

Power Products Solutions

A guide to selecting power products to match your test and measurement needs

Power Your Next Insight

Today, your products are changing how we all work and play — wearables, electric vehicles, and beyond. For over 50 years, Keysight systems and benchtop DC power supplies have changed how engineers prove their design, understand the issues, and ensure product quality. Our supplies are ready for your application on a bench or in a system, offering optimal voltage, current, capability, and performance choices. Test with confidence with Keysight — and power your next insight.



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PathWave BenchVue Software

Control. Automate. Simplify

Experience the ease and speed of using Keysight PathWave BenchVue software for the PC. It eliminates many issues around bench testing, simplifying connecting, controlling instruments, and automating test sequences. With this software, you can quickly move past the test development phase and access results faster. Dedicated instrument apps allow you to configure the most commonly used measurements and setups for each instrument family with just a few clicks. Rapidly build custom test sequences with the integrated Test Flow app to automate and visualize test results without the need for instrument programming. Powerful BenchVue apps enable you to reduce test development time significantly.

Use PathWave BenchVue apps to:

- Configure the most commonly used controls and measurements from your Keysight instruments
- Visualize multiple measurements simultaneously
- Easily log and export data and screen images in just a few clicks for faster analysis
- Quickly create automated test sequences with minimal instrument knowledge
- Access deeper instrument controls and measurement solutions
- Save time with software that offers multiple instrument apps in one platform

PathWave BenchVue software works with hundreds of Keysight digital multimeters, power supplies, function/waveform generators, spectrum analyzers, data acquisition units, network analyzers, oscilloscopes, power meters, power sensors, electronic loads, universal counters, and more. Look for the BenchVue enabled icon for compatible products.

Start accelerating your workflow today and download a 30-day trial version at

www.keysight.com/find/BenchVue



Look for this icon throughout the catalog to identify PathWave BenchVue software-supported products.

Specific PathWave BenchVue software for power products

Software products	Model number	Key features
PathWave BenchVue Power Supply App	BV0003B	Easily set parameters, build automated tests, and visualize power output and voltage/current over time.
PathWave BenchVue Electronic Load App	BV0012B	Easily set parameters, build automated tests, and visualize power output and voltage/current over time for better device characterization.
PathWave Advanced Power Control and Analysis	PW9252A	Take full advantage of the capabilities built into your advanced power supply. Characterize voltage and current usage, even generating arbitrary waveforms. Supported N6705C, N7900 and RP7900 series.
PathWave Advanced Battery Test and Emulation	PW9253A	Achieve higher accuracy, repeatability, and safety with an emulation based on a unique battery model. Your model will allow you to determine your device's power consumption, emulate an actual battery, and import existing battery models.
PathWave Advanced Power Suite	PW9254A	PW9254A is a 3-in-1 bundle license that includes PW9251A, PW9252A, and PW9253A. This bundle allows for easy and quick real-time data transfer between the PW9252A and PW9253A software applications.

Overview



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Power Supply Categories



E36340 DC power supply

Basic

Affordable, quiet, and stable power supplies for both manual and simple computer-controlled operation. The Keysight line of basic bench 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.



N6705C DC power analyzer

Performance

Speed, precision, and advanced programming features make 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.



6811 AC power source/analyzer

Specialty

Sometimes, it is best to have a power supply with unique capabilities tailored to a specific application. For example, the Keysight 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 Keysight E4360 Solar Array Simulator simulates solar panel I-V characteristics for satellite development and testing.



DC electronic load mainframe

Modular

Keysight offers fully programmable power supplies in a modular format: the N6700 low-profile modular power system, N6705C DC power analyzer, and 66000 modular power system series. This feature gives you extensive power options—from basic to performance. Additionally, all modules interact similarly at a single interface node, simplifying system architecture and reducing cost when the test system inevitably changes.



N6790 Series DC Electronic Loads

AC sources

Keysight provides a full line of basic and performance AC sources to help you test various AC-powered devices. Basic sources provide reliable power, while performance sources provide advanced measurements and waveform generation.

DC electronic loads

Electronic loads sink current and dissipate power in an accurate and controlled manner. Connected to the circuit under test, an electronic load provides a convenient way to vary the load on the circuit's output to understand the circuit's performance.

Keysight offers two electronic load families: the N3300 family, which is a modular, multiple-output family, and the N6790 Series DC Electronic Load. The N6790A Series is available in the N6700C, N6701C, and N6702C low-profile modular mainframe system and the N6705C DC Power Analyzer mainframe for bench use.

Selecting the Right System and Benchtop DC Power Supply For Your Application

We have designed this selection guide to make choosing the correct power supply easy based on your requirements. If your selection is driven by voltage and current requirements, please visit the tables on pages 13 and 15. Then, you can go to the product page(s) for more details.

When you have specialized requirements requiring features such as source and measure, selecting from a set of power supplies designed precisely for those requirements is easy. For specialty power products, refer to page 23.

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

Of course, you must select the right voltage and current and consider other factors when selecting a benchtop DC power supply for your applications. This guide defines the feature, states why it's important, and tells you how to use it when specifying the right power supply. In addition, we have listed the product families so you can quickly see which product best fits your application. You can go to the product pages for detailed specifications with that information.

Use the following information to help select your desired features in a DC power supply. Then, go to the product page(s) for more details.

Output characteristics

Ripple and noise	Description	Ripple and noise < 10 mVp-p	Page	Ripple and noise 10 tp 500 mVp-p	Page
Use the ripple and noise specification to determine what effects these variations will have on your circuit or device.	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 Vrms or Vp-p, the most useful spec is Vp-p. With Vp-p, you will know the maximum variation away from the DC setpoint.	66309B-32A	61	E36100 series	16
		B2961B-62B	24	N5700 series	19
		E3600 series	16	N6731B-46B	28
		E36731A	37	N6773A-77A	28
		N6751A-66A	28	N6785A-86A	42
		N6781A-84A	42	N8700 series	19
		N6900 series	26	N8900 series	21
		N7900 series	26	RP7900 series	40
		U8031A-32A	17	M9601A-03A	46
		B2900 Series	48	PZ2110A-21A	44
		M9614A-15A	47		
		PZ2130A-31A	45		
Programming accuracy	Description	Accuracy < 0.03%		Accuracy > 0.05%	
Use programming accuracy to determine if the power supply can produce a voltage and current that is within the precision your device needs.	Programming accuracy measures how close 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 their output.	B2961B-62B	24	E3600 series	17
		E36300 series	16	E36100 series	16
		N6751A-66A	28	MP4300A series	38
		U8000 series	17	E36150 series	16
		N6781A-82A	42	N5700 series	19
		N6784A-86A	42	N6731B-46B	28
		N6900 series	26	N6773A-77A	28
		N7900 series	26	N6783A	60
		B2900 Series	48	N8700 series	19
		M9601A-15A	46	N8900 series	21
		PZ2110A-31A	44	RP7900 series	40
		Output response	Description	FAST output response < 15 ms	Page
Use this specification to select the power supply that is fast enough for your application.	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%.	66300 Series	61	E36100 series	16
		B29261B-62B	24	E3600 series	17
		N6751-66A	28	N5700 series	19
		N6781A-86A	42	N6731B-46B	28
		N6900 Series	26	N6773A-77A	28
		N7900 Series	26	N8700 series	19
		MP4300 series	38	N8900 series	21
		E36731A	37	RP7900 series	40
		B2900 Series	48		
		M9601A-15A	46		
		PZ2110A-31A	44		

Control

Computer interface	Description		Page	Computer and manual control	
Specify power supplies with the appropriate hardware and software interface for computer 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 Core). Software interfaces include the SCPI language and drivers such as IVI-C, IVI-COM, and VXI plug-and-play.	E3620A-30A	17	All others	
		U8000 series	17		
Analog voltage control signal	Description	WITH analog input	Page	WITHOUT analog input	
Specify a power supply with an analog input whenever you need to amplify the power or track an analog voltage.	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.	N5700 series	19	All others	
		N8700 series	19		
		N8900 series	21		

Output measurements

Measure V and I output	Description		Page	Built-in measurement	
Specify power supplies with built-in measurements whenever you need to check the actual voltage and current.	Many power supplies have a built-in voltmeter and ammeter to read back their 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.			All others	

Packaging

Physical size	Description	QUARTER rack	Page	HALF rack	Page	FULL rack
Use the size specification to match the bench or system use.	Keysight 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 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.	E36100 series	16	B2961B-62B	24	All others
				E3600 series	17	
				E36300 series	16	
				U8000 series	17	
				B2900 Series	48	
Front or rear output terminals	Description	FRONT terminals	Page	REAR terminals	Page	
Select the model with its output terminals in the best location for your application on either the bench or in a system rack.	The output terminals can be located on the front or rear of the power supply. 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.	B2961B-62B	24	All others		
		E3620A-30A	16			
		E36100 series	16			
		N6705C	30			
		U8000 series	17			
		B2900 Series	48			
		M9601A-15A	46			
Number of outputs	Description	SINGLE output	Page	MULTIPLE outputs	Page	
Specify multiple outputs per unit when you need to save space on the bench or in a system rack.	Keysight 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, N6700, and PZ2100A modular mainframes that can hold up to 8, 4, and 4 modules, respectively.	All others		B2961B-62B	24	
				E3620-31A	16	
				E3646A-49A	17	
				E36300 series	16	
				E4360 mfr ¹	64	
				N6700 mfr ¹	28	
				N6705C	30	
				U8031A-32A	18	
				B2900 Series	48	
				M96xxA PXIe ²	46	
				PZ2100A mfr ¹	44	

1. mfr = mainframes for the E4360, N6700, N6707C, N6705C, PZ2100A and 66000 modular power supplies



2. PXIe = PXIe modules. The maximum number of channels in 1 PXIe chassis is decided by the product number of the PXIe chassis.



M9601A-15A in M9019A 18-slot PXI chassis

Specialty

DUT protection	Description	WITH DUT protection	Page	WITHOUT DUT protection	Page
Select power supplies with DUT protection whenever your load may be damaged by overvoltage or overcurrent.	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		E3620A-31A	17
Computer interface	Description	WITH LIST memory	Page	WITHOUT LIST memory	Page
Specify power supplies with the appropriate hardware and software interface for computer 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 Core). Software interfaces include the SCPI language and drivers such as IVI-C, IVI-COM, and VXI plug-and-play.	B2961B-62B	24	All others	
		E4360 series	64		
		N6700 series	28		
		N6705C	28		
		N6900 series	26		
		N7900 series	26		
		RP7900 series	40		
		B2900 Series	48		
		M9601A-15A	46		
		PZ2100A Series	44		
Output disconnects or polarity reversal	Description	WITH optional relays	Page	WITHOUT optional relays	Page
Select power supplies with optional output relays when your application requires power to be physically disconnected from the device.	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 Core). Software interfaces include the SCPI language and drivers such as IVI-C, IVI-COM, and VXI plug-and-play.	66300 series	61	All others	
		N6700 series	28		
		N7900 series	26		

DC Voltage and Current At a Glance

Voltage ranges: 5 to 40 V

Model numbers	Pg.	Outputs	5 to 9 V	12 to 20 V	21 to 40 V
66309B-32A	61	1 to 2		0 to 15 V, 3 A (all 663xx)	
E36102B-06B	16	1	0 to 6 V, 5 A (E36102B)	0 to 20 V, 2 A (E36103B)	0 to 35 V, 1 A (E36104B)
E3620A	17	2			0 to 25 V, 1 A (E3620A x2)
E36311A-13A	17	3	0 to 6 V, 5 A (E36311A-12A) 0 to 6 V, 10 A (E36313A)		0 to ± 25 V, 1 A (E36311A x 2) 0 to 25 V, 1 A (E36312A x 2) 0 to 25 V, 2 A (E36313A x 2)
E3630A-31A	17	3	0 to 6 V, 2.5 (E3630A x1) 0 to 6 V, 5 A (E3631A x1)	0 to ± 20 V, 0.5 A (E3630A x2)	0 to ± 25 V, 1 A (E3631A x2)
E3632A-34A ²	17	1	0 to 8 V, 20 A (E3633A r1)	0 to 15 V, 7 A (E3632A r1) 0 to 20 V, 10 A (E3633A r2)	0 to 30 V, 4 A (E3632A r2) 0 to 25 V, 7 A (E3634A r1)
E3640A-45A ²	17	1	0 to 8 V, 3 A (E3640A r1) 0 to 8 V, 5 A (E3642A r1) 0 to 8 V, 8 A (E3644A r1)	0 to 20 V, 1.5 A (E3640A r2) 0 to 20 V, 2.5 A (E3642A r2) 0 to 20 V, 4 A (E3644A r2)	0 to 35 V, 0.8 A (E3641A r1) 0 to 35 V, 1.4 A (E3643A r1) 0 to 35 V, 2.2 A (E3645A r1)
E3646A-49A ²	17	2	0 to 8 V, 3 A (E3646A r1) 0 to 8 V, 5 A (E3648A r1)	0 to 20 V, 1.5 A (E3646A r2) 0 to 20 V, 2.5 A (E3648A r2)	0 to 35 V, 0.8 A (E3647A r1) 0 to 35 V, 1.4 A (E3649A r1)
N5741A-52A	19	1	0 to 6 V, 100 A (N5741A) 0 to 8 V, 90 A (N5742A)	0 to 12.5 V, 60 A (N5743A) 0 to 20 V, 38 A (N5744A)	0 to 30 V, 25 A (N5745A) 0 to 40 V, 19 A (N5746A)
N5761A-72A	19	1	0 to 6 V, 180 A (N5761A) 0 to 8 V, 165 A (N5762A)	0 to 12.5 V, 120 A (N5763A) 0 to 20 V, 76 A (N5764A)	0 to 30 V, 50 A (N5765A) 0 to 40 V, 38 A (N5766A)
N6731B-36B	28	1 to 4 ¹	0 to 5 V, 10 A (N6731B) 0 to 8 V, 6.25 A (N6732B)	0 to 20 V, 2.5 A (N6733B)	0 to 35 V, 1.5 A (N6734B)
N6741B-46B	28	1 to 4 ¹	0 to 5 V, 20 A (N6741B) 0 to 8 V, 12.5 A (N6742B)	0 to 20 V, 5 A (N6743B)	0 to 35 V, 3 A (N6744B)
N6751A-52A N6761A-62A N6773A-77A	28	1 to 4 ¹		0 to 20 V, 15 A (N6773A)	0 to 35 V, 8.5 A (N6774A)
N6753A-56A N6763A-66A	28	2 ¹		0 to 20 V, 50 A (N6753A) 0 to 20 V, 50 A (N6755A) 0 to 20 V, 50 A (N6763A) 0 to 20 V, 50 A (N6765A)	
N6781A-86A	42	1 to 4 ¹	0 to 6 V, +3 to-2 A (N6783A-MFG) 0 to 8 V, +3 to-2 A (N6783A-BAT)	0 to 20 V, ± 3 A (N6781A-82A) 0 to ± 20 V, ± 3 A (N6784A) 0 to 20V, ± 8 A (N6785-86A)	
N6950A-52A, N6970A-72A N7950A-52A, N7970A-72A	26 26	1 1	0 to 9 V, 100 A (N69/N7950A) 0 to 9 V, 200 A (N69/N7970A)	0 to 20 V, 50 A (N69/N7951A) 0 to 20 V, 100 A (N69/N7971A)	0 to 40 V, 25 A (N69/N7952A) 0 to 40 V, 50 A (N69/N7972A)
N8731A-42A	19	1	0 to 8 V, 400 A (N8731A)	0 to 10 V, 300 A (N8732A) 0 to 15 V, 220 A (N8733A) 0 to 20 V, 165 A (N8734A)	0 to 30 V, 110 A (N8735A) 0 to 40 V, 85 A (N8736A)
N8754A-62A	19	1		0 to 20 V, 250 A (N8754A)	0 to 30 V, 170 A (N8755A) 0 to 40 V, 125 A (N8756A)
RP7931A-36A	40	21		0-20 V, ± 400 A (RP7931A/41A)	
RP7941A-46A	40	21		0-20 V, ± 800 A (RP7933A/43A)	
U8031A	17	3			0 to 30 V, 6 A (Output 1 and 2);5V, 3 A (Output 3)
B1500A	54	1 to 10 ³	50 to 80 V: 0 to ± 200 V, ± 0.1 A to ± 1 A	100 to 210 A: 0 to ± 200 V, ± 0.1 A to ± 1 A	
B2901BL	48	1			0 to ± 21 V, ± 1.5 A
M9614A-15A	47	5			0 to ± 30 V, ± 0.5 A
PZ2130A-31A	45	5			0 to ± 30 V, ± 0.5 A (Ch1,2) 0 to ± 30 V, ± 0.75 A (Ch 3,4,5)

Voltage ranges: 50 to 1500 V

Model numbers	Page	Outputs	30 to 80 V	100 to 210 V	1500 to 2000 V
E36154A	17	1	0 to 30 V, 80A		
E36155A	16	1	0 to 60 V, 40 A		
EDU36311A	17	3	0 to 6 V, 5 A	0 - 30 V, 1 A	0 - 30 V, 1 A
B2961B-62B	24	1 to 2		0 to ± 210 V, ± 3 A / ± 10.5 A for pulse	
E36102B-06B	16	1	0 to 60 V, 0.6A (E36105B)	0 to 100 V, 0.4 A (E36106B)	
E3640A-45A ²	17	1	0 to 60 V, 0.5 A (E3641A r2) 0 to 60 V, 1.3 A (E3645A r2)		
E3646A-49A ²	17	2	0 to 60 V, 0.5 A (E3647A r2)		
E4361A-62A	64	1 to 2 ¹	0 to 65 V, 8.5 A (E4361A)	0 to 130 V, 5 A (E4362A)	
E5260/70	52	1 to 8 ¹	50 to 80V: 0 to ± 200 V, ± 0.1 A	100 to 210 A: 0 to ± 200 V, ± 0.1 A to ± 1 A	
E5262/63	52	2	50 to 80 V	0 to ± 200 V, ± 0.2 A (E5262A); 0 to ± 200 V, ± 0.2 A to ± 1 A (E5263A)	
			100 to 210 A	0 to ± 200 V, ± 0.2 A (E5262A); 0 to ± 200 V, ± 0.2 A to ± 1 A (E5263A)	
N5741A-52A	19	1	0 to 60 V, 12.5 A (N5747A)	0 to 100 V, 7.5 A (N5749A)	0 to 300 V, 2.5 A (N5751A) 0 to 600 V, 1.3 A (N5752A)
N5761A-72A	19	1	0 to 60 V, 25 A (N5767A)	0 to 100 V, 15 A (N5769A)	0 to 300 V, 5 A (N5771A) 0 to 600 V, 2.6 A (N5772A)
N6731B-36B	28	1 to 4 ¹	0 to 60 V, 0.8 A (N6735B)	0 to 100 V, 0.5 A (N6736B)	
N6741B-46B	28	1 to 4 ¹	0 to 60 V, 1.6 A (N6745B)	0 to 100 V, 1 A (N6746B)	
N6751A-52A N6773A-77A	28	1 to 4 ¹	0 to 50 V, 5 A (N6751A) 0 to 50 V, 1.5 A (N6761A) 0 to 60 V, 5 A (N6775A)	0 to 100 V, 3 A (N6776A)	
N6753A-56A	28	2 ¹	0 to 60 V, 20 A (N6754A) 0 to 60 V, 20 A (N6764A) 0 to 60 V, 17 A (N6766A)		
N6953A-54A	26	1	0 to 60 V, 16.7 A (N69/N7953A)	0 to 120 V, 16.7 A (N69/N7976A)	
N6973A-77A	26	1	0 to 60 V, 33.3 A (N69/N7973A)	0 to 160 V, 12.5 A (N69/N7977A)	
N7973A-77A	26	1	0 to 80 V, 25 A (N69/N7974A)		
N8731A-42A	19	1	0 to 60 V, 55 A (N8737A)	0 to 100 V, 33 A (N8739A)	0 to 300 V, 11 A (N8741A) 0 to 600 V, 5.5 A (N8742A)
N8754-62A	19	1	0 to 60 V, 85 A (N8757A)	0 to 100 V, 50 A (N8759A)	0 to 300 V, 17 A (N8761A) 0 to 600 V, 8.5 A (N8762A)
N8920A-57A	21	1	0 to 80 V, 170 A (N8920A/40A)	0 to 200 V, 70 A (N8921A/41A)	0 to 500 V, 30 A (N8923A/43A)
N8937APV/ 57APV	21	1	0 to 80 V, 340 A (N8925A/45A)	0 to 200 V, 140 A (N8926A/46A)	0 to 500 V, 60 A (N8928A/48A) 0 to 500 V, 90 A (N8934A/54A) 0 to 750 V, 20 A (N8924A/44A) 0 to 750 V, 40 A (N8929A/49A) 0 to 750 V, 60 A (N8935A/55A) 0 to 1000 V, 30 A (N8930A/50A) 0 to 1500 V, 30 A (N8937A/57A/APV)

Voltage ranges: 50 to 1500 V

Model numbers	Page	Outputs	30 to 80 V	100 to 210 V	1500 to 2000 V
RP7931A-36A	40	1	0-80 V, ± 125 A (RP7932A/42A)	0-160 V, ± 125 A (RP7936A/46A)	0-500 V, ± 20 A (RP7951A/61A)
RP7951A-53A	40	1			0-500 V, ± 40 A (RP7952A/62A)
RP7951A-53A	40	1			0-950 V, ± 20 A (RP7953A/63A)
RP7961A-63A	40	1			0 to 500 V, ± 20 A (RP7951A/61A)
RP7972A	40	1			0 to 500 V, ± 40 A (RP7952A/62A)
RP7982A	40	1			0 to 950 V, ± 20 A (RP7953A/63A)
RP7983A RP7984A	40	1			0 to 1000 V ± 60 A (RP7972A)
					0 to 1000 V ± 90 A (RP7982A)
					0 to 2000 V ± 30 A (RP7973/83A)
U8032A	17	3	0 to 60 V, 3 A (Output 1 and 2)		
B2910BL	48	1		0 to ± 210 V, ± 1.5 A	
B2901B/02B/ 11B/12B	48	1 to 2		0 to ± 210 V, ± 3 A / ± 10.5 A for pulse	
M9601-03A	46	1	0 to ± 60 V, - 0.13A to + 3.5 A / - 1 A to + 10.5 A for pulse (M9602A/03A)	0 to ± 210 V, ± 0.315 A (M9601A)	
PZ2110A-21A	44	1	0 to ± 60 V, - 0.13A to + 3.5 A / pulsed - 1 A to + 10.5 A (PZ2120A/21A)	0 to ± 210 V, ± 0.315 A (PZ2110A)	

1. Power modules that require a modular mainframe (66000 Series, N6700 Series, N6705).
2. Dual range power supplies; r1 denotes range 1; r2 denotes range 2.
3. The maximum number of modules depends on the configuration.

E3600, E36100, E36150, E36200, E36300, and U8000 Series Bench Power Supplies

E36300 series

The triple-output E36300 series gives you the performance of system power supplies at an affordable price.

- 4.3" color LCD Display
- Intuitive, easy-to-use front panel interface
- Meter view to display more info on a selected channel
- Auto series/parallel connection

Please visit the [E36300 series](#) for more information.

E36100B series

The E36100B series will impress you from every angle, size, display, and I/O.

- Small footprint 2U 1/4 rack
- Up to 100 V, up to 5 A
- Clean and stable DC power
- Excellent programming and readback accuracy
- LAN (LXI Core) and USB

Please visit the [E36100B series](#) for more information.

E36150 series

The E36150 series Autoranging power supply offers plenty of usable power and features to power your next insights as you design, test, and optimize your electronic products.

- Peak power handling up to 3x max power rating
- Detachable front binding post that supports high current up to 80A
- Built-in auto-protection mechanism (over-voltage, over-current, over-temperature protection)
- Data logging, volt- and current-meter, adjustable slew rate, 4-wire remote sensing, LIST output programming, and digital controls.
- Upgrade to Keysight E36150ADVU for scope view and AWG functions that offer advanced characterization and power simulation (optional).
- Upgrade with Keysight E36150ATMU to enable enhanced programming speed, automotive ISO preset library, playback simulation, and E-logging features (optional).

Please visit the [E36150 series](#) for more information.

E36200 series

The Keysight E36200 series autoranging bench power supply can power devices that typically require higher-output power supplies with larger watt ratings

- Autoranging outputs to provide maximum current at all voltages
- 4.3-inch LCD color display
- Intuitive, easy-to-use front panel interface
- Auto series/parallel connection

Please visit the [E36200 series](#) for more information.

EDU36311A triple-output DC bench power supply

The EDU36311A offers robust design and usability at an affordable price. Its 90 W electrically isolated channels supply clean and reliable power. The 7-inch color wide video graphics array (WVGA) display gives you a clear view of the instrument setup and output status. You can remotely control the E36311A triple-output DC bench power supply via USB or LAN. This solution supported Keysight's PathWave BenchVue power supply application software for the PC.

Please visit [EDU36311A](#) for more information.

E3630, E3640, and U8000 series

The E3630 and E3640 Series offer an extensive choice of voltages, programmability, and number of outputs. The U8000 Series offers more affordable DC power and provides features typically only found in programmable power supplies (like output sequencing, save/recall, and more).

Please visit [E3630](#), [E3640](#), and [U8000](#) for more information.



	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 ²
Basic	E36154A	800	30	80	1	1	LAN	75	1	½ RU w x 3 RU h
	E36155A	800	60	40	1	1	USB, GPIB ³		1	
	E36311A	80	6 V/+25 V/-25 V	5 A/1 A/1 A	3	1	USB	2	1	
	E36312A	80	6 V/25 V/25 V	5 A/1 A/1 A	3	1	LAN,	2	1	
	E36313A	160	6 V/25 V/25 V	10 A/2 A/2 A	3	1	USB, GPIB	2	1	
	E36102B	30	6	5	1	1	LAN, USB	10	1	¼ RU w x 2 RU h
	E36103B	40	20	2	1	1		30	1	
	E36104B	35	35	1	1	1		60	2	
	E36105B	36	60	0.6	1	1		100	3	
	E36106B	40	100	0.4	1	1		150	6	
	E36231A	200	30	20	1	1	LAN, USB, GPIB	4	1	½ RU w x 3 RU h
	E36232A	200	60	10	1	1		3	3	
	E36233A	400	30	20	2	1		4	1	
	E36234A	400	60	10	2	1		3	3	
	E3632A	120	15 V r1 / 30 V r2	7 A r1 / 4 A r2	1	2	GPIB	2	1	½ RU w x 3 RU h
	E3640A	30	8 V r1 / 20 V r2	3 A r1 / 1.5 A r2	1	2	GPIB	5	5	½ RU w x 2 RU h
	E3641A	30	35 V r1 / 60 V r2	0.8 A r1 / 0.5 A r2	1	2		8	5	
	E3642A	50	8 V r1 / 20 V r2	5 A r1 / 2.5 A r2	1	2		5	5	
	E3643A	50	35 V r1 / 60 V r2	1.4 A r1 / 0.8 A r2	1	2		8	5	
	E3644A	80	8 V r1 / 20 V r2	8 A r1 / 4 A r2	1	2		5	5	
	E3645A	80	35 V r1 / 60 V r2	2.2 A r1 / 1.3 A r2	1	2	GPIB	8	5	½ RU w x 3 RU h
	E3646A	60	8 V r1 / 20 V r2	3 A r1 / 1.5 A r2	2	2		5	5	
	E3647A	60	35 V r1 / 60 V r2	0.8 A r1 / 0.5 A r2	2	2		8	5	
	E3648A	100	8 V r1 / 20 V r2	5 A r1 / 2.5 A r2	2	2		5	5	
	E3649A	100	35 V r1 / 60 V r2	1.4 A r1 / 0.8 A r2	2	2		8	5	
	U8031A	375	30	6	3	1	No	10	10	½ RU w
	U8032A	375	60	3	3	1		10	10	x 4 RU h

1. Output 1 / Output 2 / Output 3.

2. NOTE: RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either 1/2 or full. The height is the number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

3. Optional GPIB connectivity.

N5700 and N8700 Series ATE System DC Power Supplies

Space-saving power supplies with modern interfaces

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 offer 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, OCP, UVL, and OTP
- LXI Core compliant



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Please visit the [N5700](#) and [N8700](#) series for more information.



N5749A Front/back view



N8731A Front/back view

	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 ²
Basic	N5741A	600	6	100	1	1	60	0.5 + 3	≤ 1.5	Full RU w x 1 RU h
	N5742A	720	8	90	1	1	60	0.5 + 4	≤ 1.5	
	N5743A	750	12.5	60	1	1	60	0.5 + 6.25	≤ 1.5	
	N5744A	760	20	38	1	1	60	0.5 + 10	≤ 1	
	N5745A	750	30	25	1	1	60	0.5 + 15	≤ 1	
	N5746A	760	40	19	1	1	60	0.5 + 20	≤ 1	
	N5747A	750	60	12.5	1	1	60	0.5 + 30	≤ 1	
	N5748A	760	80	9.5	1	1	80	0.5 + 40	≤ 1	
	N5749A	750	100	7.5	1	1	80	0.5 + 50	≤ 1	
	N5750A	750	150	5	1	1	100	0.5 + 75	≤ 2	
	N5751A	750	300	2.5	1	1	150	0.5 + 150	≤ 2	
	N5752A	780	600	1.3	1	1	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	1	1	60	0.5 + 4	≤ 1.5	
	N5763A	1500	12.5	120	1	1	60	0.5 + 6.25	≤ 1.5	
	N5764A	1520	20	76	1	1	60	0.5 + 10	≤ 1	
	N5765A	1500	30	50	1	1	60	0.5 + 15	≤ 1	
	N5766A	1520	40	38	1	1	60	0.5 + 20	≤ 1	
	N5767A	1500	60	25	1	1	60	0.5 + 30	≤ 1	
	N5768A	1520	80	19	1	1	80	0.5 + 40	≤ 1	
	N5769A	1500	100	15	1	1	80	0.5 + 50	≤ 1	
	N5770A	1500	150	10	1	1	100	0.5 + 75	≤ 2	
	N5771A	1500	300	5	1	1	150	0.5 + 150	≤ 2	
	N5772A	1560	600	2.6	1	1	300	0.5 + 300	≤ 2	
	N8731A	3200	8	400	1	1	60	0.05 + 4	< 1	Full RU w x 2 RU h
	N8732A	3300	10	330	1	1	60	0.05 + 5	< 1	
	N8733A	3300	15	220	1	1	60	0.05 + 7.5	< 1	
	N8734A	3300	20	165	1	1	60	0.05 + 10	< 1	
	N8735A	3300	30	110	1	1	60	0.05 + 15	< 1	
	N8736A	3400	40	85	1	1	60	0.05 + 20	< 1	
	N8737A	3300	60	55	1	1	60	0.05 + 30	< 1	
	N8738A	3360	80	42	1	1	80	0.05 + 40	< 1	
	N8739A	3300	100	33	1	1	100	0.05 + 50	< 1	
	N8740A	3300	150	22	1	1	100	0.05 + 75	< 2	
	N8741A	3300	300	11	1	1	300	0.05 + 150	< 2	
	N8742A	3300	600	5.5	1	1	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	1	1	75	0.025 + 22.5	< 1	
	N8756A	5000	40	125	1	1	75	0.025 + 30	< 1	
	N8757A	5100	60	85	1	1	75	0.025 + 45	< 1	
	N8758A	5200	80	65	1	1	100	0.025 + 60	< 1	
	N8759A	5000	100	50	1	1	100	0.025 + 75	< 1	
	N8760A	5100	150	34	1	1	120	0.025 + 112.5	< 2	
	N8761A	5100	300	17	1	1	300	0.025 + 225	< 2	
	N8762A	5100	600	8.5	1	1	500	0.025 + 450	< 2	

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either ½ or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example: a 3 RU h has a height of 5.25" (133.3 mm).

N8900 Series Autoranging System DC Power Supplies

High-power, autoranging output does the job of multiple supplies.

The N8900 Series autoranging DC power supplies provide unprecedented flexibility by offering a wide range of voltage and current combinations at full power. Just one N8900 does the job of multiple power supplies! It's like having many power supplies in one!

- Up to 1500 V, up to 510 A
- 5 kW, 10 kW, and 15 kW models in a small 3U package
- Easily parallel to create “one” power supply with > 100 kW of power
- Protection from over-voltage, over-current and over-temperature
- Control via GPIB, USB, LAN (LXI Core), and analog programming



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Please visit the [N8900](#) series for more information.

	Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVpp	Programming accuracy 0.1% mV	Transient response (ms)	AC input voltages (VAC)	Size ¹
Basic	N8920A	5000	80	170	1	1	200	≤ 80	≤ 1.5	208	Full RU w x 3 RU h
	N8921A	5000	200	70	1	1	300	≤ 200	≤ 1.5	208	
	N8923A	5000	500	30	1	1	350	≤ 500	≤ 1.5	208	
	N8924A	5000	750	20	1	1	800	≤ 750	≤ 1.5	208	
	N8925A	10000	80	340	1	1	200	≤ 80	≤ 1.5	208	
	N8926A	10000	200	140	1	1	300	≤ 200	≤ 1.5	208	
	N8928A	10000	500	60	1	1	350	≤ 500	≤ 1.5	208	
	N8929A	10000	750	40	1	1	800	≤ 750	≤ 1.5	208	
	N8930A	10000	1000	30	1	1	800	≤ 1000	≤ 1.5	208	
	N8931A	15000	80	510	1	1	200	≤ 80	≤ 1.5	208	
	N8932A	15000	200	210	1	1	300	≤ 200	≤ 1.5	208	
	N8934A	15000	500	90	1	1	350	≤ 500	≤ 1.5	208	
	N8935A	15000	750	60	1	1	800	≤ 750	≤ 1.5	208	
	N8937A	15000	1500	30	1	1	1000	≤ 1500	≤ 1.5	208	
	N8940A	5000	80	170	1	1	200	≤ 80	≤ 1.5	400	Full RU w x 3 RU h
	N8941A	5000	200	70	1	1	300	≤ 200	≤ 1.5	400	
	N8943A	5000	500	30	1	1	350	≤ 500	≤ 1.5	400	
	N8944A	5000	750	20	1	1	800	≤ 750	≤ 1.5	400	
	N8945A	10000	80	340	1	1	200	≤ 80	≤ 1.5	400	
	N8946A	10000	200	140	1	1	300	≤ 200	≤ 1.5	400	
	N8948A	10000	500	60	1	1	350	≤ 500	≤ 1.5	400	
	N8949A	10000	750	40	1	1	800	≤ 750	≤ 1.5	400	
	N8950A	10000	1000	30	1	1	800	≤ 1000	≤ 1.5	400	
	N8951A	15000	80	510	1	1	200	≤ 80	≤ 1.5	400	
	N8952A	15000	200	210	1	1	300	≤ 200	≤ 1.5	400	
	N8954A	15000	500	90	1	1	350	≤ 500	≤ 1.5	400	
	N8955A	15000	750	60	1	1	800	≤ 750	≤ 1.5	400	
	N8957A	15000	1500	30	1	1	1000	≤ 1500	≤ 1.5	400	

E36150 Series Autoranging Benchtop Power Supply

Power and characterize up to 800 W safely and easily with our auto-ranging benchtop power supply. The Keysight E36150 Series autoranging benchtop power supply features two models with 800 W power on a single channel output. These power supplies provide up to 60 V and 80 A, giving you plenty of usable power to meet your testing needs. The E36150 Series power supplies also provide advanced characterization and power simulation capabilities. These include a voltage and current meter, data logging, a scope view, and an arbitrary waveform generator (AWG). Feature-packed to deliver high performance, the E36150 Series provides a one-box solution that eliminates the demand of having to meet the requirements of multiple instruments. The E36150 Series power supplies are designed for versatility and are perfect for various applications, including R&D, design validation, reliability, and quality testing across all industries. The solution features an autoranging architecture and peak power handling capabilities, enabling you to meet your various test requirements with plenty of usable power and flexibility.

- Reducing cabling complexity
 - Enables easy access to power outputs to connect and disconnect the device under test (DUT) quickly and safely with its front-panel, high-current detachable binding post.
 - Withstands maximum current output of 80 A while fully complying with the International Electrotechnical Commission (IEC) 61010 safety requirements.
- Reducing cabling complexity
- Enables easy access to power outputs to connect and disconnect the device under test (DUT) quickly and safely with its front-panel, high-current detachable binding post.
- Withstands maximum current output of 80 A while fully complying with the International Electrotechnical Commission (IEC) 61010 safety requirements.
- Reducing cabling complexity
- Enables easy access to power outputs to connect and disconnect the device under test (DUT) quickly and safely with its front-panel, high-current detachable binding post.
- Withstands maximum current output of 80 A while being fully compliant with the International Electrotechnical Commission (IEC) 61010 safety requirements

Please visit the [E36150](#) series for more information.



E36155A Autoranging 60 V, 40 A, 800 W

Model power output	EDU36311A	EDU36311A
Power output	800 W	
Channel	1	1
DC output rating (0 to 40 °C)	0 to 30 V	0 to 60 V
	0 to 80 A	0 to 40 A
Load regulation ± (% of output + offset)		
Voltage	< 0.01% + 2 mV	
Current	< 0.1% + 2 mA	
Line regulation ± (% of output + offset)		
Voltage	< 0.01% + 2 mV	
Current	< 0.1% + 2 mA	
Output ripple and noise		
Normal mode voltage, Vpp (20 Hz to 20 MHz)	< 75 mV	
Normal mode voltage, Vpp (20 Hz to 10 MHz)	< 5 mV	
Programming accuracy ± (% of output + offset) at 23 °C ± 5 °C for 12 months		
Voltage	0.03% + 6 mV	0.03% + 10 mV
Current	0.1% + 20 mA	0.1% + 10 mA
Readback accuracy ± (% of output + offset) at 23 °C ± 5 °C for 12 months		
Voltage	0.04% + 6 mV	0.04% + 10 mV
Current	0.1% + 20 mA	0.1% + 10 mA
Low Range Current	0.1% + 5 mA	0.1% + 4 mA
Load transient recovery time (Time to recover within the settling band following a load change from 50% to 100% and from 100% to 50% of full load)		
Voltage settling band	75 mV	150 mV
Time	< 1 ms	

B2960 Series 6.5 Digit Low Noise Source Power Supplies

Revolutionary power supply/source meets both existing and future test needs

The Keysight B2961B/B2962B 6.5 Digit Low Noise Power Source is a new bench-top power supply/source with revolutionary capabilities and functions not previously available:

- 6.5 digit precision, wide and bipolar (4-quadrant) output
- Both voltage (100 nV to 210 V) and current (10 fA – 3A DC/10.5 A pulsed) source modes
- 10 μ Vrms (1 nVrms/ $\sqrt{\text{Hz}}$ at 10 kHz) output noise with an external ultra-low noise filter
- 100 nV/10 fA sourcing resolution
- Precision arbitrary waveform generation capability (1 MHz to 10 kHz)
- Programmable output resistance and emulation
- Time domain voltage/current monitoring on the front panel

These superior capabilities allow tests and evaluations that conventional power supplies/sources cannot do. They make the B2960 series an ideal companion instrument for other instruments such as oscilloscopes, network analyzers, spectrum analyzers, frequency counters, digital multi-meters, nanovoltmeters, etc.

A wide variety of B2961B/B2962B applications

Battery-powered devices continue to reduce their supply voltage levels to reduce power consumption, which requires ever more precise power sources to characterize device behavior accurately. Noise performance requirements continue to become more stringent in application areas such as mobile communications due to higher data rates and faster clock frequencies. These technology trends make testing advanced products increasingly difficult due to their extreme sensitivity to noise and other external disturbances. As a result, more power supplies/sources with more precision, better noise performance, and more versatile sourcing functions are needed more than ever.

The B2961B/B2962B meet these requirements, and they can be used for a wide variety of applications that permit you to perform critical tests and evaluations that have not been previously possible. In addition, the B2961B/B2962B's superior performance and innovative functions make these instruments ideal companion power supplies/sources for use with other instruments such as network analyzers, spectrum analyzers, digital multimeters, and nano-voltmeters.

Please visit the [B2960](#) series for more information.



B2962B series 6.5 digit low noise source power supplies



PathWave BenchVue software enabled

Model			B2961B/ B2962B	B2961B/62B With HC-ULNF (High current ultra-low noise filter)	B2961B/62B with ULNF (ultra-low noise filter)	B2961B/62B with LNF (Low noise filter)
Performance	Number of channels		1 or 2	1 or 2	1 or 2	1 or 2
	Max output	Voltage	± 210 V	± 21 V	± 42 V	± 210 V
		Current	DC ± 3.03 A	± 500 mA	± 105 mA	± 3.03 A
			Pulsed ± 10.5 A	± 500 mA	± 105 mA	± 10.5 A
		Power	31.8 W	10.5 W	4.4 W	31.8 W
	Source	Max digits	Digits 6 ½	6 ½	6 ½	6 ½
		Min resolution	Voltage 100 nV	100 nV	100 nV	100 nV
			Current 10 fA	10 pA	10 pA	10 pA
	Noise	0.1 Hz to 10 Hz	< 5 µVpp < 1 pApp	< 5 µVpp < 1 pApp	< 5 µVpp < 1 pApp	< 5 µVpp < 1 pApp
		10 Hz to 20 MHz	3 mVrms	10 µVrms (1 nVrms/√Hz at 10 kHz)	10 µVrms (1 nVrms/√Hz at 10 kHz)	350 µVrms
Measurement	Max digits	Digits	4 ½	4 ½	4 ½	4 ½
	Min programmable interval for arbitrary waveform		10 µs (100,000 pts/s)	10 µs (100,000 pts/s)	10 µs (100,000 pts/s)	10 µs (100,000 pts/s)

N6900 and N7900 Advanced Power System (APS)

Overcome your most demanding power test challenges

With Advanced Power System (APS) 1 kW and 2 kW system power supplies, you get a new level of power supply performance. VersaPower architecture delivers industry-leading specifications and innovative features for today's advanced ATE power testing needs—the fastest, most accurate, integrated power system.

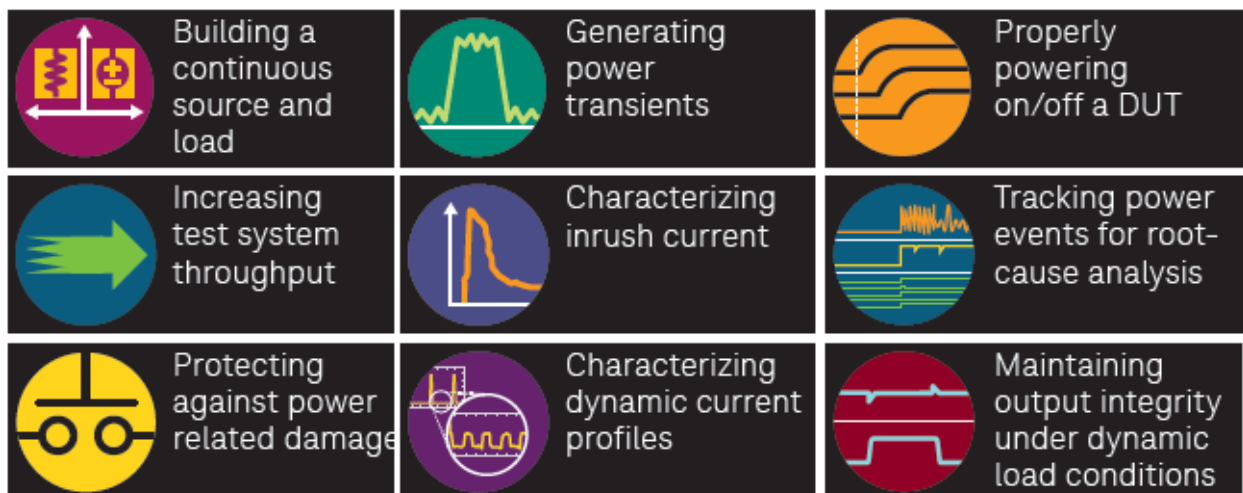
- Accelerate test-system throughput with industry-leading speed.
- Capture your DUT's current profile with accurate measurements
- Reduce your ATE development time and cost with highly integrated capabilities



BenchVue
software
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Please visit the [N6900](#) and [N7900](#) Advanced Power Systems for more information.

Overcome a wide variety of power test challenges with the APS.



Need high performance in your ATE system?

Choose the Keysight N6900 Series APS DC Power Supply.

Need high-speed dynamic sourcing and measurement?

Choose the Keysight N7900 Series APS Dynamic DC Power Supply.

Get lots of power in a small test-system footprint

Two power ranges deliver a large amount of power in a small test-system footprint



} 1000 W in 1U



} 2000 W in 2U



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	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 (µs)	Size ¹
Performance	N6950A	1000	9	100	1	1	9	0.03 + 1.5	100	Full RU w x 1 RU h
	N6951A	1000	20	50	1	1	9	0.03 + 3	100	
	N6952A	1000	40	25	1	1	9	0.03 + 6	100	
	N6953A	1000	60	16.7	1	1	9	0.03 + 9	100	
	N6954A	1000	80	12.5	1	1	9	0.03 + 12	100	
	N6970A	2000	9	200	1	1	9	0.03 + 1.5	100	Full RU w x 2 RU h
	N6971A	2000	20	100	1	1	9	0.03 + 3	100	
	N6972A	2000	40	50	1	1	9	0.03 + 6	100	
	N6973A	2000	60	33	1	1	9	0.03 + 9	100	
	N6974A	2000	80	25	1	1	9	0.03 + 12	100	
	N6976A	2000	120	16.7	1	1	30	0.03 + 17	100	Full RU w x 1 RU h
	N6977A	2000	160	12.5	1	1	30	0.03 + 24	100	
	N7950A	1000	9	100	1	1	9	0.03 + 1	100	
	N7951A	1000	20	50	1	1	9	0.03 + 2	100	
	N7952A	1000	40	25	1	1	9	0.03 + 4	100	
	N7953A	1000	60	16.7	1	1	9	0.03 + 6	100	Full RU w x 2 RU h
	N7954A	1000	80	12.5	1	1	9	0.03 + 8	100	
	N7970A	2000	9	200	1	1	9	0.03 + 1	100	
	N7971A	2000	20	100	1	1	9	0.03 + 2	100	
	N7972A	2000	40	50	1	1	9	0.03 + 4	100	
	N7973A	2000	60	33	1	1	9	0.03 + 6	100	
	N7974A	2000	80	25	1	1	9	0.03 + 8	100	
	N7976A	2000	120	16.7	1	1	30	0.03 + 11	100	
	N7977A	2000	160	12.5	1	1	30	0.03 + 14	100	

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either 1 or 2 or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

N6700 Low-Profile Modular Power System

An extensive family of modular power in a 1U package

The N6700 Series 1U-high, multiple-output programmable DC power supply and DC electronic load systems allow you 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
- DC electronic load modules available with 60 to 200 W capability
- Mix and match from 36 different DC power modules, ranging from 50 W, 100 W, 300 W, or 500 W
- Streamline your tasks with built-in measurements, output sequencing, 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 Core)



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N6702C

N6700 low-profile modular power system mainframe

Model	Power (W)	Max # modules	Physical size ¹
6700C	400	4	Full RU w x 1RU h
6701C	600	4	
6702C	1200	4	

Please visit the [N6700](#) low-profile modular power system for more information.



	Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of slots occupied	Number of ranges	Ripple and noise mVp-p	Programming accuracy % +mV	Transient response (μ s)
Basic	N6731B	50	5	10	1	1	1	10	0.1 + 19	< 200
	N6732B	50	8	6.25	1	1	1	12	0.1 + 19	< 200
	N6733B	50	20	2.5	1	1	1	14	0.1 + 20	< 200
	N6734B	50	35	1.5	1	1	1	15	0.1 + 35	< 200
	N6735B	50	60	0.8	1	1	1	25	0.1 + 60	< 200
	N6736B	50	100	0.5	1	1	1	30	0.1 + 100	< 200
	N6741B	100	5	20	1	1	1	11	0.1 + 19	< 200
	N6742B	100	8	12.5	1	1	1	12	0.1 + 19	< 200
	N6743B	100	20	5	1	1	1	14	0.1 + 20	< 200
	N6744B	100	35	3	1	1	1	15	0.1 + 35	< 200
	N6745B	100	60	1.6	1	1	1	25	0.1 + 60	< 200
	N6746B	100	100	1	1	1	1	30	0.1 + 100	< 200
	N6773A	300	20	15	1	1	1	20	0.1 + 20	< 250
	N6774A	300	35	8.5	1	1	1	22	0.1 + 35	< 250
	N6775A	300	60	5	1	1	1	35	0.1 + 60	< 250
	N6776A	300	100	3	1	1	1	45	0.1 + 100	< 250
	N6777A	300	150	2	1	1	1	68	0.1 + 150	< 250
Performance	N6751A	50	50	5	1	1	Autoranging	4.5	0.06 + 19	< 100
	N6752A	100	50	10	1	1	Autoranging	4.5	0.06 + 19	< 100
	N6753A	300	20	50	1	2	Autoranging	5	0.06 + 10	< 100
	N6754A	300	60	20	1	2	Autoranging	6	0.06 + 25	< 100
	N6755A	500	20	50	1	2	Autoranging	5	0.06 + 10	< 100
	N6756A	500	60	17	1	2	Autoranging	6	0.06 + 25	< 100
Precision	N6761A	50	50	1.5	1	1	Autoranging	4.5	0.016 + 6	< 100
	N6762A	100	50	3	1	1	Autoranging	4.5	0.016 + 6	< 100
	N6763A	300	20	50	1	2	Autoranging	5	0.03 + 5	< 100
	N6764A	300	60	20	1	2	Autoranging	6	0.03 + 12	< 100
	N6765A	500	20	50	1	2	Autoranging	5	0.03 + 5	< 100
	N6766A	500	60	17	1	2	Autoranging	6	0.03 + 12	< 100
Specialty										
Additional N6780 series source measure unit modules and application-specific modules are available; see page 43.										
DC electronic loads										
For additional N6790 Series DC electronic loads, see page 31										

N6705C 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 N6705C combines one to four DC power supplies, or DC electronic loads, a DMM, an oscilloscope, an arbitrary waveform generator, and a data logger in one integrated package.

- Saves time—no programming is 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 28
- DC electronic load modules available with 60 to 200 W capability
- Computer control via GPIB, USB, and LAN (LXI Core)

Please visit the [N6705C](#) DC power analyzer for more information.



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

N6790 Series DC Electronic Loads

Programmable loads with measurements

The N6790 Series DC electronic loads allow you to test power supplies in a 1U footprint. The built-in measurement system provides accuracy and convenience and eliminates the need for a DMM, external shunts, and wiring. The N6790 multiple-input models are fast, accurate, and ideal for high-volume manufacturing.

- High-speed digitizing capability
- Increase test throughput with short command processing time
- Test multiple power supply outputs with up to 4 modules with 60 to 200 W capability
- Operate in constant current, constant voltage, constant resistance, and constant power modes
- Measure voltage and current simultaneously
- Use in parallel for greater current-sinking capability
- Built-in arbitrary waveform generator

Please visit the [N6790](#) series DC electronic loads for more information.

N6700 mainframes

Model	Max # modules	Physical size ¹
N6791A in N6700 Low Profile Mainframe	4	1 RU h
N6791A in N6705C Power Analyzer	4	4 RU h
N6792A in N6700 Low Profile Mainframe	2	1 RU h
N6792A in N6705C DC Power Analyzer	2	4 RU h



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Model	Input power (W)	Maximum input V (V)	Maximum input I (A)	Constant current accuracy % +mA	Constant voltage accuracy % + mV	Current measurement accuracy +mA	Voltage measurement accuracy % + mV	Width, slot
N6791A	100	60	20	0.04 + 0.46	0.03 + 7.2	0.04 + 0.40	0.03 + 7.2	1
N6792A	200	60	40	0.04 + 0.92	0.03 + 7.2	0.04 + 0.82	0.03 + 7.2	2

EL30000 Series Bench Electronic Loads

Visualize your test insights in real time

The Keysight EL30000 series bench electronic load with a built-in data logger provides new test insights for your devices, like power supplies, batteries, DC to DC converters, and more. View voltage and current trends to make real-time decisions rather than waiting hours for a test to complete. At the heart of the EL30000 is a highly accurate measurement system that provides real-time updates to the large display. Single and dual-channel models are available with up to 600 W for measurements that require more power. Start your test with confidence and finish with results you trust.

- Test voltages up to 150 V
- Sink current up to 60 or 120 A
- Use operating modes: constant voltage (CV), constant current (CC), constant resistance (CR), constant power (CP)
- Save data internally or to an external USB flash drive
- Improve load regulation with a four-wire remote sense
- Create dynamic load profiles with the device's LIST function
- Connect with USB, LAN (LXI Core), and optional GPIB



Please visit the [EL30000](#) series bench electronic loads for more information.



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Performance specifications (23 °C ± 5 °C)		EL33133A	EL34143A	EL34243A	
Maximum input power		250 W	350 W	300 W	300 W
Channel		1	1	1	2
Input ratings (0 to 43 °C)		0 to 150 V	0 to 150 V	0 to 150 V	0 to 150 V
		0 to 40 A	0 to 60 A	0 to 60 A	0 to 60 A
Parallel mode current ¹		NA	NA	120A	120 A
Programming accuracy ± (% of output + offset)					
Constant current mode ²	Low	0.05% + 820 µA	0.04% + 130 µA		
	Medium	–	0.04% + 2 mA		
	High	0.05% + 7.2 mA	0.04% + 12 mA		
Constant voltage mode	Low, 15 V	0.03% + 4.2 mV	0.02% + 3 mV		
	High, 150 V	0.03% + 15 mV	0.02% + 15 mV		
Readback accuracy ± (% of output + offset)					
Current ²	Low	0.05% + 820 µA	0.04% + 120 µA		
	Medium	–	0.04% + 1.8 mA		
	High	0.05% + 7.2 mA	0.04% + 9.6 mA		
Voltage	Low, 15 V	0.03% + 4.2 mV	0.02% + 3 mV		
	High 150 V	0.03% + 15 mV	0.02% + 15 mV		

1. Do not connect the dual inputs on EL34243A in series; parallel mode is only allowed for CC, CR, and CP.

2. Current ranges: (EL33133A – Low = 4 A; High = 40 A) (EL34143A/EL34243A – Low = 0.6 A; Medium = 6 A; High = 60 A)

N3300 Series DC Electronic Loads

Programmable loads with measurements

The N3300 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.

- Increase test throughput with short command processing time and stored command sequences.
- Test multiple power supply outputs with up to 6 modules with 150 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

Please visit the [N3300](#) series DC electronic loads for more information.



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N3300 mainframes

Model	Max # modules	Physical size ¹
N3300A	6	Full RU w x 4 RU h
N3301A	2	½ RU w x 4 RU h

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either ½ or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

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

AC Power Sources

An integrated AC power solution

Keysight offers two families of AC power sources to meet your AC test challenges —from basic to complex. The AC6800 Series of basic AC sources offer stable, reliable power with models available up to 4000 VA. The 6800C series of performance AC sources provide a complete AC test solution with a built-in arbitrary waveform generator to simulate many types of power waveforms at power levels up to 1750 VA. Both families may also be used to produce DC power, either alone or as a DC offset to an AC waveform. All models are backed with global support.

AC6800B Series Basic AC Power Sources

The quality and capability you need



AC6800B series

- Models up to 4000 VA are available to meet your basic AC power source and measurement requirements.
- An intuitive user interface tested over time
- LAN/LXI Core and USB (standard), and GPIB (optional plug-in card)
- Built-in remote sensing

Please visit the [AC6800B](#) series for more information.

6800C Series Performance AC Power Sources/Analyzers

The complete AC power test solution



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6800C series

- Models up to 1750 VA are available to meet your performance AC source requirements.
- Extensive built-in power measurement capabilities
- LAN, USB, and GPIB
- Integrated transient waveform generation and harmonic capabilities to simulate and analyze your AC environment

Please visit the **6800C** series for more information.

	Model	RMS power	RMS voltage	RMS current	Output frequency	Peak current	DC power	DC voltage
Performance	AC6801B	500 VA	310 V	5 A	500 Hz	7.5 A	400 W	380 V
	AC6802B	1000 VA	310 V	10 A	500 Hz	15 A	800 W	380 V
	AC6803B	2000 VA	310 V	20 A	500 Hz	30 A	1600 W	380 V
	AC6804B	4000 VA	310 V	40 A	500 Hz	60 A	3200 W	380 V
	6811C	375 VA	300 V	3.25 A	1 kHz	40 A	285 W	425 V
	6812C	750 VA	300 V	6.5 A	1 kHz	40 A	575 W	425 V
	6813C	1750 VA	300 V	13 A	1 kHz	80 A	1350 W	425 V

AC6900 Series Three-Phase AC Power Solution

A complete three-phase AC power solution



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AC6900 series

Keysight's AC6900 Series AC power sources provide a complete AC and DC power solution by combining the capabilities of a multimeter, harmonic analyzer, and power analyzer in one instrument. You can easily produce DC power, either alone or as a DC offset to an AC waveform, in a compact form factor.

- AC, DC, or AC plus DC mode
- Maximum AC voltage at 320 Vrms
- Frequency up to 5 kHz
- Single-phase, single-phase three-wire, or three-phase four-wire connections
- Power line disturbance tests
- Harmonic analysis
- Built-in waveform generation
- USB, LAN (LXI Core), and optional GPIB connectivity

Please visit the [AC6900](#) series for more information.

	Model	RMS power VA	AC voltage (L/H) V	RMS current/Ph A	Maximum frequency Hz	Max DC current A	DC voltage V
Performance	AC6903H	3000	160 / 320	10 / 5	5000	30 / 15	± 226 / ± 452
	AC6903L	3000	160 / 320	10 / 5	550	30 / 15	± 226 / ± 452
	AC6906H	6000	160 / 320	20 / 10	5000	60 / 30	± 226 / ± 452
	AC6906L	6000	160 / 320	20 / 10	550	60 / 30	± 226 / ± 452
	AC6912H	12000	160 / 320	40 / 20	5000	120 / 60	± 226 / ± 452
	AC6912L	12000	160 / 320	40 / 20	550	120 / 60	± 226 / ± 452
	AC6918H	18000	160 / 320	60 / 30	5000	180 / 90	± 226 / ± 452
	AC6918L	18000	160 / 320	60 / 30	550	180 / 90	± 226 / ± 452

E36731A Battery Emulator and Profiler

Your complete battery profiling and emulation solution



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The Keysight E36731A battery emulator and profiler is an integrated electronic load and power supply developed to use with Keysight BV9211B PathWave BenchVue battery emulation software. It provides a test environment for you to run battery tests and perform battery emulation with ease.

PW9253A PathWave Advanced Battery Test and Emulation Software

The Keysight E36731A works with the PW9253A PathWave Advanced Battery Test and Emulation and provides the following:

- Generate accurate battery profiles using the simulated current drain of a device.
- Instantly emulate any battery charge state and display real-time current drain data.
- Achieve accurate battery run-down tests by emulating your device’s current drain.
- Estimate battery aging effects to predict device performance throughout its lifetime.
- Streamline your workflow with an integrated power supply and an electronic load.
- Creates a battery model for any battery type.
- Power up to 200W, 30V, and 20A.

	Model	Power (W)	Maximum V (V)	Maximum I (A)	Ripple and noise mVp-p	Programming accuracy % + mV	Transient response (µs)	AC input voltage (VAC)
Specialty	E36731A	200	30	± 20	< 7	0.025 + 1.5	< 50 µs	100/240

MP4300A Series Modular Solar Array Simulators

Rapidly test satellite power systems under all conditions faced in space

The MP4300A series solar array simulator (SAS) will help you overcome your toughest solar array simulation test challenges by delivering industry-leading specifications and innovative features motivated by Keysight's decades of experience in SAS applications.



The MP4300 offers two classes of 1kW SAS modules: the highest-performance MP4361A 160V/10A auto-ranging module and the MP4362A 130V/8A module. It also offers two classes of 1.4 kW SAS modules, MP4351A 160 V/10 A and MP4352A 80 V/20 A, both of which are auto-ranging.

- Deliver up to 160 V, 20 A, and 1400 W per module.
- Maximize channel density with up to 6 modules per mainframe.
- Create a high-output power system capable of up to 10 kW per mainframe.
- Optimize rack space with a compact 2U-high size.
- Emulate multiple PV segments accurately using advanced hardware.
- Enable rapid deployment and debugging with an intuitive 5" touchscreen interface.

MP4300 mainframes

Model	Power (W)	Max # modules	Physical size ¹
MP4301A	6000	6	Full RU w x 2RU h
MP4302A	6000	6	
MP4303A	10000	6	
MP4304A	10000	6	

MP4300 SAS modules

	Model	Power (W)	Maximum V (V)	Maximum I (A)	Number of outputs	Number of ranges	Ripple and noise mVpp	Programming accuracy % + mV	Transient response (ms)	AC input voltage (VAC)	Size ¹
Specialty	MP4361A	1000	160	± 10	6	1	500	0.05 + 25	≤ 0.5	200/ 480	Full RU w x 2 RU h
	MP4362A	1000	130	± 8			500	0.075 + 25			
	MP4351A	1400	160	± 10			500	0.05 + 25			
	MP4352A	1400	80	± 20			250	0.05 + 12.5			

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either ½ or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

RP7900 Series Regenerative Power System

Create savings, not heat



RP7952A regenerative power system

The RP7900 Series regenerative power system reduces the cost of testing with highly integrated capabilities. The regenerative function enables the energy consumed to be returned to the grid cleanly.

- Operate in a two-quadrant mode as a power source and regenerative electronic load.
- Up to 2000 V, ± 800 A, and 30 kW per instrument.
- Fast output speed and sub-millisecond command processing time.
- Create up to 600 kW power or load through an easy parallel connection.
- Regeneration returns 90% of power to the grid, reducing cooling costs.
- RP7970 & RP7980 Series offer photovoltaic simulation capability.
- Connectivity includes LAN (LXI Core), USB, and GPIB.
- Compact 3U-high size

Please visit the [RP7900](#) series for more information.

	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)	AC input voltage (VAC)	Size ¹
Performance	RP7951A	5000	500	± 20	1	-	500	0.03 + 60	≤ 0.5	200/ 208	Full RU w x 3 RU h
	RP7952A	10000	500	± 40			500	0.03 + 60			
	RP7953A	10000	950	± 20			1000	0.03 + 120			
	RP7961A	5000	500	± 20	1	-	500	0.03 + 60	≤ 0.5	400/ 480	Full RU w x 3 RU h
	RP7962A	10000	500	± 40			500	0.03 + 60			
	RP7963A	10000	950	± 20			1000	0.03 + 120			
	RP7931A	5000	20	± 400	1	1	30	0.02 + 2	≤ 0.3	200/ 208	Full RU w x 3 RU h
	RP7932A	5000	80	± 125			80	0.02 + 8			
	RP7933A	10000	20	± 800			30	0.02 + 2			
	RP7935A	10000	80	± 250			80	0.02 + 8			
	RP7936A	10000	160	± 125	1	1	200	0.02 + 16	≤ 0.3	400/ 480	Full RU w x 3 RU h
	RP7941A	5000	20	± 400			30	0.02 + 2			
	RP7942A	5000	80	± 125			80	0.02 + 8			
	RP7943A	10000	20	± 800			30	0.02 + 2			
	RP7945A	10000	80	± 250			80	0.02 + 8			
	RP7946A	10000	160	± 125	1	1	200	0.02 + 16	≤ 0.3	400/ 480	ATE / 3U
	RP7972A	20000	1000	± 60			1500	0.04% + 75			
	RP7973A	20000	2000	± 30			3000	0.04% + 150			
	RP7982A	30000	1000	± 90			1500	0.03% + 75			
	RP7983A	30000	2000	± 30			3000	0.03% + 150			
	RP7984A	30000	1500	± 60	1	1	3000	0.03% + 100			

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either ½ or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

N6780 Series Source Measure Units (SMUs)

Deliver exceptional battery life



N6705C



N6781A / N6782A



N6785A

The N6781A and N6785A are 2-quadrant SMUs for battery drain analysis. They offer advanced features to accurately capture the power consumption of portable, battery-powered devices from 20 to 80 W. Whether the DUT is a mobile phone, “phablet,” tablet, or pacemaker, the N6781A and N6785A’s seamless measurement ranging, programmable output resistance, and auxiliary DVM helps you deliver exceptional battery life.

The N6782A and N6786A are 2-quadrant SMUs for a device with a function test of 20 to 80 W. It can 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 N6705C DC power analyzer mainframe for R&D and the N6700 low-profile mainframes for ATE.

- Seamless, dynamic measurements down to nA and μV (N6781A/82 and N6785A/86 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 GPIB, USB, and LAN (LXI Core)

Please visit the [N6780](#) series for more information.



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N6705C DC power analyzer

Flexible/reconfigurable

Available slots	The 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 % + μ V	Transient response (μ s)
Specialty	N6781A	20	20	± 3	12	0.025 + 1800	≤ 35
	N6782A	20	20	± 3	12	0.025 + 1800	≤ 35
	N6784A	20	± 20	± 3	12	0.025 + 1800	≤ 35
	N6785A	80	20	± 8	15	0.025 + 1800	≤ 35
	N6786A	80	20	± 8	15	0.025 + 1800	≤ 35

PZ2100 Series High-Channel Density Precision Source Measure Unit (SMU)

All your SMU needs within a 1U rack space

The Keysight PZ2100 Series is the leading automated test equipment (ATE) solution that integrates significant source/measure unit (SMU) resources into valuable rack space with flexible module options.



BenchVue
software enabled

The PZ2100 provides flexible scalability with multiple SMU module options covering various applications, from conventional static DC measurements to emerging dynamic/pulsed measurements, overcoming your test and validation challenges. It lets you to:

- Achieve 5x higher channel density than conventional SMUs and utilize 20 channels in 1U full-width rack space.
- Choose from 5 SMU module options and integrate a pulser/digitizer for flexible scalability.
- Utilize a single-box solution with <50 ns synchronization accuracy on all 20 channels.
- Manage up to 20 channels maximum through a user-friendly graphical user interface.
- Perform static DC measurements down to 10 fA and pulsed measurements up to 15 MSa/s.
- Experience seamless operation and superior user experience through PW9251A PathWave IV Curve Measurement software.

Please visit the [PZ2100 Series Source/Measure Unit](#) for more information.

PZ2110A precision SMU module

The Keysight PZ2110A is a precision SMU that expands precise measurements from conventional static measurements to fast dynamic measurements. These are some of the key features:

- 10 fA resolution with 30 fArms measurement noise (1 PLC)
- Narrow pulse down to 20 μ s pulse width
- Fast Digitizer Mode with sampling rate up to 1.25 MSa/s
- Fast transient with 1.4 V/ μ s slew rate at maximum

PZ2120/21A high-speed SMU modules

The Keysight PZ2120A and PZ2121A are high-speed precision SMUs with best-in-class narrow pulse width, fast digitizer mode, fast transient response, and a seamless current measurement range.

- Best-in-industry narrow pulse down to 10 μ s pulse width and fast digitizer mode with 15 MSa/s sampling rate
- Wide output range up to 60 V/3.5 A DC/10.5 A pulse
- Wide dynamic range for dynamic measurement with seamless current measurement ranging
- Fast transient with 3.5 V/ μ s slew rate at maximum

PZ2130/31A high-channel density SMU modules

The Keysight PZ2130A and PZ2131A are high-channel density precision SMUs with 5 channels per module. It allows for the integration of up to 20 SMU channels into valuable 1U height, full width, rack space, and saving space at a low cost per channel for a wide range of applications requiring numerous precision power supplies.

- High channel density (20 Ch in 1U rack height, full width at max.)
- Narrow pulse down to 100 μ s pulse width and fast Digitizer Mode with sampling rate at 500 kSa/s (PZ2131A)
- Low voltage source noise down to 25 μ Vrms with low noise filter
- Wide dynamic range with seamless current measurement ranging

		PZ2110A	PZ2120A	PZ2121A	PZ2130A	PZ2131A
Number of channels		1	1		5	
Number of slots		2	1		1	
Output range	Max. voltage	210 V	60 V		30 V	
	Max. current (DC)	315 mA	3.5 A		500 mA	
	Max. current (Pulse)	315 mA	10.5 A		N/A	500 mA
Resolution	Min. voltage	500 nV	6 μ V		6 μ V	
	Min. current	10 fA	100 fA		100 pA	10 pA
Current measurement noise RMS (1 PLC)		30 fArms	400 fArms		75 pArms	35 pArms
Voltage source noise	Peak-to-peak (0.1 - 10 Hz)	< 4 μ V	< 12 μ V		< 20 μ V	
	Peak-to-peak (20 MHz)	< 25 mV	< 30 mV		< 12 mV	
	RMS (20 MHz)	< 3 mVrms	< 2.5 mVrms		< 1 mVrms (< 25 μ Vrms with PX0107A)	
	RMS (200 MHz)	< 5 mVrms	< 4.5 mVrms		< 3.3 mVrms	
Min. pulse width		20 μ s	50 μ s	10 μ s	N/A	100 μ s
Max. slew rate		1.4 V/ μ s	3.5 V/ μ s		0.15 V/ μ s	
Digitizer mode		Yes	Yes		No	Yes
Max. sampling rate		1.25 MSa/s	1 MSa/s	15 MSa/s	250 kSa/s	500 kSa/s
Auto measurement ranging		Yes	Yes		Yes	
Seamless current measurement ranging		No	Yes		Yes	

M9601A/02A/03A/14A/15A PXIe Precision Source/Measure Units (SMU)

The Keysight M9601A/02A/03A/14A/15A is a precision source/measure unit (SMU) that can source and measure both voltage and current for PXIe-based systems.

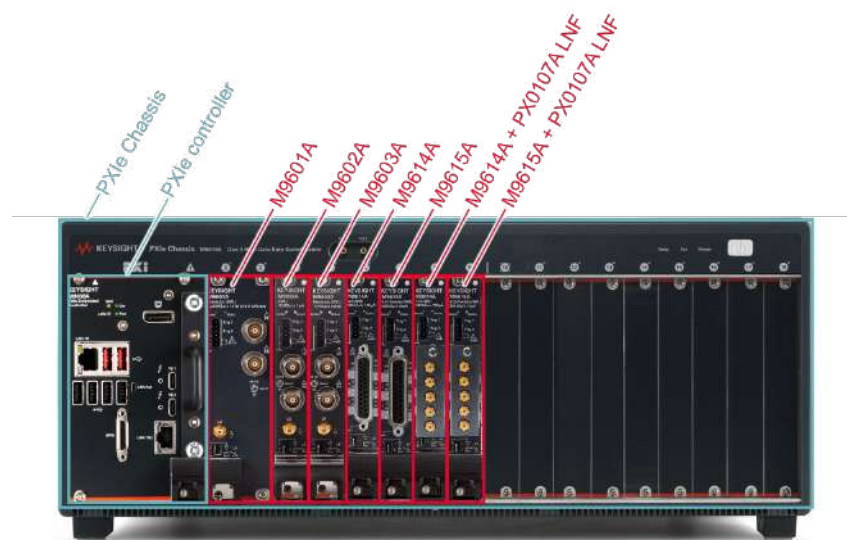
The PXIe platform enables

- A tightly synchronizing and compact test system integrating not only SMU but also various instruments such as VNA and digitizer
- An exceptionally highly scalable power supply / SMU system to dozens of channels and more

The Keysight M9601A/02A/03A/14A/15A PXIe Precision SMU has three types of modules and provides advanced source and measurement capabilities for various applications from DC to RF such as silicon photonics, VCSEL, RF power amplifier, Integrated circuit, semiconductor, and quantum computing.

They can be programmed using IVI and SCPI commands or controlled using easy-to-use software (Soft Front Panel and PX0109A Quick I/V Measurement Software) and LabView.

Please visit the [PXIe Source/Measure Unit](#) for more information.



All kinds of PXIe Precision SMU and the example of the configuration to use PXIe modules

M9601A PXIe Precision SMU

The M9601A SMU possesses the highest current measurement resolution (10 fA) of any member of the M9601A/02A/03A/14A/15A family of PXI SMUs. This makes it an ideal choice for applications such as measuring low-level leakage currents while applying or sweeping voltage/current or evaluating the insulation resistance of semiconductors, electronic components, and ICs.

M9602A/03A PXIe precision SMU

The M9602A/03A SMUs support specialized capabilities ideal for applications such as vertical cavity surface emitting laser (VCSEL) and integrated circuit (IC) production tests. Both SMUs can generate very short current pulses (down to 10 microseconds) and sample data up to 15 Mega samples per second (15 MSa/s).

The M9602A/03A SMUs support seamless measurement ranging. This gives the M9602A/03 SMUs the ability to measure DUT currents accurately and dynamically across a wide range of currents.

M9614A/15A PXIe 5-channel precision SMU

The M9614A/15A SMU provides five independent SMU channels in a single-slot module. It is ideal for applications requiring multiple SMU or bias channels, such as parallel reliability tests and burn-in and optical device tests. Like the M9602A/03A, the M9614A/15A SMUs support both fixed and seamless measurement ranges.

In addition, the external low-noise filter (LNF) PX0107A is available as an option. It reduces the noise level of M9614A/15A's output voltage to 25 μ Vrms (10 Hz to 20MHz). The M9614A/15A with LNF is suitable as the bias source for extremely noise-sensitive devices, such as quantum computers and analog circuits.

		M9601A	M9602A	M9603A	M9614A	M9615A
Number of channels		1	1		5	
Number of slots		2	1		1	
Output range	Max. voltage	210 V	60 V		30 V	
	Max. current (DC)	315 mA	3.5 A		500 mA	
	Max. current (Pulse)	315 mA	10.5 A		500 mA	
Resolution	Min. voltage	500 nV	6 μ V		6 μ V	
	Min. current	10 fA	1 pA	100 fA	100 pA	10 pA
Current measurement noise RMS (1 PLC)		30 fArms	400 fArms		75 pArms	35 pArms
Voltage source noise	Peak-to-peak (0.1 - 10 Hz)	< 4 μ V	Not specified		< 20 μ V	
	Peak-to-peak (20 MHz)	< 25 mV	< 40 mV		< 12 mV	
	RMS (20 MHz)	< 3 mVrms	< 3.5 mVrms		< 1 mVrms (< 25 μ Vrms with PX0107A)	
	RMS (200 MHz)	< 5 mVrms	< 6 mVrms		< 3.3 mVrms	
Min. pulse width		20 μ s	10 μ s		100 μ s	
Max. slew rate		1.4 V/ μ s	3.5 V/ μ s		0.15 V/ μ s	
Max. sampling rate		1.25 MSa/s	15 MSa/s		500 kSa/s	
Min programmable interval for List sweep		4 μ s	4 μ s		4 μ s	
Max. trigger count		Infinity for source 1 Mpts for measurement	Infinity for source 500 kpts for measurement		Infinity for source 500 kpts for measurement	

B2900 Series Precision Source / Measure Units (SMU)



BenchVue
software
enabled

The Keysight B2900 series are compact, cost-effective bench-top precision source/measure units (SMUs). The SMU combines the capabilities of a current source, voltage source, current meter, and voltage meter, and the capability to seamlessly and effortlessly switch between these various functions in a single instrument. It offers:

- Test capability up to 210 V and 3 A (DC) or 10.5 A (pulsed) with a single instrument
- Best-in-class 6.5 digit source and measurement resolution down to 10 fA and 100 nV
- 10 μ s digitizing capability
- Innovative GUI facilitates fast bench-top testing, debugging, and characterization.
- Ultrafast throughput for lower cost-of-test
- Four software control options

These capabilities are ideal for various IV (current versus voltage) measurement tasks requiring high resolution and accuracy. The innovative graphical user interface with four viewing modes (single view, dual view, graph view, and roll view) dramatically improves the usability and productivity of bench-top tests, debugging, and characterization. The Keysight B2900 series of SMU is also well-suited for production with a fast measurement speed.

Please visit the [B2900](#) series for more information.

			B2901BL	B2910BL	B2901B	B2902B	B2911B	B2912B
Specialty	Number of channels		1	1	1	2	1	2
	Output range	Max. voltage	± 21V	±210 V	± 210 V	± 210 V	± 210 V	± 210 V
		Max. current (DC)	± 1.5 A	±1.5 A	± 3.03 A	± 3.03 A	± 3.03 A	± 3.03 A
		Max. current (Pulse)	N/A	N/A	± 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	31.8 W	31.8 W
	Source	Max digits	5 ½	5 ½	5 ½	5 ½	6 ½	6 ½
		Min resolution	Voltage	1 µV	1 µV	1 µV	100 nV	100 nV
			Current	10 pA	100 fA	1 pA	10 fA	10 fA
	Measurement	Max digits	5 ½	5 ½	6 ½	6 ½	6 ½	6 ½
		Max resolution	Voltage	100 nV	100 nV	100 nV	100 nV	100 nV
			Current	1 pA	10 fA	100 fA	10 fA	10 fA
	Voltage source noise	Peak-to-peak (0.1 - 10 Hz)	< 10 µV	< 10 µV	< 10 µV	< 10 µV	< 10 µV	< 10 µV
		RMS (10 Hz to 20 MHz)	4.5 mVrms	4.5 mVrms	4.5 mVrms	4.5 mVrms	4.5 mVrms	4.5 mVrms
	Min. pulse width		N/A	N/A	100 µs	100 µs	100 µs	100 µs
	Max. slew rate		0.36 V/µs	0.36 V/µs	0.36 V/µs	0.36 V/µs	0.36 V/µs	0.36 V/µs
	Max sampling rate		5 kSa/s	20 kSa/s	50 kSa/s	50 kSa/s	100 kSa/s	100 kSa/s
	Min programmable interval for List sweep		200 µs	50 µs	20 µs	20 µs	10 µs	10 µs
	Max. trigger count		10 kpts	100 kpts	Infinity ¹	Infinity ¹	Infinity ¹	Infinity ¹

1. The source and measurement triggers can be set to infinity for B2901B/02B/11B/12B. When setting the source trigger to infinity, B2900B can read out the measurement data without any dead time during measurement when setting the measurement trigger to infinity.

U2720 USB Modular Source Measure Units

Source and measure DC voltage/current reliably



U2722A

The Keysight USB modular source measure unit (SMU) lets you perform sweeps and measurements using a single device. It offers voltage and current programming/readback with high-accuracy measurement capabilities. For increased power, you can configure each of the three channels separately or in a matrix—in series or parallel. It comes bundled with Keysight Measurement Manager (AMM) software, which 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 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 support in the Keysight BenchVue USB Modular SMU software application (for U2723A)
- Faster rise/fall time (for U2723A)
- Hi-Speed USB 2.0 (480 Mbps)

Please visit the [U2720](#) USB modular source measure units for more information.

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

Model		U2722A/23A		
Specialty		Range	Accuracy ¹	Resolution
	Voltage programming/ readback	± 2 V	0.075% + 1.5 mV	0.1 mV
		± 20 V	0.05% + 10 mV	1 mV
	Current programming/ readback	± 1 µA	0.085% + 0.85 nA	100 pA
		± 10 µA	0.085% + 8.5 nA	1 nA
		± 100 µA	0.075% + 75 nA	10 nA
		± 1 mA	0.075% + 750 nA	100 nA
		± 10 mA	0.075% + 7.5 µA	1 µA
		± 120 mA	0.1% + 100 µA	20 µA

Model		U2722A	U2723A
Specialty	Rise/fall time (ms) ¹	Range	Accuracy ¹
	For resistive measurement ²	± 1 µA	170.0
		± 10 µA	18.0
		± 100 µA	6.0
		± 1 mA	1.0
		± 10 mA	1.0
		± 120 mA	1.0

1. 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.
2. Measurements obtained are per the default bandwidth setting.

E5260A/E5270B Precision IV Analyzer/Source Monitor Unit Mainframe Series

Keysight Precision IV Analyzer Series (E5260A and E5270B) is the complete solution for current-voltage characterization. It supports multiple SMUs (Source/Monitor Units) for voltage/current sourcing and voltage/current measurement with the best current measurement performance in the class. Its modular architecture allows you to configure or upgrade SMU modules for available eight slots.

The EasyEXPERT group+ GUI-based characterization software is furnished and available on your PC. It supports efficient and repeatable device characterization in the entire characterization process from measurement setup and execution to analysis and data management either by interactive manual operation or automation across a wafer in conjunction with a semiautomatic wafer prober. EasyEXPERT group+ makes it easy to perform current-voltage characterization immediately with the ready-to-use measurements (application tests) furnished and allows you the option of storing test condition and measurement data automatically after each measurement in a unique built-in database (workspace), ensuring that valuable information is not lost and that measurements can be repeated at a later date.



8-slot mainframe SMU configurable model (E5260A/E5270B)

The powerful integration of SMU's versatile measurement capabilities and GUI-based characterization software makes it the best solution for the characterization and evaluation of devices, materials, semiconductors, active/passive components, or virtually any other type of electronic device, with uncompromised measurement reliability and efficiency.

The Precision IV Analyzer Series is also available as a system component SMU for a rack and stuck test system. It provides the scalability and highest measurement accuracy in the class for current-voltage measurement. It can be controlled remotely by the FLEX command set, which supports powerful measurement capabilities.

Please visit [E5260/E5270B](#) for more information.

Precision IV analyzer series

E5260A		E5270B
MPSMU (Medium-Power SMU)	Max. output	100 V/200 mA
	Min. resolution	5 pA/100 μ V
HPSMU (High-Power SMU)	Max. output	200 V/1 A
	Min. resolution	5 pA/100 μ V
HRSMU (High-Resolution SMU)	Max. output	NA
	Min. resolution	1 fA/0.5 μ V
ASU ¹ (Atto-sense Switch Unit)	Max. output	100 V/100 mA
	Min. resolution	0.1 fA/0.5 μ V

1. One ASU requires one HRSMU module to connect it.

B1500A Semiconductor Device Analyzer

Keysight B1500A Semiconductor Device Analyzer of Precision Current-Voltage Analyzer Series is an all-in-one analyzer supporting IV, CV, pulse/dynamic IV, and more, which is designed for all-round characterization from basic to cutting-edge applications. It provides a wide range of measurement capabilities to cover the electrical characterization and evaluation of devices, materials, semiconductors, active/passive components, or virtually any other type of electronic device with uncompromised measurement reliability and efficiency.

In addition, the B1500A's modular architecture with ten available slots allows you to add or upgrade measurement modules if your measurement needs change over time.

Keysight EasyEXPERT group+ GUI-based characterization software is available on the B1500A's embedded Windows 10 platform with a 15-inch touch screen or on your PC to accelerate the characterization tasks. It supports efficient and repeatable device characterization in the entire characterization process, from measurement setup and execution to analysis and data management. It can be done either by interactive manual operation or automation across a wafer in conjunction with a semiautomatic wafer prober. EasyEXPERT group+ makes it easy to perform complex device characterization immediately with hundreds of ready-to-use measurements (application tests) furnished and allows you the option of storing test condition and measurement data automatically after each measurement in a unique built-in database (workspace), ensuring that valuable information is not lost and that measurements can be repeated at a later date. Keysight B1500A provides the complete solution for device characterization with these versatile capabilities.

Please visit the [B1500A](#) for more information.



B1500A

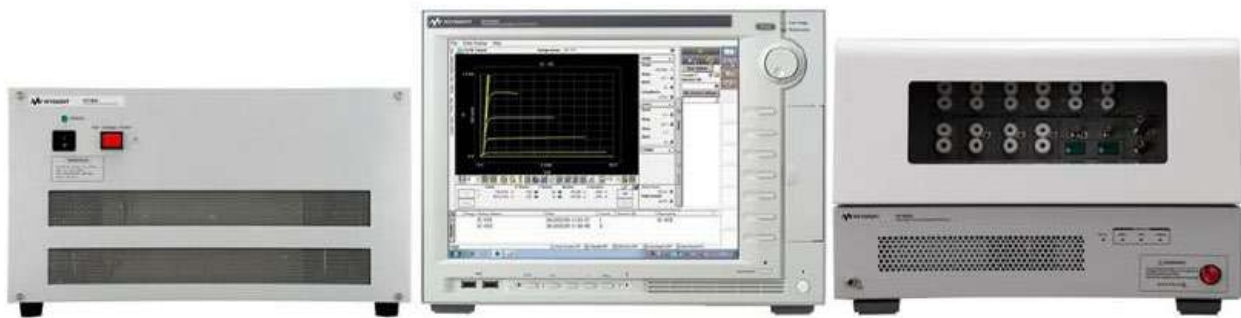
	Test coverage	Supported module	Key specifications	Key features
Specialty	For DC and pulsed IV measurement	B1510A High Power Source/Measure Unit (HPSMU)	- Up to 200 V/1 A - Min 10 fA/2 μV resolution	- Min 100 μs Sampling (time domain) measurement - Min 500 μs pulse width with 100 μs resolution - Quasi-static capacitance-voltage (QSCV) measurement with leakage current compensation
		B1511B Medium Power Source/Measure Unit (MPSMU)	- Up to 100 V/0.1 A - Min 10 fA/0.5 μV resolution - Optional ASU for 0.1 fA and IV/CV switching	
		B1517A High-Resolution Source/Measure Unit (HRSMU)	- Up to 100 V/0.1 A - Min 1 fA/0.5 μV resolution - Optional ASU for 0.1 fA and IV/ CV switching	
		B1514A 50 μ s Pulse Medium Current Source/Measure Unit (MCSMU)	Up to 30 V/1 A (0.1 A DC)	
	For capacitance measurement	B1520A Multi-Frequency Capacitance Measurement Unit (MFCMU)	1 kHz to 5 MHz frequency range 25 V built-in DC bias and 100 V - DC bias with SMU and SCUU	- AC impedance measurement (C-V, C-f, C-t) - Easy, fast, and accurate IV and CV measurements with automated switching via SCUU
	For ultra-fast pulsed and transient IV measurement	B1530A Waveform Generator/Fast Measurement Unit (WGFMU)	10 ns programmable resolution for waveform generation 200 MSa/s simultaneous high-speed measurement 10 V peak-to-peak output	- No load line effects; accurate pulsed IV measurement using SMU-based technology - Enabled for advanced applications, such as NBTI/PBTI, RTN, etc.
	For pulse generation	B1525A High Voltage Semiconductor Pulse Generator Unit (HV-SPGU)	Up to $\pm$ 40 V high voltage output	- Two-level and three-level pulsing and arbitrary waveform generation capability on each channel - Ideal for non-volatile memory testing
	For ultra-fast pulsed high-k/SOI evaluation	B1542A 10 ns pulsed IV parametric test solution	- Min 10 ns gate pulse width with 2 ns rise and fall times 1 μs current measurement resolution	- Accurate Id-Vd and Id-Vg measurement - Easy switching between DC and pulsed measurements

B1505A Power Device Analyzer/Curve Tracer

The B1505A Power Device Analyzer/Curve Tracer is a single-box solution for power device evaluation. Its broad measurement range from sub-pA to 10 kV/1500 A enables precise $\mu\Omega$ on-resistance measurements. Additionally, its 10 μs fast pulse capability enables complete power device characterization. This allows the evaluation of new power devices such as IGBT and wide band-gap materials such as silicon carbide (SiC) and gallium nitride (GaN).

- Very wide current, voltage operating range up to 1500 A, 10 kV
- Supporting package and on-wafer device
- Accurate sub-picoamp level current measurement and $\mu\Omega$ on-resistance measurement
- 10 μs high power narrow pulse measurement
- Three-terminal capacitance (C_{iss} , C_{oss} , C_{rss}) measurement at up to 3000 V DC bias voltages and independent terminal capacitance (C_{gs} , C_{gd} , C_{ds}) measurement
- Gate charge (Qg) measurement for Nch MOSFET and IGBT
- GaN current collapse measurement
- Automated thermal test from $-50\text{ }^{\circ}\text{C}$ to $+250\text{ }^{\circ}\text{C}$
- Upgradable and scalable hardware architecture
- Oscilloscope View for current and voltage pulse verification
- EasyEXPERT group+ software simplifies data management and data analysis

Please visit the [B1505A](#) for more information.



B1505A modules	Description	Key specification	Max number
B1510A	High power SMU	200 V, 1 A (DC) 10 fA resolution	4
B1511B	Medium power SMU	100 V, 100 mA (DC) 10 fA resolution	10
B1512A	High current SMU	20 V, 20 A (pulsed) 30 V, 1 A (DC)	2
B1513C	High voltage SMU	3000 V, 8 mA (pulse and DC)	5
B1514A	Medium current SMU	30 V, 1 A (pulsed) 30 V, 100 mA (DC)	5
B1520A	Multi-frequency CMU	1 kHz to 5 MHz, ± 25 V (internal bias)	1
External modules	Description	Key specification	
N1265A	Ultra-high current expander/Fixture	± 1500 A/60 V (pulsed)	
N1266A	HVSMU current expander	± 1500 V/2.5 A (pulsed) ± 2200 V/1.1 A (pulsed)	
N1267A	High voltage/high current fast switch	± 3000 V, ± 20 A (pulsed) Minimum transition (OFF to ON): 20 μ s	
N1268A	Ultra-high voltage unit	10 kV/10 mA (DC) 10 kV/20 mA (pulsed)	
Accessories	Description		
N1258A	Module selector		
N1259A	Test fixture		
N1260A	High voltage bias-T		
N1271A	Thermal test enclosure		
N1272A	Device capacitance selector		
N1273A	Capacitance test fixture		
N1274A	On-wafer gate charge measurement adapter for 20 A/3 kV		
N1275A	On-wafer gate charge measurement adapter for N1265A		

B1506A Power Device Analyzer for Circuit Design

The B1506A Power Device Analyzer for Circuit Design is a complete solution that can help power electronic circuit designers maximize the value of their power electronics products by enabling them to select the correct power devices. It can evaluate all relevant device parameters under a wide range of operating conditions, including IV parameters such as breakdown voltage and on-resistance, as well as three terminal FET capacitances, gate charge, and power loss.

The prices of the IV packages (H20, H50, H70) are comparable to those of conventional curve tracers, and with the B1506A, you get additional advanced features. You can also upgrade any of the B1506A IV packages (H20, H50, H70) to either increase the current range or add CV/Qg measurement capability (options H21, H51, H71).

- Wide current and voltage operating range up to 1500 A, 3000 V
- 10 μ s high power narrow pulse measurement
- Automated thermal test from -50°C to $+250^{\circ}\text{C}$
- Three-terminal capacitance (Ciss, Coss, Crss) measurement at up to 3000 V DC bias voltages and independent terminal capacitance (Cgs, Cgd, Cds) measurement
- Gate charge (Qg) measurement for Nch MOS and IGBT
- Power loss calculation
- Menu driven easy-to-use user interface (Easy Test Navigator – ETN)
- Quick and automatic device datasheet generation
- Oscilloscope view for current and voltage pulse verification
- Cost-effective IV package (H20, H50, H70)

Please visit the [B1506A](#) for more information.



Category	Parameters
Threshold voltage	V(th), Vge(th)
Transfer characteristics	Id-Vgs, Ic-Vge, gfs
On resistance	Rds-on, Vce(sat)
Gate leakage current	Igss, Iges
Output leakage current	Idss, Ices
Output characteristics	Id-Vds, Ic-Vce
Breakdown voltage	BVds, BVces
Gate charge (for NcH MOS and IGBT) ¹	Qg, Qg(th), Qgs, Qgd, Qsw, Qsync, Qoss
Device capacitance ¹	Ciss, Coss, Crss, Cgs, Cgd, Cies, Coes, Cres
Power loss calculation ¹	Driving loss, Switching loss, Conduction loss

1. Only available on B1506A-H21/H51/H71.

Model number	Option	Description
B1506A	Power Device Analyzer for Circuit Design	
	H20	Opt H20 - 20 A/3 kV/Thermal Fixture Package
	H50	Opt H50 - 500 A/3 kV/Thermal Fixture Package
	H70	Opt H70 - 1500 A/3 kV/Thermal Fixture Package
	H21	Opt H21 - 20 A/3 kV/C-V/Gate Charge/Thermal Fixture Package
	H51	Opt H51 - 500 A/3 kV/C-V/Gate Charge/Thermal Fixture Package
	H71	Opt H71 - 1500 A/3 kV/C-V/Gate Charge/Thermal Fixture Package
	T01	Thermal Test Enclosure (Thermostream Compatible)

N6783A Application-Specific Modules

The Keysight 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 it. Short- and long-term measurements for battery validation are made easy when used in the N6705C DC Power Analyzer mainframe.

The Keysight 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 of 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 N6705C 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 (LXI Core), and GPIB interfaces

Please visit the [N6783A](#) for more information.



BenchVue software enabled



N6700C



N6705C

N6783 application-specific modules

Specialty	Model	Power (W)	Max voltage (V)	Max current (A)	Ripple and noise (mVp-p)	Programming accuracy % + μ V	Transient response (μ s)
	N6783A-BAT	24	8	+3 to -2 A	8	0.1 + 10000	≤ 45
	N6783A-MFG	18	6	+3 to -2 A	8	0.1 + 10000	≤ 45

66300 Mobile Communications DC Sources

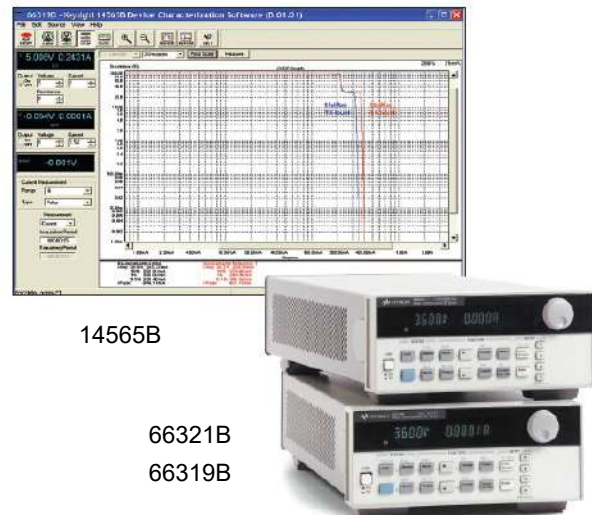
66300 mobile communications power supplies are designed and optimized to help you test mobile wireless devices. They provide the DC sourcing, current sinking, and measurement capabilities to address the unique challenges of simulating batteries and battery packs and measuring the current drawn by your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

Please visit the [66300](#) for more information.

Keysight 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



	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 (μs)	Size ¹
Specialty	66309B/D	45	15	3 (5 A peak)	2	1	6	0.05 + 10	< 35	$\frac{1}{2}$ RU w x 2 RU h
	66311B	45	15	3 (5 A peak)	1	1	6	0.05 + 10	< 35	
	66319B/D	45	15	3 (5 A peak)	2	1	6	0.05 + 10	< 20	
	66321B/D	45	15	3 (5 A peak)	1	1	6	0.05 + 10	< 20	
	66332A	100	20	5	2	1	3	0.05 + 10	< 100	

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either $\frac{1}{2}$ or full. The height is in a number of rack units, which are 1.75" (44.4 mm) each. For example, a 3 RU h has a height of 5.25" (133.3 mm).

PV8900 Series Photovoltaic Array Simulator

Maximize the performance of your inverter

Keysight's photovoltaic (PV) simulator includes the hardware and software to accurately test a single maximum power point tracking (MPPT) inverter. Test PV voltages up to 2000 V and 60 A with a single supply. DG9000 Series software licenses are available to test string inverters with 4-, 8-, or 12-MPPT channels. Most string inverter solutions test one MPPT channel at a time, leading to test inaccuracies. Keysight's DG9000 advanced PV inverter software can simultaneously test up to 12 MPPT channels.

- Output up to 2000 V and 30 kW in a 3U package
- Test up to 600 kW channels with parallel units
- Select built-in curves or create a custom table using up to 1024 points
- DG9000 Series software simplifies single and multi-MPPT inverter tests
- Use as a standard 30 kW autoranging supply for DC sourcing
- Connectivity includes LAN (LXI Core), USB, and GPIB

Please visit the [PV8900](#) series for more information.



Characteristic		PV8921A / PV8922A	PV8931A / PV8932A
AC input ratings	Phase and range	3 phase; 380 – 480 VAC ±10%	
	Frequency	50 / 60 Hz	
	Input VA	23 kVA	34 kVA
	Connections	L1, L2, L3, N, PE	
	Power factor ⁶	0.99	
Output terminal isolation	No output terminal may be more than ± 2000 VDC from any other terminal or chassis ground.		
Typical weight		82 lbs. (37.3 kg)	126 lbs. (57.2 kg)

Specification		PV8921A	PV8922A	PV8931A	PV8932A
DC output ratings	Voltage	1500 V	2000 V	1500 V	2000 V
	Current	30 A	30 A	60 A	30 A
	Power	20 kW	20 kW	30 kW	30 kW
Output voltage ripple and noise	CV p-p ¹	3 V	3 V	2.25 V	3 V
	CV rms ²	400 mV	400 mV	300 mV	400 mV
Load regulation	Voltage ³	100 mV	100 mV	75 mV	100 mV
	Current	4 mA	4 mA	8 mA	4 mA
Programming and measurement accuracy ⁴	Voltage	0.04%+150mV	0.04%+150mV	0.03%+100mV	0.03%+150mV
	Current	0.03%+3mA	0.03%+3mA	0.03%+6mA	0.03%+3mA
Transient response ⁵					
Recovery time		300 μ s	300 μ s	300 μ s	300 μ s
Settling band		15 V	20 V	15 V	20 V

1. From 20 Hz to 20 MHz (-3dB bandwidth) with resistive load, terminals ungrounded, or either terminal grounded.
2. From 20 Hz to 10 MHz (-3dB bandwidth) with resistive load, terminals ungrounded, or either terminal grounded.
3. This also applies when remote sensing with a ≤ 1 V drop per load lead
4. Percent of value + offset; at 25°C ± 5 °C after a 30 minute warm-up; measurement NPLC=1; valid for 1 year
5. Time to recover to within the settling band following a step change from 40% to 90% and 90% to 40% of full load at Comp 0, with a 40 μ s current rise and fall time
6. At nominal input and rated power

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 can simulate 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 (LXI Core), 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

Please visit the [E4360](#) for more information.

E4360 modular solar array simulator mainframes

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

1. RU refers to the rack unit of a standard 19" EIA equipment rack. The width is either ½ 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" (133.3 mm).

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	1	195	0.075 + 20



PA2201A and PA2203A IntegraVision Power Analyzers

PA2201A 2-channel, and PA2203A 4-channel

The Keysight IntegraVision power analyzer intuitively combines accurate power measurements and touch-driven oscilloscope visualization. Within a single instrument, it delivers the dynamic views you need to see, measure, and prove the performance of your design.

Please visit [PA2201A](#) and [PA2203A](#) for more information.

Make all of your critical power measurements with one instrument

- Achieve power analyzer accuracies and scope-like waveform visualization with reduced setup time
- Address multiple test scenarios with the flexibility of wide-ranging, isolated inputs
- Visualize transients, in-rush currents, and state changes with a high-speed digitizer that captures voltage, current, and power in real-time
- Analyze voltage, current, and power in the time and frequency domains
- Explore your design and gain new insights through the 12.1"/310 mm high-resolution display with a touch interface
- Save space on your bench with a minimum depth form factor.

Function	Description
Basic power accuracy (50/60 Hz)	0.05% of reading + 0.05% of range
Power channels (voltage and current)	PA2201A: 2 channels PA2203A: 4 channels
Voltage measurement bandwidth (–3 dB)	2.5 MHz (–3 dB)
Current measurement bandwidth (2 A or 50 A Input)	100 kHz (–3 dB)
Current measurement Bandwidth (External Input)	2.5 MHz (–3 dB)
Maximum voltage	1000 Vrms (2000 V peak)
Maximum current	Direct input: 2 Arms (6 A peak) or 50 Arms (100 A peak) External transducer: 10 Vrms (30 V peak)
Record size	Maximum 1.5 M points on each waveform simultaneously
Digitizing speed	Maximum 5 M samples/second at 16 bits on each waveform simultaneously
Display size and type	12.1-inch capacitive multi-touch/gesture-enabled display



BenchVue software enabled



CX3300A Series Device Current Waveform Analyzers

Measure dynamic current and voltage with confidence

The Keysight CX3300A series is an all-in-one measurement and analysis solution to solve your power rail, power delivery network, and power integrity challenges. The CX3300A series integrates an oscilloscope's bandwidth and sampling rate, a DMM's sensitivity, and a data logger's extended duration measurement recording with waveform analytics to reveal accurate current and voltage waveforms.

- Wide bandwidth at 200 MHz
- High-resolution/high-speed sampling at 14-bit (1 GSa/s)/ 16-bit(75 MSa/s)
- Low noise and a wide dynamic range with high sensitivity from sub-nA and sub- μ V
- Long-duration measurement capabilities up to 100 hours maximum
- Waveform analytics, current profiler, and more efficient analysis functions on mainframe and PC

Please visit the [CX3300A](#) for more information.



CX3322A		CX3324A
Number of analog channels	2	4
Number of digital channels	N/A	8 with CX1152A
Maximum analog bandwidth ¹	50 MHz, 100 MHz, or 200 MHz	
Maximum memory depth ¹	4 Mpts, 16 Mpts, 64 Mpts, or 256 Mpts	
Measurement mode	Scope mode	Default
	Data logger mode	Option ²

1. Maximum bandwidth and memory depth are selectable at ordering and upgradable by license.

2. Data logger mode is optional, upgradable by license.

DC Power Supply Discontinuance and Replacement Products

Keysight power products have been available for over 50 years, and DC power supplies have changed how engineers prove their design, understand the issues, and ensure product quality. Our power products are continually upgraded and ready for your application – and we are now offering optimal replacement choices in voltage, current, capability, and performance.

6060 series	Move to the N3300 DC Electronic Load Mainframe and Modules If you have a 6060B or 6063B , your replacement product is the N3301A with N3303/4A .
6030 Series	Move to the N8700 basic performance, N6900/7900 series advanced capabilities or N6700 multiple output capabilities If you have any 6030/1/2/3/4/5/8A models, your replacement product is: • 6030A – recommended substitute products are N8761A, N8921A, N8941A, N6977A, N7977A • 6031A – recommended substitute products are N8920A, N8940A, N8734A, N8756A, N6971A, N7971A • 6032A – recommended substitute products are N8737A, N6972A, N6973A, N7972A, N7973A • 6033A – recommended substitute products are N5744A, N6700C w/1 x N6753A • 6035A – recommended substitute product is N8742A • 6038A – recommended substitute products are N5747A, N6700C w/1 x N6754A
6620 Series	Move to the N6700 series offers a multiple output capability with a range of performance with modern I/O – LAN, USB, GPIB If you have any 6621/2/3/4/5/6/7/8/9A models, your replacement product is: • 6621A - recommended substitute products are N6700C w/2 x N6752A • 6622A - recommended substitute products are N6700C w/2 x N6752A • 6623A - recommended substitute products are N6700C w/2 x N6751A and N6752A • 6624A - recommended substitute products are N6700C w/4 x N6751A • 6625A - recommended substitute products are N6700C w/1 x N6761A and 1 x N6762A • 6626A - recommended substitute products are N6700C w/2 x N6761A and 2 x N6762A • 6627A - recommended substitute products are N6700C w/4 x N6751A • 6628A - recommended substitute products are N6700C w/2 x N6762A • 6629A - recommended substitute products are N6700C w/4 x N6762A

66000 Series

Move to the N6700 series offers a multiple output capability with a range of performance with modern I/O – LAN, USB, GPIB

If you have any 66101A/102A/103A/104A/105A/106A models, your replacement product is:

- **66101A** - recommended substitute products are **N6700C w/N6753A, N6754A, N6763A or N6764A**
- **66102A** - recommended substitute products are **N6700C w/N6753A, N6754A, N6763A, N6764A, N6773A or N6774A**
- **66103A** - recommended substitute products are **N6700C w/N6754A, N6764A, N6774A or N6775A**
- **66104A** - recommended substitute products are **N6700C w/N6754A, N6764A or N6775A**
- **66105A** - recommended substitute products are **N6700C w/N6777A**
- **66106A** - recommended substitute products are **N6700C w/2 x N6776A in series**

6600 Series (661X, 663X, 664X, 665X)

Move to the N6700 series offers a multiple output capability with a range of performance with modern I/O – LAN, USB, GPIB

If you have any 661X/2X/3X/4X/5X models, your replacement product is:

- **6611C** - recommended substitute products are **N6700C w/N6732B, N6751A**
- **6612C** - recommended substitute products are **N6700C w/N6733B, N6751A**
- **6613C** - recommended substitute products are **N6700C w/N6735B, N6751A**
- **6614C** - recommended substitute products are **N6700C w/N6776A**
- **6631B** - recommended substitute products are **N6700C w/N6742B or N6752A**
- **6632B** - recommended substitute products are **N6700C w/N6743B or N6752A**
- **6633B** - recommended substitute products are **N6700C w/N6752A**
- **6634B** - recommended substitute products are **N6700C w/N6776A**
- **6641A** - recommended substitute products are **N6700C w/N6754A or N6764A**
- **6642A** - recommended substitute products are **N6700C w/N6753A, N6754A, N6763A, N6764A, N6773A or N6774A**
- **6643A** - recommended substitute products are **N6700C w/N6754A, N6764A, N6774A or N6775A**
- **6644A** - recommended substitute products are **N6700C w/N6754A, N6764A or N6775A**
- **6645A** - recommended substitute products are **N6700C w/N6777A**
- **6651A** - recommended substitute products are **N6700C w/N6755A or N6765A**
- **6652A** - recommended substitute products are **N6700C w/N6755A or N6765A**
- **6653A** - recommended substitute products are **N6700C w/N6756A or N6766A (500 W only)**
- **6654A** - recommended substitute products are **N6700C w/N6756A or N6766A (500 W only)**
- **6655A** - recommended substitute products are **N6700C w/2 x N6777A in parallel**

**6600 Series
(667X, 668X, 669X)**

Move to: **N8700 Series** offering basic performance at lower cost with modern I/O - LAN, USB, and GPIB; or the **N6900/7900 Series** offers advanced capabilities and higher performance; or the **N8900 Series** offers high power and basic performance with modern I/O – LAN, USB, and GPIB

If you have any 667X/8X/9X or E4356A models, your replacement product is:

- **6671A** - recommended substitute products are **N8731A, N8732A, N8733A, N8925A, N8945A, N6970A or N7970A**
- **6672A** - recommended substitute products are **N8734A, N8920A, N8940A, N6971A or N7971A**
- **6673A** - recommended substitute products are **N8736A, N8920A, N8940A, N6972A or N7972A**
- **6674A** - recommended substitute products are **N8737A, N8920A, N8940A, N6973A or N7973A**
- **6675A** - recommended substitute products are **N8740A, N8921A, N8941A, N6976A or N7976A**
- **6680A** - recommended substitute products are **2 x N8931A or 2 x N8951A in parallel**
- **6681A** - recommended substitute products are **2 x N8925A or 2 x N8945A in parallel**
- **6682A** - recommended substitute products are **N8754A, N8925A or N8945A**
- **6683A** - recommended substitute products are **N8755A, N8920A or N8940A**
- **6684A** - recommended substitute products are **N8756A, N8920A or N8940A**
- **6690A** - recommended substitute products are **N8931A or N8951A**
- **6691A** - recommended substitute products are **N8925A or N8945A**
- **6692A** - recommended substitute products are **N8920A or N8940A**
- **E4356A** - recommended substitute products are **N6974A or N7974A**

6800B Series

Move to the **6800C series** of performance AC sources that provide a complete AC test solution at power levels up to 1750 VA with additional I/O – USB and LAN.

If you have any 6811B, 6812B, or 6813B models, your replacement product is:

- **6811B** - recommended substitute product is **6811C**
- **6812B** - recommended substitute product is **6812C**
- **6813B** - recommended substitute product is **6813C**

AC6800A Series

Move to the **AC6800B series** of basic AC sources that meet your basic AC power needs with stable, reliable power levels up to 4000 VA.

If you have any AC6801A, AC6802A, AC6803A or AC6804A models, your replacement product is:

- **AC6801A** - recommended substitute product is **AC6801B**
- **AC6802A** - recommended substitute product is **AC6802B**
- **AC6803A** - recommended substitute product is **AC6803B**
- **AC6804A** - recommended substitute product is **AC6804B**

E36100A Series

Move to the E36100B series of DC power supply that has improved ripple noise performance and is rackmount-able

If you have any E36102A, E36103A, E36104A, E36105A or E36106A models, your replacement product is:

- **E36102A** - recommended substitute product is **E36102B**
 - **E36103A** - recommended substitute product is **E36103B**
 - **E36104A** - recommended substitute product is **E36104B**
 - **E36105A** - recommended substitute product is **E36105B**
 - **E36106A** - recommended substitute product is **E36106B**
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For more information

For more product information, visit www.keysight.com/find/PowerDiscontinuance



Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.

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