 V, 5.5 A (N8742A)
N8754-62A	13	1	0-60 V, 85 A (N8757A) 0-80 V, 42 A (N8738A)	0-100 V, 50 A (N8759A) 0-150 V, 34 A (N8760A)	0-300 V, 17 A (N8761A) 0-600 V, 8.5 A (N8762A)
U8001A	10	1			
U8002A	10	1			
U8031A	10	3			
U8032A	10	3	0 - 60 V, 3 A (Output 1 & 2); 5 V, 3 A (Output 3)		

\* Power modules that require a modular mainframe (66000 Series, N6700 Series, N6705, E4360 Series)

\*\* Dual range power supplies; r1 denotes range 1; r2 denotes range 2

# E3600 and U8000 Series Basic Power Supplies

Essential features for a tight budget

When you need reliable power with minimal features, you can rely on the E3600 and U8000 Series basic power supplies.

The E3600 Series offers an extensive choice of voltages, programmability, and number of outputs.

The U8000 Series offers more affordable DC power and provides features typical only in programmable power supplies, such as output sequencing capability, fully integrated overvoltage and overcurrent protection, capability to save and recall up to three memory states, keypad lock and more.

- 30 W to 375 W outputs, 6 V to 120 V, and 0.25 A to 20 A
- Single- to triple-output models in half-rack width size
- Low noise, linear regulation
- Dual range outputs to provide more current at lower voltage settings
- Computer control via GPIB on most E3600 models. Manual control only on the U8000 Series and some E3600 models.



E3631A



E3633A

E3632A



U8001A,  
U8002A,  
U8031A,  
U8032A

Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Computer interface	Ripple and noise mVp-p	Program. or meter res. mV	Size **
U8001A	90	30	3	1	1	No	12	10	½ RU w
U8002A	150	30	5	1	1	No	12	10	x 2 RU h
New U8031A	375	30	6	3	1	No	10	10	½ RU w
New U8032A	375	60	3	3	1	No	10	10	x 4 RU h
E3610A	30	8 V r1 / 15 V r2	3 A r1 / 2 A r2	1	2	No	2	10	½ RU w x 2 RU h
E3611A	30	20 V r1 / 35 V r2	1.5 A r1 / 0.85 A r2	1	2	No	2	100	
E3612A	30	60 V r1 / 120 V r2	0.5 A r1 / 0.25 A r2	1	2	No	2	100	
E3614A	48	8 V	6 A	1	1	No	1	10	
E3615A	60	20 V	3 A	1	1	No	1	10	
E3616A	60	35 V	1.7 A	1	1	No	1	10	
E3617A	60	60 V	1 A	1	1	No	1	10	
E3620A	50	25 V / 25 V*	1 A / 1 A*	2	1	No	1.5	10	½ RU w x 3 RU h
E3630A	35	6 V / +20 V / -20 V*	2.5 A / 0.5 A / 0.5 A*	3	1	No	1.5	10	
E3631A	80	6 V / +25 V / -25 V	5 A / 1 A / 1 A	3	1	GPIB	2	1.5	
E3632A	120	15 V r1 / 30 V r2	7 A r1 / 4 A r2	1	2	GPIB	2	1	
E3633A	200	8 V r1 / 20 V r2	20 A r1 / 10 A r2	1	2	GPIB	3	1	
E3634A	200	25 V r1 / 50 V r2	7 A r1 / 4 A r2	1	2	GPIB	3	3	
E3640A	30	8 V r1 / 20 V r2	3 A r1 / 1.5 A r2	1	2	GPIB	5	5	
E3641A	30	35 V r1 / 60 V r2	0.8 A r1 / 0.5 A r2	1	2	GPIB	8	5	
E3642A	50	8 V r1 / 20 V r2	5 A r1 / 2.5 A r2	1	2	GPIB	5	5	
E3643A	50	35 V r1 / 60 V r2	1.4 A r1 / 0.8 A r2	1	2	GPIB	8	5	
E3644A	80	8 V r1 / 20 V r2	8 A r1 / 4 A r2	1	2	GPIB	5	5	
E3645A	80	35 V r1 / 60 V r2	2.2 A r1 / 1.3 A r2	1	2	GPIB	8	5	
E3646A	60	8 V r1 / 20 V r2	3 A r1 / 1.5 A r2	2	2	GPIB	5	5	
E3647A	60	35 V r1 / 60 V r2	0.8 A r1 / 0.5 A r2	2	2	GPIB	8	5	
E3648A	100	8 V r1 / 20 V r2	5 A r1 / 2.5 A r2	2	2	GPIB	5	5	
E3649A	100	35 V r1 / 60 V r2	1.4 A r1 / 0.8 A r2	2	2	GPIB	8	5	

\* Output 1 / Output 2 / Output 3

\*\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full.

The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.33.3 mm)

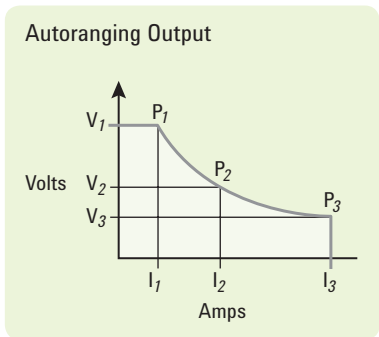
# 6030 Series Basic Autoranging DC Power Supplies

*Auto-ranging to do the job of multiple power supplies*

The 6030 Series basic power supplies offer autoranging outputs that give you maximum power at a variety of operating voltages. This enables you to use one power supply to do the job of multiple power supplies, saving rack space and reducing your system complexity.



- **240 W to 1200 W outputs, up to 500 V, and up to 120 A**
- **Built-in measurements and advance programming features simplify system design**
- **Full protection from over voltage and over current**
- **Computer control via GPIB**



6032A

Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVp-p	Programming accuracy % + mV	Transient response, ms	Size *
<b>6030A</b>	1200	200	17	1	Autoranging	50	0.035 + 145	2	Full RU w x 3 RU h
<b>6031A</b>	1064	20	120			50	0.035 + 15	2	
<b>6032A</b>	1200	60	50			40	0.035 + 40	2	
<b>6033A</b>	242	20	30			30	0.035 + 9	1	½ RU w x 4 RU h
<b>6035A</b>	1050	500	5			160	0.25 + 400	5	Full RU w x 3 RU h
<b>6038A</b>	240	60	10			30	0.035 + 40	1	½ RU w x 4 RU h

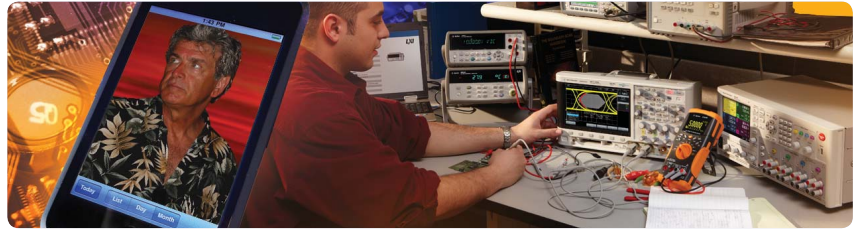
\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.33.3 mm)

# 6500 and 6600 Series High-Performance DC Power Supplies

High-performance when the power supply matters to test

The 6500 and 6600 Series high-performance power supplies are designed to meet your most demanding requirements. With an extensive feature set, the 6600 Series can help you reduce test time and simplify your test system design.

- 40 W to 6600 W outputs, up to 120 V, and up to 875 A
- Fast, low-noise outputs increase your test throughput
- Extensive programming capability for flexible system design (6600 only)
- Built-in measurements and advance programming features simplify system design
- Computer control via GPIB on the 6600 Series. GPIB not available on the 6500 Series.



	Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mV/p-p	Programming accuracy % + mV	Transient response (µs)	Size **
Performance	6611C	40	8	5	1	1	3	0.05 + 5	<100	½ RU w x 2 RU h
	6612C	40	20	2			3	0.05 + 10		
	6613C	50	50	1			4	0.05 + 20		
	6614C	50	100	0.5			5	0.05 + 50		
	6621A	80	20 / 7	4 / 10	2	2	3	0.06 + 19	<75	Full RU w x 3 RU h
	6622A	100	20 / 50	4 / 2	2			0.06 + 50		
	6623A	80	20 / 50 / 20*	5 / 2 / 10*	3			0.06 + 50		
6624A	40	20 / 20 / 50 / 50*	5 / 5 / 2 / 2*	4	0.06 + 50					
6627A	40	50	2	4	0.06 + 50					
Precision	6625A	40	50 / 50*	0.5 / 2*	2	2	3	0.016 + 10	<75	Full RU w x 3 RU h
	6626A	50	50 / 50 / 50 / 50*	0.5 / 0.5 / 2 / 2*	4					
	6628A	50	50	2	2					
	6629A	50	50	2	4					
Performance	6631B	80	8	10	1	1	3	0.05 + 5	<100	Full RU w x 2 RU h
	6632B	100	20	5				0.05 + 10		
	6633B	100	50	2				0.05 + 20		
	6634B	100	100	1				0.05 + 50		
	65/6641A	160	8	20	1	1	4	0.06 + 5	<100	Full RU w x 2 RU h
	65/6642A	200	20	10				0.06 + 10		
	65/6643A	210	35	6				0.06 + 15		
	65/6644A	210	60	3.5				0.06 + 26		
	65/6645A	180	120	1.5				0.06 + 51		
	65/6651A	400	8	50	1	1	3	0.06 + 5	<100	Full RU w x 3 RU h
	65/6652A	500	20	25				0.06 + 10		
	65/6653A	525	35	15				0.06 + 15		
	65/6654A	540	60	9	1	1	7	0.06 + 26	<100	Full RU w x 3 RU h
	65/6655A	480	120	4				0.06 + 51		
	65/6671A	1760	8	220				0.04 + 8		
	65/6672A	2000	20	100	1	1	9	0.04 + 20	<900	Full RU w x 3 RU h
	65/6673A	2100	35	60				0.04 + 35		
65/6674A	2100	60	35	0.04 + 60						
65/6675A	2160	120	18	0.04 + 120						
6680A	4375	5	875	0.04 + 5						
6681A	4640	8	580	1	1	10	0.04 + 8	<900	Full RU w x 5 RU h	
6682A	5040	21	240				0.04 + 21			
6683A	5120	32	160				0.04 + 32			
6684A	4800	40	128				0.04 + 40			
6690A	6600	15	440	1	1	25	0.04 + 15	<900	Full RU w x 5 RU h	
6691A	6600	30	220				0.04 + 30			
6692A	6600	60	110				0.04 + 60			



6623A



6631B



6680A

\* Output 1 / Output 2 / Output 3 / Output 4

\*\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full.

The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.333 m)

# N5700 Series and N8700 Series Basic DC Power Supplies

Space-saving basic power with modern interfaces

Now get up to 5200 W in a compact, 2U package with the N8700 Series or up to 1560 W in a compact, 1U package with the N5700 Series. Both series offers solid performance and a variety of basic and enhanced capabilities.



- Remote programming via GPIB, LAN and USB interfaces with the SCPI command set (drivers available)
- Analog control and monitoring of output voltage and current
- Connect multiple supplies in parallel or series for greater output current or voltage respectively
- Built-in measurements
- Front panel control and advanced programmable features
- Built-in protection features such as OVP, UVL, and OT
- LXI Class C compliant



N8731A: front/back



N5749A: front/back

Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVp-p	Programming accuracy % + mV	Transient response (ms)	Size *			
Basic	N5741A	600	6	100	1	1	60	0.5 + 3	≤1.5	Full RU w x 1 RU h		
	N5742A	720	8	90			60	0.5 + 4	≤1.5			
	N5743A	750	12.5	60			60	0.5 + 6.25	≤1.5			
	N5744A	760	20	38			60	0.5 + 10	≤1			
	N5745A	750	30	25			60	0.5 + 15	≤1			
	N5746A	760	40	19			60	0.5 + 20	≤1			
	N5747A	750	60	12.5			60	0.5 + 30	≤1			
	N5748A	760	80	9.5			80	0.5 + 40	≤1			
	N5749A	750	100	7.5			80	0.5 + 50	≤1			
	N5750A	750	150	5			100	0.5 + 75	≤2			
	N5751A	750	300	2.5			150	0.5 + 150	≤2			
	N5752A	780	600	1.3			300	0.5 + 300	≤2			
	N5761A	1080	6	180			1	1	60	0.5 + 3	≤1.5	Full RU w x 1 RU h
	N5762A	1320	8	165					60	0.5 + 4	≤1.5	
	N5763A	1500	12.5	120					60	0.5 + 6.25	≤1.5	
	N5764A	1520	20	76					60	0.5 + 10	≤1	
	N5765A	1500	30	50					60	0.5 + 15	≤1	
	N5766A	1520	40	38					60	0.5 + 20	≤1	
	N5767A	1500	60	25					60	0.5 + 30	≤1	
	N5768A	1520	80	19					80	0.5 + 40	≤1	
N5769A	1500	100	15	80	0.5 + 50	≤1						
N5770A	1500	150	10	100	0.5 + 75	≤2						
N5771A	1500	300	5	150	0.5 + 150	≤2						
N5772A	1560	600	2.6	300	0.5 + 300	≤2						
Basic	N8731A	3200	8	400	1	1	60	0.05 + 4	<1	Full RU w x 2 RU h		
	N8732A	3300	10	330			60	0.05 + 5	<1			
	N8733A	3300	15	220			60	0.05 + 7.5	<1			
	N8734A	3300	20	165			60	0.05 + 10	<1			
	N8735A	3300	30	110			60	0.05 + 15	<1			
	N8736A	3400	40	85			60	0.05 + 20	<1			
	N8737A	3300	60	55			60	0.05 + 30	<1			
	N8738A	3360	80	42			80	0.05 + 40	<1			
	N8739A	3300	100	33			100	0.05 + 50	<1			
	N8740A	3300	150	22			100	0.05 + 75	<2			
	N8741A	3300	300	11			300	0.05 + 150	<2			
	N8742A	3300	600	5.5			500	0.05 + 300	<2			
	N8754A	5000	20	250			1	1	75	0.025 + 15	<1	Full RU w x 2 RU h
	N8755A	5100	30	170					75	0.025 + 22.5	<1	
	N8756A	5000	40	125					75	0.025 + 30	<1	
	N8757A	5100	60	85					75	0.025 + 45	<1	
N8758A	5200	80	65	100	0.025 + 60	<1						
N8759A	5000	100	50	100	0.025 + 75	<1						
N8760A	5100	150	34	120	0.025 + 112.5	<2						
N8761A	5100	300	17	300	0.025 + 225	<2						
N8762A	5100	600	8.5	500	0.025 + 450	<2						

\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.333 mm)

# N6700 Low-Profile Modular Power System

Extensive family of modular power in a 1U package

The N6700 Series 1U-high, multiple-output programmable DC power supply system gives you the flexibility to optimize performance, power and price to match your test needs.

- **Small size: up to 4 outputs in 1U of rack space**
- **Mainframes are available with 400 W, 600 W, or 1200 W capability**
- **Mix and match from 34 different DC power modules, ranging 50 W, 100 W, 300 W, or 500 W**
- **Streamline your tasks with built-in measurements, output sequencing, and optional LIST mode, built-in digitizer and disconnect relays**
- **Ultra fast command processing time (<1 ms) reduces test time**
- **Computer control via GPIB, USB, and LAN (LXI-C)**
- **New high-power DC modules: N6755A-56A, N6763A-66A, N6777A**



N6702A

N6700 low-profile modular power system mainframe

Model	Power (W)	Max # modules	Physical size*
N6700B	400	4	Full RU w x 1 RU h
N6701A	600		
N6702A	1200		

Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mV/p-p	Programming accuracy % + mV	Transient response (µs)
<b>Basic</b>								
N6731B	50	5	10	1	1	10	0.1 + 19	<200
N6732B	50	8	6.25			12	0.1 + 19	
N6733B	50	20	2.5			14	0.1 + 20	
N6734B	50	35	1.5			15	0.1 + 35	
N6735B	50	60	0.8			25	0.1 + 60	
N6736B	50	100	0.5			30	0.1 + 100	
N6741B	100	5	20			11	0.1 + 19	
N6742B	100	8	12.5			12	0.1 + 19	
N6743B	100	20	5			14	0.1 + 20	
N6744B	100	35	3			15	0.1 + 35	
N6745B	100	60	1.6			25	0.1 + 60	
N6746B	100	100	1			30	0.1 + 100	
N6773A	300	20	15			20	0.1 + 20	
N6774A	300	35	8.5			22	0.1 + 35	
N6775A	300	60	5	35	0.1 + 60			
N6776A	300	100	3	45	0.1 + 100			
<b>New N6777A</b>	300	150	2	68	0.1 + 150			
<b>Performance</b>								
N6751A	50	50	5	1	Autoranging	4.5	0.06 + 19	<100
N6752A	100	50	10			4.5	0.06 + 19	
N6753A	300	20	50			5	0.06 + 10	
N6754A	300	60	20			6	0.06 + 25	
<b>New N6755A</b>	500	20	50			5	0.06 + 10	
<b>New N6756A</b>	500	60	17			6	0.06 + 25	
<b>Precision</b>								
N6761A	50	50	1.5	1	Autoranging	4.5	0.016 + 6	<100
N6762A	100	50	3			4.5	0.016 + 6	
<b>New N6763A</b>	300	20	50			5	0.03 + 5	
<b>New N6764A</b>	300	60	20			6	0.03 + 12	
<b>New N6765A</b>	500	20	50			5	0.03 + 5	
<b>New N6766A</b>	500	60	17			6	0.03 + 12	

**Specialty** Additional N6780 series source measure unit modules and application specific modules available, see pages 19 and 25.



\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.333 mm)

# N6705B DC Power Analyzer

Quickly understand your device's power consumption

Gain insight into your device's power consumption in minutes without writing a single line of code. The N6705B combines one to four DC power supplies, a DMM, an oscilloscope, an arbitrary waveform generator, and a data logger in one integrated package.



- **Saves time — no programming required and it eliminates the need to gather multiple instruments**
- **Flexible, modular system—mix and match power modules to optimize your testing**
- **Uses the same modules as the N6700 Series low-profile modular power supply—see page 14**
- **Computer control via GPIB, USB, and LAN (LXI-C)**

Function	Description
<b>Output speed</b>	Voltage changes as fast as 160 $\mu$ s per step voltage change
<b>Voltmeter accuracy</b>	Up to 0.025% + 50 $\mu$ V, up to 18-bit resolution
<b>Ammeter accuracy</b>	Up to 0.025% + 8 nA, up to 18-bit resolution
<b>Arbitrary Waveform</b>	Bandwidth up to 100 kHz, output power up to 300 W
<b>Scope function</b>	Digitizes voltage and current at up to 200 kHz, up to 512 k points, up to 18-bits resolution
<b>Data logger function</b>	Measurement interval from 20 $\mu$ s to 60 s, maximum of 500 Mreadings per data log
<b>Non-volatile data storage</b>	4 GB



# 66000 Modular Power System

Speed and accuracy with up to eight outputs

The 66000 Series modular DC power supplies give you up to eight outputs per mainframe. The modular design conserves rack space and simplifies system cabling and assembly.

- Modular system permits up to 8 outputs of 150 W per output in 4U of rack space
- Modules are available with 150 W, 8 V to 200 V, 0.75 A to 16 A
- Simplify reconfiguration or repair with easily swappable modules
- Streamline your tasks with built-in measurements, LIST mode, and optional keyboard for manual control
- Full protection from over voltage and over current
- Computer control via GPIB



## 66000 modular power system mainframe

Model	Power, (W)	Max # modules	Physical size*
66000A	1200	8	Full RU w x 4 RU h

66000 modules								
	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVp-p	Programming accuracy % + mV	Transient response (ms)
Performance	66101A	128	8	1	1	5	0.03 + 3	<1
	66102A	150	20			7	0.03 + 8	
	66103A	150	35			10	0.03 + 13	
	66104A	150	60			15	0.03 + 27	
	66105A	150	120			25	0.03 + 54	
	66106A	150	200			0.75	50	

\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.333 mm)



# N3300 and 6060 Series DC Electronic Loads

Programmable loads with measurements

The N3300 and 6060 Series DC electronic loads give you flexibility for testing power supplies and other devices requiring a load. The built-in measurement system provides both accuracy and convenience and eliminates the need for a DMM, external shunts and wiring.

The N3300 multiple-input models are fast, accurate, and ideal for high-volume manufacturing, while single input 6060 models are ideal for evaluation of DC power sources and power components on your bench.



## N3300 Multiple Input Electronic Loads

- Increase test throughput with short command processing time and stor command sequences
- Test multiple power supply outputs with up to 6 modules with 150 W to 600 W capability
- Operate in constant current, constant voltage, or constant resistance modes
- Measure voltage and current simultaneously
- Use in parallel for greater current sinking capability
- Computer control with GPIB

### N3300 mainframes

Model	Max # modules	Physical size*
N3300A	6	Full RU w x 4 RU h
N3301A	2	½ RU w x 4 RU h

### N3300 modules

Model	Input power, W	Maximum input, V	Maximum input, I	Constant current accuracy, % + mA	Constant voltage accuracy, % + mV	Current measurement accuracy, % + mA	Voltage measurement accuracy, % + mV	Width, slot
	<b>N3302A</b>	150	60	30	0.1 + 10	0.1 + 8	0.05 + 6	
<b>N3303A</b>	250	240	10	0.1 + 7.5	0.1 + 40	0.05 + 5	0.05 + 20	1
<b>N3304A</b>	300	60	60	0.1 + 15	0.1 + 8	0.05 + 10	0.05 + 8	1
<b>N3305A</b>	500	150	60	0.1 + 15	0.1 + 20	0.05 + 10	0.05 + 16	2
<b>N3306A</b>	600	60	120	0.1 + 37.5	0.1 + 8	0.05 + 20	0.05 + 8	2
<b>N3307A</b>	250	150	30	0.1 + 15	0.1 + 20	0.05 + 6	0.05 + 16	1

## 6060 Single Input Electronic Loads

- Cost effective load for single input applications
- Ideal for bench applications, provides optional front panel connection
- Computer control via GPIB

### 6060 loads

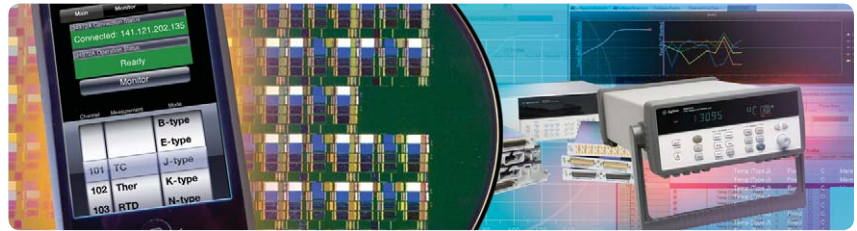
Model	Input power, W	Maximum input, V	Maximum input, I	Constant current accuracy, % + mA	Constant voltage accuracy, % + mV	Current measurement accuracy, % + mA	Voltage measurement accuracy, % + mV	Size*
	<b>6060B</b>	300	60	60	0.1 + 75	0.1 + 50	0.05 + 65	
<b>6063B</b>	250	240	10	0.15 + 10	0.12 + 120	0.12 + 10	0.1 + 150	

\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.33.3 mm)

# Agilent AC Power Source/Power Analyzer

*An integrated AC power solution*

The Agilent AC power source/power analyzer provides precise, accurate measurements and efficient analysis of AC power. These “one-box” solutions let you generate, measure and analyze AC power. Agilent’s AC power sources are ideal for power-supply testing, AC-mains CE-mark testing, UPS testing and much more.



- **Variety of power levels: 375 VA, 750 VA, and 1750 VA**
- **Built in measurements for power analysis**
- **GPIB computer interface included**



**6813B**

## 6813B AC power source/power analyzer

	Model	RMS power	RMS current	RMS voltage	Peak current	DC voltage
<b>AC Sources</b>	<b>6811B</b>	375 VA	3.25 A	300 V	40 A	40 V
	<b>6812B</b>	750 VA	6.5 A	300 V	40 A	750 V
	<b>6813B</b>	1750 VA	13 A	300 V	80 A	1750 V

# N6780 Series Source Measure Units (SMUs)

The N6781A is a 2-quadrant SMU for battery drain analysis. It offers advanced features to accurately capture the power consumption of portable, battery-powered devices. When used with the 14585A Software, the N6781A becomes an even more powerful battery drain analysis solution, offering additional insights into your measurements.

The N6782A is a 2-quadrant SMU for function test of a device. It has the ability to modulate its output up to 100 kHz along with the capability to source and sink current.

The N6784A is a 4-quadrant SMU that provides precise sourcing and measurement for general purpose applications.

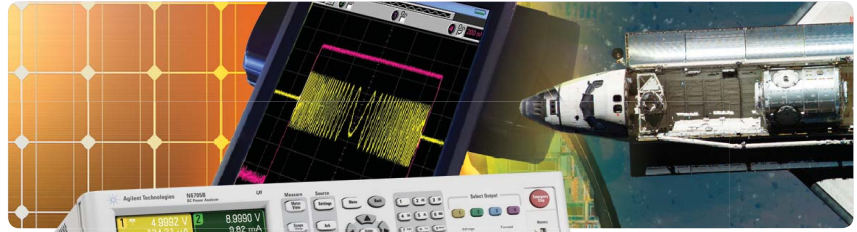
The N6780 source measure units (SMUs) are modules for the N6705B DC power analyzer mainframe for R&D, and the N6700 low-profile mainframes for ATE.

- **Seamless, dynamic measurements down to nA and  $\mu$ V (N6781A and N6782A only)**
- **Glitch-free operation – change sourcing ranges or measurement ranges without any glitches**
- **Excellent transient response for stable output voltage with dynamic loads**
- **2 or 4-quadrant operation: use as a DC power supply or electronic load**
- **Fast modulation of DC output to create arbitrary waveforms up to 100 kHz**
- **Computer control via LAN, USB, and GPIB**

## 14585A Control and Analysis Software

The software for the DC power analyzer complements the front panel of the N6705 mainframe, offering advanced functionality and PC control. It is a flexible R&D tool for any application. When used to control an N6781A SMU, it can be used for advanced battery drain analysis applications.

- **Control and analyze data from up to four N6705 DC power analyzer and any installed modules at once**
- **Easily create complex waveforms to stimulate or load down a DUT by inputting a formula, choosing from built-in, or importing waveform data.**
- **Data log measurements directly to a PC**
- **Perform statistical analysis of power consumption**



**N6705B DC Power Analyzer**

Flexible/reconfigurable	
Available Slots	Mainframe accepts up to 4 DC power modules
Power	600 W total DC module output power
Instrument Control	GPIB, USB, LAN (LXI Class C Compliant)

**N6780 SMU modules**

	Model	Power (W)	Max voltage (V)	Max current (A)	Ripple and noise (mVp-p)	Programming accuracy % + $\mu$ V	Transient response ( $\mu$ s)
Specialty	N6781A	20	20	$\pm 3$	12	0.025 + 200	$\leq 35$
	N6782A	20	20	$\pm 3$	12	0.025 + 200	$\leq 35$
	N6784A	20	$\pm 20$	$\pm 3$	12	0.025 + 200	$\leq 35$

## B2900A Series Precision Source/Measure Units

The Agilent B2900A Series of Precision Source/Measure Units are compact and cost-effective bench-top Source/Measure Units (SMUs). These capabilities are ideal for a wide variety of IV (current versus voltage) measurement tasks that require both high resolution and accuracy. The innovative graphical user interface with four viewing modes (single view, dual view, graph view and roll view) improves usability and productivity of bench-top tests, debug and characterization dramatically. The Agilent B2900A series is also well-suited for production with the fast measurement speed.

- **Test up to 210 V and 3 A (DC) or 10.5 A (pulsed) with a single instrument**
- **Source and measurement resolution down to 10 fA and 100 nV**
- **Innovative GUI facilitate fast bench-top test, debug and characterization**
- **Ultrafast throughput for lower cost-of-test**



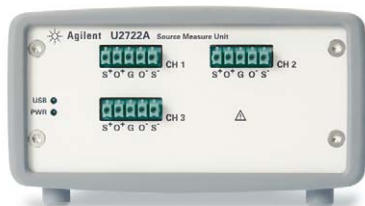
			B2901A	B2902A	B2911A	B2912A	
Specialty	Number of channels		1	2	1	2	
	Max output	Voltage	210 V	210 V	210 V	210 V	
		Current	DC	3.03 A	3.03 A	3.03 A	3.03 A
			Pulsed	10.5 A	10.5 A	10.5 A	10.5 A
	Power		31.8 W	31.8 W	31.8 W	31.8 W	
	Source	Max digits	Digits	5 ½	5 ½	6 ½	6 ½
		Min resolution	Voltage	1 µV	1 µV	100 nV	100 nV
			Current	1 pA	1 pA	10 fA	10 fA
	Measurement	Max Digits	Digits	6 ½	6 ½	6 ½	6 ½
		Max resolution	Voltage	100 nV	100 nV	100 nV	100 nV
Current			100 fA	100 fA	10 fA	10 fA	
Min programmable interval for List sweep/AWG waveform			20 µs	20 µs	10 µs	10 µs	
Min trigger interval for digitizing (Max sample rate)			20 µs (50,000 pts/s)	20 µs (50,000 pts/s)	10 µs (100,000 pts/s)	10 µs (100,000 pts/s)	

# USB Modular Source Measure Unit

Source and measure DC voltage/current reliably

The Agilent USB modular source measure unit (SMU) allows you to perform sweeps and make measurements using a single device. The SMU offers voltage and current programming/readback with high accuracy measurement capabilities. You can configure each of the three channels separately or in a matrix – in series or parallel – for increased power. It comes bundled with Agilent Measurement Manager (AMM) software that includes a command logger function to help you convert SCPI commands into snippets of VEE, V, C+ and C# code.

- **Three-channel, four-quadrant operation ( $\pm 20\text{ V}$ ,  $\pm 120\text{ mA}$ )**
- **High measurement sensitivity of  $100\text{ pA}$  with 16-bit resolution**
- **0.1% basic accuracy**
- **Low current measurement capability down to nA levels**
- **Embedded test script able to support three channels with coherent source and measurement capabilities (for U2723A)**
- **IV Curve application support in the Agilent Measurement Manager Software (for U2723A)**
- **Faster rise/fall time (for U2723A)**
- **Hi-Speed USB 2.0 (480 Mbps)**



U2722A

Model	U2722A/23A
Number of outputs	3
<b>Output ratings (at 0 °C to 50 °C)</b>	
Voltage	-20 V to 20 V per channel
Current	-120 mA to 120 mA per channel

Model	U2722A/23A		
	Range	Accuracy <sup>1</sup>	Resolution
<b>Voltage programming/readback</b>	$\pm 2\text{ V}$	0.075% + 1.5 mV	0.1 mV
	$\pm 20\text{ V}$	0.05% + 10 mV	1 mV
<b>Current programming/readback</b>	$\pm 1\text{ }\mu\text{A}$	0.085% + 0.85 nA	100 pA
	$\pm 10\text{ }\mu\text{A}$	0.085% + 8.5 nA	1 nA
	$\pm 100\text{ }\mu\text{A}$	0.075% + 75 nA	10 nA
	$\pm 1\text{ mA}$	0.075% + 750 nA	100 nA
	$\pm 10\text{ mA}$	0.075% + 7.5 $\mu\text{A}$	1 $\mu\text{A}$
	$\pm 120\text{ mA}$	0.1% + 100 $\mu\text{A}$	20 $\mu\text{A}$

Model	U2722A		U2723A
Rise/fall time (ms) <sup>1</sup>	Range	Accuracy <sup>1</sup>	Accuracy <sup>1</sup>
<b>For resistive measurement<sup>2</sup></b>	$\pm 1\text{ }\mu\text{A}$	170.0	15.0
	$\pm 10\text{ }\mu\text{A}$	18.0	5.0
	$\pm 100\text{ }\mu\text{A}$	6.0	1.0
	$\pm 1\text{ mA}$	1.0	1.0
	$\pm 10\text{ mA}$	1.0	1.0
	$\pm 120\text{ mA}$	1.0	1.0

<sup>1</sup> Drive 50% of 1 V or 10 V output with a resistive load. Rise time is from 10% to 90% of program voltage change at maximum current. Fall time is from 90% to 10% of program voltage change at maximum current.

<sup>2</sup> Measurements obtained are per default bandwidth setting.

# Modular Source Monitor Unit Series

The modular source monitor unit series provides precision voltage and current and makes very low current and voltage measurements to help you test semiconductor devices and new materials.

- **Modular mainframes and pre-configured systems with medium power and high-power modules**
- **Force voltages up to 200 V and force currents up to 1 A**
- **Current measurements as low as  $\leq 0.1$  A**
- **Computer control via GPIB interface**



## E5260A high-speed measurement mainframe

Slots: 8  
GND sink: 4 A

## E5262A 2-channel high-speed source/monitor unit

Fixed configuration: 2 x E5291A  
GND sink: 2.2 A

## E5263A 2-channel high-speed source/monitor unit

Fixed configuration: 1 x E5290A, 1 x E5291A  
GND sink: 2.2 A

### E5260A modules

	Model	Max force V	Max force I	Voltage measurement resolution	Current measurement resolution	Width, slots
Specialty	E5290A	$\pm 200$	$\pm 1$	100 $\mu$ V	5 pA	2
	E5291A	$\pm 100$	$\pm 0.2$	100 $\mu$ V	5 pA	1

## E5270B precision measurement mainframe

Slots: 8  
GND sink: 4 A

### E5270B modules

	Model	Max force V	Max force I	Voltage measurement resolution	Current measurement resolution	Width, slots
Specialty	E5280B	$\pm 200$	$\pm 1$	2 $\mu$ V	10 fA	2
	E5281B	$\pm 100$	$\pm 0.1$	0.5 $\mu$ V	10 fA	1
	E5287A	$\pm 100$	$\pm 0.1$	0.5 $\mu$ V	1 fA	1
	E5288A	$\pm 100$	$\pm 0.1$	0.5 $\mu$ V	0.1 fA	NA

# Semiconductor Device Analyzer

The semiconductor device analyzer is a cost-effective, highly accurate laboratory bench-top solution for advanced device characterization. Use this advanced instrument to test your semiconductor devices and new materials.

- **PC-based instrument with Windows® XP Professional OS**
- **Single-box solution for current-voltage (IV), capacitance-voltage (CV), pulse generation, fast IV, and time-domain measurement**
- **Ten module slots for source monitor units (SMUs) and other module types (MFCMU, HV-SPGU and WGFMU)**
- **Offline data analysis and application test development via Desktop EasyEXPERT software**



**B1500A**

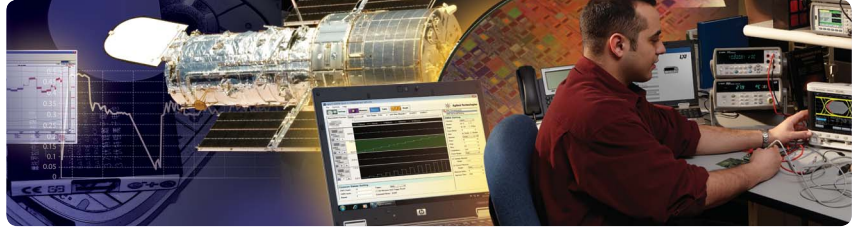
## B1500A semiconductor device analyzer

Slots: 10  
GND sink: 4.2 A

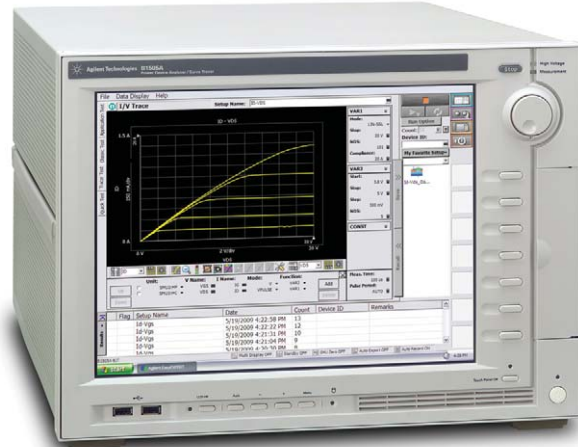
	Model	Required slot	Main specification
Specialty	B1510A HPSMU	2	Up to 200 V, 1 A force, 10 fA current resolution
	B1511A MPSMU	1	Up to 100 V, 100 mA force, 10 fA current resolution
	B1517A HRSMU	1	Up to 100 V, 100 mA force, 1 fA current resolution
	E5288A ASU	NA	Up to 100 V, 100 mA force, 100 aA current resolution
	B1520A MFCMU	1	1 kHz to 5 MHz, up to 100 V DC bias with SMU
	B1525A HV-SPGU	1	Min 50 ns pulse width, 10 ns transition time, up to 40 V with 3 level pulse
	B1530A WGFMU	1	Min 100 ns pulse width, 10 V peak-to-peak output, 5 ns current or voltage measurement sampling speed

# Power Device Analyzer/Curve Tracer

The Agilent B1505A Power Device Analyzer/ Curve Tracer is the only single box solution available today with the capability to characterize high power devices from the sub-picoamp level at up to 3000 volts and 40 amps. These capability covers evaluation for new power device using wide band gap materials such as SiC GaN.



- **PC-based instrument with Windows® XP Professional OS**
- **Single-box solution for current-voltage (IV) from sub-pA up to 3000 V and 40 A, and capacitance-voltage (CV) at up to 3000 V of DC bias.**
- **Ten module slots for SMUs (HPSMU, HCSMU, HVSMU) and Multi Frequency Capacitance Measurement Unit (MFCMU)**
- **Offline data analysis and application test development via Desktop EasyEXPERT software**



## B1505A Power device analyzer/curve tracer

Slots: 10  
GND sink: 4.2 A

	Model	Required slot	Main specification
Specialty	B1510A HPSMU	2	Up to $\pm 200$ V, $\pm 1$ A force, 10 fA current resolution
	B1512A HCSMU	2	Up to $\pm 40$ V, $\pm 20$ A force, 200 nV voltage resolution
	B1513A HVSMU	2	Up to $\pm 3000$ V, $\pm 4$ mA force, 10 fA current resolution
	B1520A MFCMU	1	1 kHz to 5 MHz, up to 3000 V DC bias with HVSMU



# N6783A Application-Specific Modules

The Agilent N6783A-BAT Battery Charge/Discharge Module is a basic, 2-quadrant module designed to be used by battery-powered (mobile) device designers. The N6783A-BAT's 2-quadrant operation allows it to act as a power supply to charge the battery or as an electronic load to discharge the battery. When used in the N6705B DC Power Analyzer mainframe along with the 14585A Control and Analysis software, short-and long-term measurements for battery validation are made easy.

The Agilent N6783A-MFG Mobile Communications DC Power Module offers advanced features specifically for testing battery-powered (mobile) devices in manufacturing. The N6783A-MFG offers fast, accurate measurements and excellent voltage transient response to address the unique challenges associated with testing mobile wireless devices.

The N6783A-BAT and N6783A-MFG modules can be used with the N6700 low-profile mainframes for ATE and with the N6705B DC power analyzer mainframe for R&D.

- **Optimized for basic battery charge/discharge application (N6783A – BAT)**
- **Optimized for mobile device manufacturing test (N6783A-MFG)**
- **Fast transient response ensures stable power supply output voltage**
- **Digitizing measurement system for flexible, accurate current measurements**
- **USB, LAN, and GPIB interfaces**



N6700B

### N6700 modular power system mainframe

Model	Power, (W)	Max # modules
N6700B low-profile (ATE)	400	4
N6701A low-profile (ATE)	600	4
N6702A low-profile (ATE)	1200	4
N6705B DC power analyzer (R&D)	600	4

### N6783 Application-specific modules

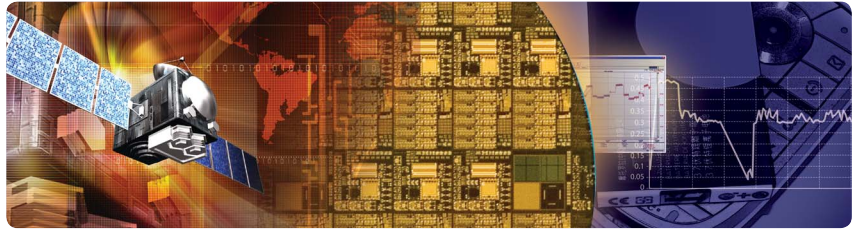
	Model	Power (W)	Max voltage (V)	Max current (A)	Ripple and noise (mVp-p)	Programming accuracy % + $\mu$ V	Transient response ( $\mu$ s)
Specialty	N6783A-BAT	24	8	+3 to -2 A	8	0.1 + 10	$\leq 45$
	N6783A-MFG	18	6	+3 to -2 A	8	0.1 + 10	$\leq 45$



N6705B

# 66300 Mobile Communications DC Sources

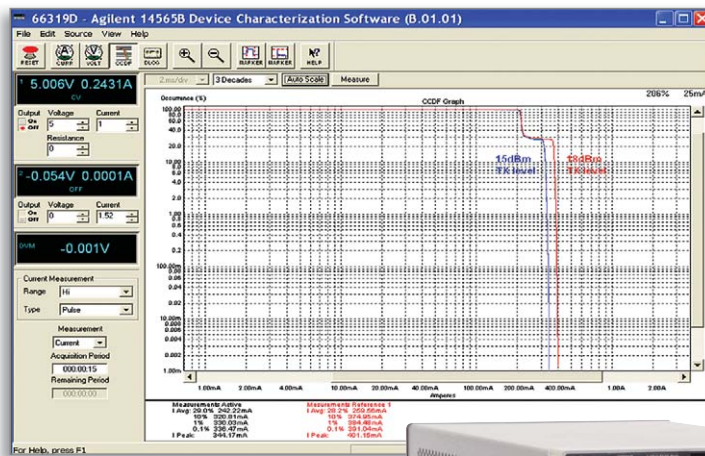
66300 mobile communications power supplies are designed and optimized to help you test mobile wireless devices. They provide the DC sourcing, current sinking, and measurement capabilities to address the unique challenges of simulating batteries and battery packs and measuring the current drawn by your device under test.



- **Fast DC power source to replace and simulate the battery during testing**
- **Fast voltage transient response ensures maximum test-system throughput by minimizing device shutdowns**
- **Dynamic measurement system enables accurate current measurement from  $\mu\text{A}$  to A**
- **When the 66319B/D and 66321B/D are coupled with the 14565B Software, it gives you a powerful analysis tool to optimize your device designs for long battery life**

## Agilent 14565B Device Characterization Software

- **Graphical user software — no programming required**
- **3 modes of operation: waveform capture, data logging, CCDF statistical analysis**
- **Visualization and analysis tools to help you identify anomalies and characterize and quantify battery drain to optimize your design**
- **Automation capability allows you to control the 14565B from other programs to automate and synchronize DUT activity with current drain measurements**



14565B

66321B  
66319B



Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVp-p	Programming accuracy % + mV	Transient response ( $\mu\text{s}$ )	Size*
<b>66309B/D</b>	45	15	3 (5 A peak)	2	6	0.05 + 10	<35	1/2 RU w x 2 RU h	
<b>66311B</b>	45	15	3 (5 A peak)	1	6	0.05 + 10	<35		
<b>66319B/D</b>	45	15	3 (5 A peak)	2	6	0.05 + 10	<20		
<b>66321B/D</b>	45	15	3 (5 A peak)	1	6	0.05 + 10	<20		
<b>66332A</b>	100	20	5	2	3	0.05 + 10	<100		

\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.333 m)

# E4360 Modular Solar Array Simulation

The modular solar array simulator (SAS) is a DC power source that simulates the output characteristics of a solar array. The SAS is primarily a current source with very low output capacitance. It is capable of simulating the I-V curve of different arrays under different environmental conditions (temperature, age, etc.). You can set the I-V curve from the front panel or program it over GPIB, LAN or USB.



- **Accurate simulation of any type of solar array**
- **Small size: up to 2 outputs in 2U of rack space**
- **High output power—up to 600 W per output**
- **Fast I-V curve changes to simulate eclipse or spin**
- **14360A System Control Tools software included to simplify control of multiple solar array simulators in a system**
- **Custom turn-key system or individual instruments available**



**E4360A**  
SAS mainframe



## E4360 modular solar array simulator mainframes

	Model	Power, W	Modules	Max # of modules	Physical size*
Specialty	E4360A	1200	Choose from E4361A and E4362A	2	Full RU w x 2 RU h
	E4367A		Pre-configured with 2x E4361A		Full RU w x 1 RU h
	E4368A		Pre-configured with 2x E4362A		Full RU w x 1 RU h

**E4360A modules**



## E4360 modules

	Model	Power, W	Max Voc	Max Isc	Number of outputs	Ripple and noise mVp-p	Programming accuracy % + mV
Specialty	E4361A	510	65	8.5	1	125	0.075 + 10
	E4362A	600	130	5		195	0.075 + 20

\* NOTE: RU refers to rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is in number of rack units which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (1.33.3 mm)



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