2027

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instruments de mesures électroniques

Value Portfolio Catalog

Keysight & Our Distributor Network



KEYSIGHT

ACCELERATING
INNOVATION TOGETHER

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Keysight & Our Distributor Network

RIGHT *Instrument.* **RIGHT** *Expertise. Delivered* **RIGHT** *Now.*

Keysight and our network of Keysight Authorized Distributors have teamed up to provide fast, easy access to the world's largest selection of off-the-shelf T&M instruments. It's the best of both worlds: Keysight's measurement expertise and product breadth combined with speed, convenience and same-day shipping from our distribution partners.

It's never been easier to get the right instrument in the right hands, right away.

To find a Keysight Authorized Distributor nearest you visit www.keysight.com/find/distributors

What's New

DP5800 Series



The new DP5800 Series offers a wide range of voltage, current, and power configurations to address more application requirements. Ideal for R&D, validation, and production environments, the series combines high performance, flexible connectivity, and compact packaging to simplify power testing across a broad range of industries.

See page 41

DP5700 Series



The DP5700 Series offers more voltage, current, and power configurations for your battery, automotive, industrial, and power electronics test applications.

See page 40

RP5900 Series



The RP5900 Series has expanded voltage and current configuration including voltage ranges of 10 V, 32 V, 300 V, and 1500 V supporting a broad range of power conversion, battery, and energy applications.

See page 40

EL4900 Series Regenerative DC Electronic Loads



The EL4900 Series offers new 10 V, 32 V, 300 V, and 1500 V electronic load models, enabling more precise matching to devices under test.

See page 44

Finding the right solution has never been easier.



With clear product groupings, performance-based tiers, and guided product selection, you can quickly navigate our portfolio, compare capabilities with confidence, and identify the product that best meets your needs—faster than ever.

KeysightCare Technical Support

Look for this icon throughout the catalog to identify products with KeysightCare Technical Support included or supported.

See page 48

www.KeysightCare.com

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Product availability may vary by region.

Some items in the catalog may not be offered in your area, while additional region-specific products may be available.

Please contact your local partner for more information.

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KEYSIGHT
Solutions for all Your Test Requirements

INPUT → **DUT** DEVICE UNDER TEST → **OUTPUT**



DC Power Supplies

- E36100 Series
- E36150 Series
- E36200 Series
- E36300 Series
- E3630 Series
- E3640 Series
- B2900C/CL Series Low Noise Power Source
- E36441A
- RP5900 Series
- B2960C Series
- EDU36311A
- N6700 Modular Series
- N5700 Series
- N8700 Series
- N8900 Series
- E36731A Battery Emulator
- PZ2100 Series SMU
- DP5700 Series
- DP5800 Series



DC Power Analyzer

- N6705C
- N6700 Low-Profile Modular Mainframes



Waveform/Function/Arbitrary Generators

- EDU33210 Series
- 335xxB True*form* Series
- 336xxA True*form* Series
- U2761A USB Modular
- FG33530 Series



RF Signal Generators

- AP500xA Series
- N5166B CXG
- N5171B EXG
- N5181B MXG



Network Analyzers

- P937xB Streamline Series VNA
- P938xB Streamline Series VN
- E5061A ENA vector Network Analyzer
- E5063A ENA vector Network Analyzer



RF and Microwave Test Accessories

- Switches, Adaptors, Amplifiers, Attenuators
- Power Limiters, Active Probe, Switch Matrix



Data Acquisition

- DAQ970A
- DAQ973A
- 34980A



IO Connectivity

- 82357B USB/GPIB Interface
- E5810B LAN/GPIB Gateway
- 82350C PCI GPIB Interface
- 10833 Series GPIB Cables



RF Spectrum Analyzers

- X-Series Signal Analyzers
- Basic Spectrum Analyzers
- FieldFox HH Spectrum Analyzers



RF Power Meter

- N1913/14B EPM
- N1911/12A P-Series
- E4416/17A EPM-P
- U2020 X-Series USB Peak & Average



Oscilloscopes

- 1000 X-Series
- 2000 X-Series
- 3000 X-Series
- 4000 X-Series
- 6000G X-Series
- EXR-Series
- HD3 Series
- S-Series



Digital Multimeters

- DM34460A/1A
- U1230 Series 3½ digit HH
- EDU34450A
- 34450A Economy
- 34420A nV/μΩ 7½ digit
- 34460/61/65A 6½ digit
- 34470A 7½ digit
- 3458A 8½ digit



Frequency Counters

- 53210A RF Counter
- 53220A Universal Frequency Counter/Timer
- 53230A Universal Frequency Counter/Timer

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Transforming service and support to help your team deliver better results, consistently

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PathWave BenchVue Software: Control. Automate. Simplify.

Keysight PathWave BenchVue PC software resolves bench test issues with simple connections and control of instruments. Now you can quickly move past the test development phase, create automated test sequences, and achieve results faster. The Test Flow app helps you automate and quickly see test results without the need for instrument programming. Use the dedicated instrument apps for easy configuration of commonly used measurements and setups. You can select from a variety of powerful PathWave BenchVue apps that enable you to significantly reduce test development time.

Get started with the free PathWave BenchVue Basic App, which enables instrument control at no cost: www.keysight.com/find/BVBasic.
While the Basic App does not include technical support, licensed versions are available for users who require expert assistance and enhanced capabilities.

Use PathWave BenchVue apps to:

- Configure the most used Keysight instrument's measurements and controls
- See multiple measurements simultaneously
- Quickly log and export data and screen images for fast analysis
- Create automated test sequences fast with minimal instrument knowledge
- Access deeper instrument controls and solutions



Look For This Icon

throughout the catalog to identify products with PathWave BenchVue Basic software supported.
www.keysight.com/find/BVBasic

Supporting over 700 Keysight instruments, with new devices continually added, PathWave BenchVue provides a unified environment that enables you to quickly create automated test sequences with minimal instrument expertise. Visit www.keysight.com/find/benchvueinstruments for details.

DOWNLOAD PATHWAVE BENCHVUE TODAY ⭳ www.keysight.com/find/BenchVue

For the latest applications with free 30-day trials, check out the BenchVue Apps tab within BenchVue or visit: www.keysight.com/find/benchvue_apps

Software Licensing and Support Designed for Flexible Test Environments

Test environments are constantly evolving—projects shift, teams expand or contract, and resources move across locations. Keysight's flexible software licensing options help you align software investments with changing project requirements while maintaining control of your budget.

Choose the license term and type that best fits your needs:

- Select a subscription or perpetual license based on how long the software will be used.
- Choose from node-locked, transportable, USB portable, or floating licenses to match your deployment and mobility requirements.
- Every license includes a Keysight Application Software Support Subscription, providing technical support, software updates, and ongoing enhancements.

KeysightCare Software Support for Greater Confidence

KeysightCare Application Software Support helps keep your team productive and current with evolving technologies by:

- Ensuring access to the latest software updates, enhancements, and measurement standards.
- Providing proactive notifications when new updates become available.
- Offering direct access to Keysight technical experts for faster issue resolution and deeper measurement insights.
- Delivering priority support and fast response times to help keep projects on schedule.

KEYSIGHTCARE

With flexible licensing and comprehensive support, Keysight software helps you maximize productivity, minimize risk, and adapt to changing test requirements.

To learn more, visit www.keysight.com/find/keysightcare

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PathWave BenchVue Test Flow

Faster Test Automation Development

Instrument programming can be complex and time-consuming. PathWave BenchVue Test Flow simplifies automated test creation with an intuitive drag-and-drop interface, enabling engineers to build powerful test sequences without programming expertise or deep instrument knowledge. For advanced applications, integrated Command Expert sequences provide direct access to specialized instrument controls.

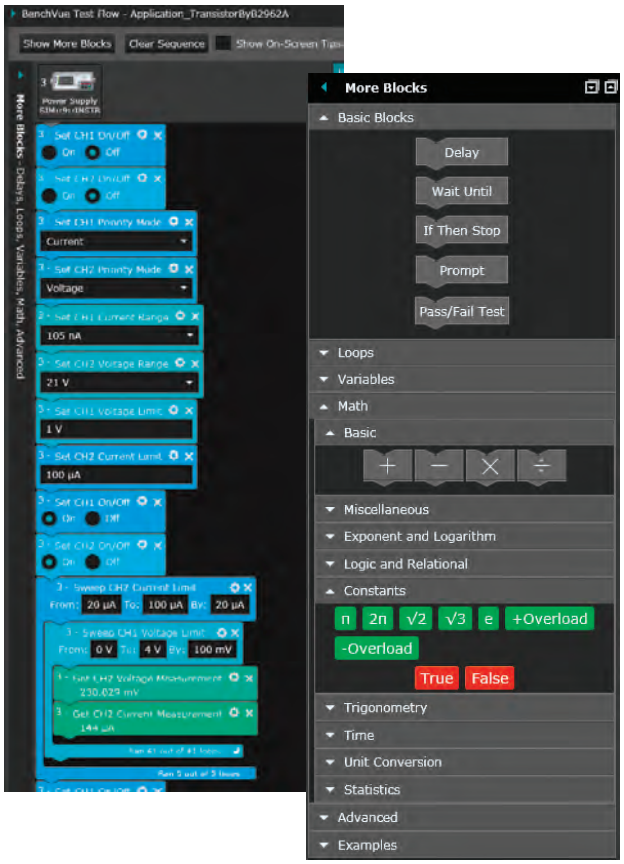
Build custom automated tests in minutes instead of days. Integrated across most PathWave BenchVue control applications and included with every licensed control app, Test Flow allows you to quickly create and modify test sequences, combine multiple instruments for comprehensive DUT characterization, and accelerate test prototyping with drag-and-drop controls.

PathWave BenchVue Test Flow helps you:

- Create custom test sequences quickly and intuitively
- Integrate multiple instruments into a single automated workflow
- Rapidly prototype tests with drag-and-drop controls
- View and analyze data in graphical or tabular formats

Additionally, gain insights faster by customizing graph axes for clearer data visualization and exporting results to MATLAB, Microsoft Excel, or Word for reporting, documentation, and deeper analysis.

Arrange the PathWave BenchVue Test Flow blocks in sequence in the order you want to run them, top to bottom.



Built-in blocks add flexibility for your test sequences.

PW9254A Advanced Power Suite

The Advanced Power Suite seamlessly integrates the capabilities and features of three PathWave applications including Quick IV Measurement (PW9251A), Advanced Power Control and Analysis (PW9252A), and Advanced Battery Test and Emulation (PW9253A). The suite includes the benefits of seamless data transfer within a single application, a flexible number of instrument connections, and an expanded number of simultaneous channel outputs.

Learn more at http://www.keysight.com/find/PW9254A



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Curriculum-based teaching solutions and lab management software

Keysight Industry-ready Remote Access Lab

SR101EDUA Digital Learning Platform



Engineering educators can enhance their teaching methods, stay abreast of industry trends, and maximize their lab resource utilization with Keysight's SR101EDUA. Keysight SR101EDUA is a web-based digital learning suite with access to university engineering lab resources, measurement data analysis tools, and industry-relevant learning resources. The software provides lab management, instrument control, and learning resources subsystems.

Key software modules:

- KS8400EDU test sequencer and web interface to control instruments and characterizes designs.
- PW9300EDU remote collaborative learning tool with a built-in IMS LTI connection and single-sign-on (SSO) authentication that integrates with your favorite learning management system (LMS) or identity provider.

Learn more at www.keysight.com/find/sr101edua

PW9111EDU PathWave BenchVue Lab Management and Control Solution



- PW9111EDU is desktop-based providing centralized instrument configuration lab overview and asset tracking for educators teaching labs.
- Includes Keysight PathWave BenchVue Lab apps (instrument control, automation, analysis, and instrument firmware update) and the BV9001B BenchVue Complete Control Collection.
- Easy instrument control, data capture, data logging, monitoring and report generation for test bench students

Learn more at www.keysight.com/find/PW9111EDU

U3851A RF Microwave Teaching Solution



- RF Microwave circuit design, simulation and measurement courseware, 5G NR n3
- Brings industry design experience into the classroom and covers the complete design flow to successfully develop 5G and IoT wireless application
- Courseware includes a modular prototype kit using a 1.8 GHz receiver module, lab sheets and problem-based assignments for use with recommended instruments and design software

Learn more at www.keysight.com/find/u3851a

U3810 Series Advanced IoT Teaching Lab Solution



Keysight's IoT teaching solution combines instruments, software, and courseware including slides and a training kit for lots of hands-on learning. Students learn practical design and test techniques with topics that include IoT fundamentals and cybersecurity, wireless communication, battery power analysis, pre-compliance, and more.

Learn more at www.keysight.com/find/U3813A, www.keysight.com/find/U3815A, and www.keysight.com/find/U3817A

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PathWave BenchVue Basic software supported.

The Keysight Essential Bench

The deepest bench in the industry

Only Keysight delivers the industry's largest selection of bench instruments and groundbreaking PathWave BenchVue software—the zero-programming way to view, capture, and export the data you collect from your bench. To see the full portfolio of essential bench products offered by Keysight Authorized Distributors, visit www.keysight.com/find/essentialbench

1. PathWave BenchVue software

Capture, visualize, and share data from multiple instruments with no need for programming.

See page 4

2. Oscilloscopes

See more of your signals and solve your toughest challenges with innovative scope technology.

See pages 8-14

3. Power supplies

Enable faster, safer testing with built-in measurements, battery drain analysis/characterization, full DUT protection, and output sequencing.

See pages 34-41

4. Function/arbitrary waveform generators

Validate the most challenging designs with True*form* arbitrary waveforms, modulation, and two-channel synchronization.

See pages 18-19

5. Data acquisition/switch units

Simplify ad hoc testing with temperature and electrical signal measurement flexibility, universal channels, and no external signal conditioning.

See pages 20-21

6. Frequency counters/timers

Expand your measurement and analysis capabilities with histograms, trend/strip charts, statistics, data logging, and more.

See page 17

7. Digital multimeters (DMMs)

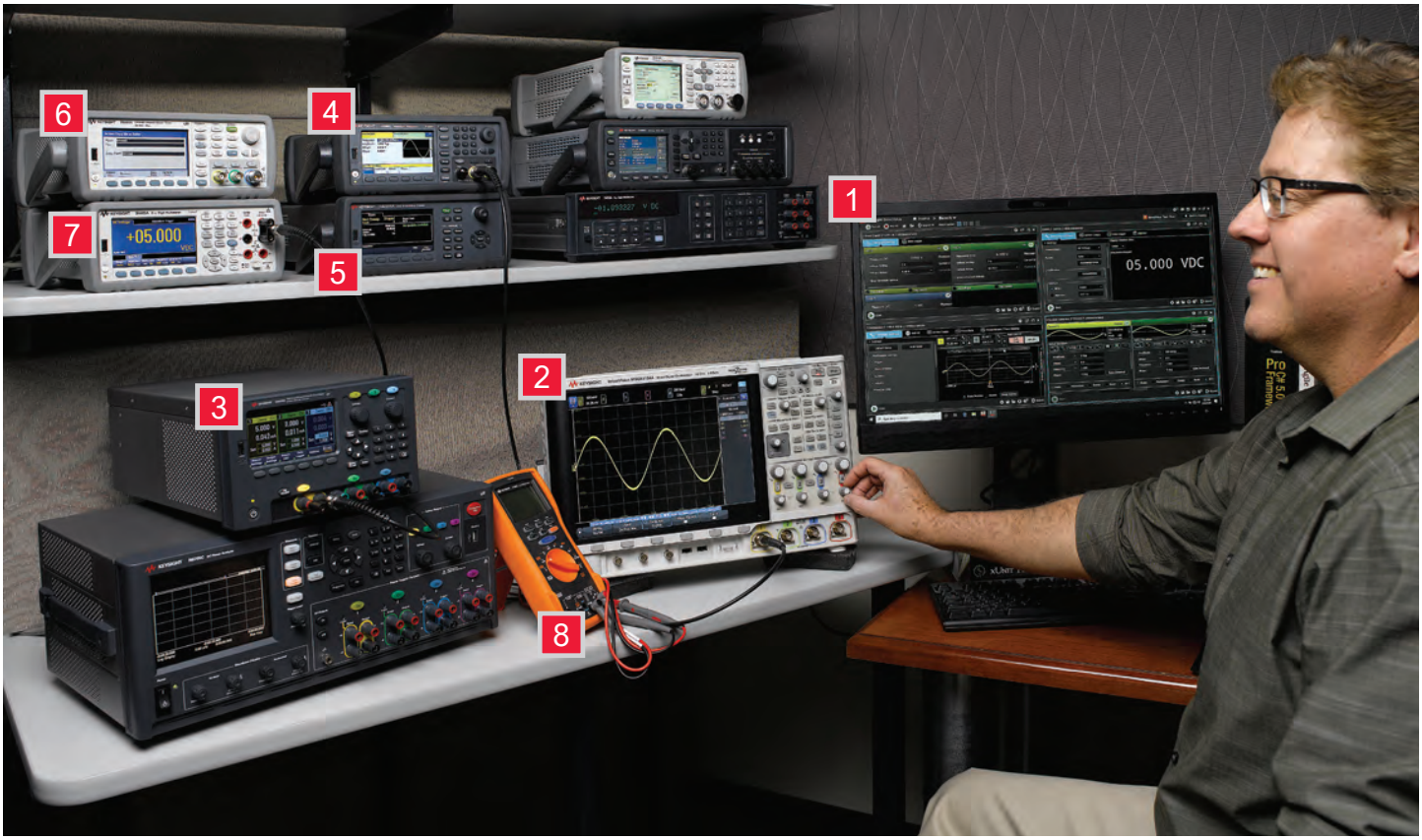
Capture measurements quickly with graphical displays, on-screen analysis, and auto calibration.

See pages 15-17

8. Handheld instruments

Handle a wider range of challenges with thermal image temperature measurements and fully featured multimeters with frequency counters, square waves, and wireless connectivity.

See pages 23-25 and 47



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KEYSIGHTCARE

PathWave BenchVue Basic software supported.

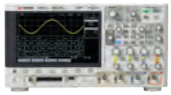
Digital Storage (DSO) and Mixed Signal (MSO) Oscilloscopes

Get products to market faster. Keysight's award-winning oscilloscopes provide the fastest update rates, capacitive touch screen, and the most software options.

Produce the highest-performing products. Make measurements you can trust with industry-leading signal integrity and a large selection of probes.

Achieve the lowest cost of ownership. Keysight's oscilloscopes let you integrate several instruments in one mainframe and easily upgrade.

ESSENTIAL → ADVANCED → EXPERT → PRO

	XR1		XR2	XR3	XR4	XR5	XR6
	1000 X-Series	2000 X-Series [1]	3000G X-Series	HD3 Series	4000G X-Series	6000 X-Series	EXR-Series
							
Bandwidth	50 to 200 MHz	70 to 200 MHz	100 MHz to 1 GHz	200 MHz to 1 GHz	200 MHz to 1.5 GHz	1 GHz to 6 GHz	500 MHz to 6 GHz [3]
Memory (Max)	2 Mpts	1 Mpts	4 Mpts	100 Mpts/ch	4 Mpts	4 Mpts	1.6 Gpts
Sample rate (Max)	2 GSa/s	2 GSa/s	5 GSa/s	3.2 GSa/s (per channel)	5 GSa/s	20 GSa/s	16 GSa/s [3]
Channels	2 or 4 analog	2 or 4 analog + 8 digital [2]	2 or 4 analog + 16 digital [2]	4 analog + 16 digital [2]	2 or 4 analog + 16 digital [2]	2 or 4 analog + 16 digital [2]	4 or 8 analog + 16 digital (optional)
Display	7.0"	8.5"	8.5" capacitive touch	10.1" capacitive touch gesture-enabled	12.1" capacitive touch	12.1" capacitive touch	15.6" capacitive touch
Update rate	200,000 wfms/s on DSO models	200,000 wfms/s	1,000,000 wfms/s	1 M wfms/s > 1,300,000 wfms/s	1,000,000 wfms/s	450,000 wfms/s	> 200,000 wfms/s
Touch zone triggering	—	—	Yes	Yes	Yes	Yes	Yes
Instrument integration	FRA (Bode plot) 5-digit counter 3-digit DVM 20 MHz WaveGen Protocol analyzer	5-digit counter 3-digit DVM 20 MHz Function Gen Protocol Analyzer Logic Analyzer	FRA (Bode plot) 8-digit counter 3-digit DVM 20 MHz AWG Protocol Analyzer Logic Analyzer	100 MHz function/Arb wave generator, DVM, Precision Counter/ Totalizer, frequency response analyzer, fault hunter	FRA (Bode plot) 5-digit counter 3-digit DVM 20 MHz dual AWG Protocol Analyzer Logic Analyzer 20 MHz WaveGen	FRA (Bode plot) 10-digit counter 3-digit DVM 20 MHz dual AWG Protocol Analyzer Logic Analyzer	FRA (Bode Plot) 10-digit counters 4-digit DVM 50 MHz AWG Protocol Analyzer Logic Analyzer

1. 2000X specifications for models manufactured after March 5, 2018, older models can be upgraded using DSOX2PLUS option.
2. +8 or +16 digital channels on mixed-signal oscilloscope models or DSO-to-MSO upgrade kits.
3. On all channels simultaneously – no interleaving of memory or sample rate






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XR1 InfiniiVision 1000 X-Series 50 to 200 MHz

Get measurements you can count on to create designs that will change the future.



- Fast 200,000 waveforms/second update rate enhances signal visibility
- Key features for education customers: Automatic Bode plot measurements with Bode plot training kit (standard on "G" models), integrated waveform generator, free education kit, online help, standard 10:1/1:1 switchable passive probes
- Use PathWave BenchVue software to quickly capture and log measurement data

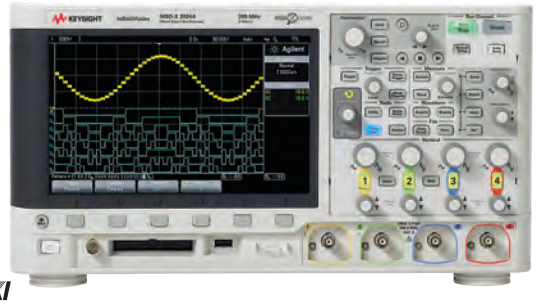
www.keysight.com/find/1000X-Series

Model series	Bandwidth (–3 dB)	Input channels	Sampling rate	Memory depth	Waveform update rate	Serial (standard)	Built-in WaveGen
EDUX1052A	50 MHz	2	1 GSa/s	200 kpts	100,000 wfms/s	I²C and UART/RS232	No
EDUX1052G							Yes
DSOX1202A	70 MHz, upgradeable to 100 and 200 MHz		2 GSa/s	2 Mpts	200,000 wfms/s	I²C, SPI, UART/RS232, CAN, and LIN	No
DSOX1202G							Yes
DSOX1204A		4					No
DSOX1204G							Yes

Standard LAN connection now available on all models

XR1 InfiniiVision 2000 X-Series oscilloscopes

Breakthrough technology delivers more scope for the same budget



- 70 to 200 MHz economy scopes
- Hardware based mask testing as well as serial protocol trigger and decode for I²C, SPI, RS-232/UART, CAN, LIN
- Fully upgradeable: add bandwidth, digital channels, serial protocol trigger and decodes, measurement applications and WaveGen

www.keysight.com/find/2000X-Series

Model series [1]	Bandwidth (–3 dB)	Input channels DSOX	Input channels MSOX	Sampling rate	Memory depth	Waveform update rate
2002A/2012A/2022A	70/100/200 MHz	2	2 + 8	2 GSa/s	1 Mpts	200,000 wfms/s
2004A/2014A/2024A		4	4 + 8			

1. 2000X specifications for models manufactured after January 1, 2018, older models can be upgraded using DSOX2PLUS option.

XR2 InfiniiVision 3000G X-Series oscilloscopes

Touch, discover, solve



- 100 MHz to 1 GHz digital storage and mixed signal scopes
- 1,000,000 waveforms/sec update rate
- Mixed domain analysis with time/frequency measurement correlation
- 8 additional standard features including a built-in waveform generator, waveform and measurement histograms, protocol decodes, mask limit testing, and more
- Fully upgradeable: add bandwidth, digital channels, or measurement applications are customer installable at anytime
- Calibration period of 3 years

www.keysight.com/find/3000G

Model series	Bandwidth (–3 dB)	Input channels DSOX	Input channels MSOX	Sampling rate	Memory depth	Display size and type	Waveform update rate	Calculated rise time (10 to 90%)
3012G/3022G/3032G	100/200/350 MHz	2	2 + 16	5 GSa/s half channel, 2.5 GSa/s all channel	Standard 4 Mpts, standard segment memory	8.5-inch capacitive touch display with standard zone trigger	> 1 million wfms/s	≤ 3.5 ns/≤ 1.75 ns/≤ 1 ns
3014G/3024G/3034G		4	4 + 16					
3052G/3102G	500 MHz/1 Ghz	2	2 + 16					≤ 700 ps/≤ 450 ps
3054G/3104G		4	4 + 16					

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XR3 InfiniiVision HD3 Series oscilloscopes

Debug designs with 4x the resolution, 1/2 the noise floor

InfiniiVision HD3 Series oscilloscopes enable capturing small signals more accurately than ever before with its low noise front-end and 14-bit analog-to-digital converter (ADC) oscilloscope, delivering 4x the signal resolution and half the injected noise of other general purpose oscilloscopes. Combine this with uncompromised waveform update rate, powerful new features such as Fault Hunter, deep memory, and hardware accelerated testing, and the HD3 Series is the perfect oscilloscope for your applications.

Portable Precision

- Analyze the smallest signals with the highest degree of accuracy
- High resolution ADC and ENOB
- Low noise front-end
- Digital trigger circuit enables jitter free triggering with greater accuracy and sensitivity

Custom Technology

- Custom components optimized for oscilloscope measurements
- New deep memory architecture
- Analyze and debug faster with real time zone triggering, serial decode, mask testing, and more
- Automatic debug software – Fault Hunter

Versatile Functionality

- Dive deeper with more flexibility in the user interface (split grids, custom thresholds, bandwidth limiting options, and more)
- Immediate license upgrade – no return to factory
- From power integrity to medical imaging to general debugging, the HD3 provides the highest accuracy for your most challenging measurements



LXI

Hardware Accelerated Real Time Capabilities

- See everything with Real time color grading - Real-time color grading enhances signal visibility using hardware-based intensity grading. Color grading is performed within the ASIC to maintain a fast waveform update rate.
- Analyze every detail with Real time zoom – Real-time zoom unleashes the full power of the 14-bit ADC. Zooming occurs within the ASIC signal path, enabling visualization of small signals without compromising waveform update rate.
- Never miss a signal with Real time zone trigger – Real-time zone triggering unlocks the full potential of digital triggering. Triggers occur on the acquisition path at 6.4 billion tests per second, capturing any signal that passes through the designated zone.

www.keysight.com/find/hd3

7-in-1 instrument

More than an oscilloscope, the HD3 saves valuable bench space, providing more capabilities in the same footprint by enabling additional instrument integration:

- Oscilloscope with two or four analog channels
- 16 digital channels
- Protocol analyzer
- Frequency response analyzer
- 100-MHz arbitrary waveform generator
- Four 4.5-digit digital voltmeters
- Five 12 digit counters with totalizer

Model series	Bandwidth (–3 dB)	Input channels	Vertical resolution	Sampling rate	Memory depth	Display size	Waveform update rate
HD302MSO	200 MHz – 1 GHz	2 analog + 16 digital	14 bits	3.2 GSa/s per channel	20 MPts standard / 100 Mpts Max	10.1 inch	> 1,300,000 waveforms/sec
HD304MSO		4 analog + 16 digital					

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XR4 InfiniiVision 4000G X-Series oscilloscopes

Oscilloscope experience redefined

- 200 MHz to 1.5 GHz digital storage and mixed signal scopes
- 12.1-inch capacitive touch display
- Standard zone triggering
- 1,000,000 waveforms/sec update rate
- Standard built-in dual channel 20 MHz WaveGen function/arbitrary generator with modulation capability
- Standard advanced options now: I^2C, SPI, UART, I^2S, and USB PD trigger and decode, frequency response analysis, mask limit testing, histograms, and more

www.keysight.com/find/4000G



LXI

Model series	Bandwidth (–3 dB)	Input channels DSOX	Input channels MSOX	Sampling rate	Memory depth	Display size and type	Waveform update rate	Calculated rise time (10 to 90%)
4022G	200 MHz	2	2 + 16	5 GSa/s half channel, 2.5 GSa/s all channel	Standard 4 Mpts, standard segment memory	12.1-inch high-definition capacitive touch display	> 1 million wfms/s	≤ 1.75 ns
4024G		4	4 + 16					
4032G	350 MHz	2	2 + 16					≤ 1 ns
4034G		4	4 + 16					
4052G	500 MHz	2	2 + 16					≤ 700 ps
4054G		4	4 + 16					
4104G	1 GHz	4	4 + 16					≤ 450 ps
4154G	1.5 GHz[1]	4	4 + 16					≤ 300 ps

1. 1.5 GHz real-time bandwidth in half-channel mode or full-channel equivalent time mode.

XR5 InfiniiVision 6000 X-Series oscilloscopes

The new standard in price performance

- 1 to 6 GHz digital storage and mixed signal scopes
- 12.1-inch capacitive multi-touch screen with Zone touch trigger
- Superior noise floor and waveform update rate
- Standard histogram and color grade, plus enhanced color FFT
- Optional jitter and real-time eye-diagram analysis
- Voice control in 14 languages

www.keysight.com/find/6000X-Series



LXI

Model series	Bandwidth (–3 dB)	Input channels DSOX	Input channels MSOX	Sampling rate	Memory depth	Display size and type	Waveform update rate
6002A	1 to 6 GHz	2	2 + 16	20 GSa/s	4 Mpts	12.1-inch capacitive multi-touch screen, Hardware InfiniiScan Zone touch trigger	450,000 wfms/s
6004A		4	4 + 16				

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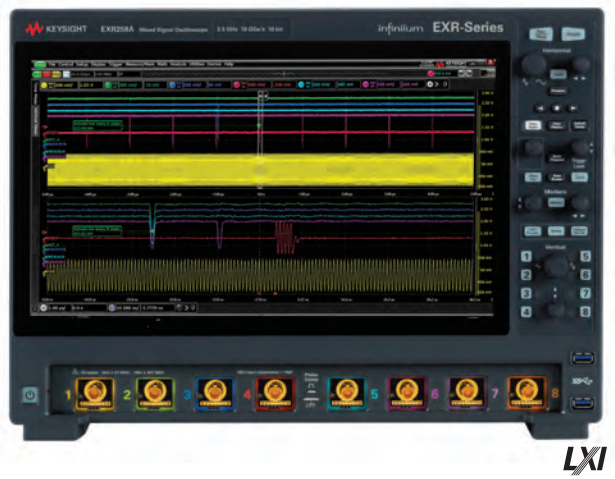
KEYSIGHTCARE PathWave BenchVue Basic software supported except where noted.

XR6 Infiniium EXR-Series oscilloscopes

An 8 channel MSO that's powerful, easy to own, intuitive to use

- Identify physical-layer issues as fast as possible with fast update rate of > 200,000 wfm/s and exclusive Fault Hunter technology
- Debug even the most sensitive signals with up to 16 bits of resolution and typical noise as low as 43 µV
- Verify power integrity and distribution easily with dedicated probes, accessories, and automated applications with step-by-step setup wizards
- Troubleshoot serial buses at the protocol layer with dozens of automatic measurements, triggers, decodes, and compliance applications
- Test, debug, and characterize designs according to compliance standards with automated measurements

www.keysight.com/find/EXR



Keep track of instrument calibration intervals with your instrument's built-in PathWave Calibration Advisor software and make measurements with confidence.

4 Channel Models	8 Channel Models	Bandwidth	Optional MSO	Sampling rate	Memory depth	Display size and type	Waveform Update Rate	Vertical resolution
EXR054A	EXR058A	500 MHz	16 ch	16 GSa/s	100 Mpts/ch (std) Options up to 400 Mpts/ch or 1.6 Gpts/ch	15.6" Full HD touchscreen, VGA and DisplayPort for external monitors	> 200,000 wfm/s	10 bits at full bandwidth Up to 16 bits in high resolution
EXR104A	EXR108A	1 GHz						
EXR204A	EXR208A	2 GHz						
EXR254A	EXR258A	2.5 GHz						
EXR404A	EXR408A	4 GHz						
EXR604A	EXR608A	6 GHz						

Infiniium Analysis, Protocol, and Compliance Software

The EXR and S-Series support a superset of automated oscilloscope software applications to help you debug, validate, and characterize your designs faster. Visit the oscilloscope software web page to learn more.

Analysis Software	
D9010JITA	EZJIT
D9011PAMA	PAM-N Analysis
D9010POWA	Power Integrity
D9010SCNA	InfiniiScan Trigger
D9010ASIA	Advanced Signal Integrity
D9010UDAA	User Defined Application
D9010DMBA	De-Embedding

Protocol Triggering / Decode Software	
D9010LSSP	Low Speed Serial (I^2C, SPI, and more)
D9010EMBP	Embedded (PCIe, USB, and more)
D9010AUTP	Low Speed Automotive (CAN, LIN, and more)
D9020AUTP	High Speed Automotive (100BASE-T1 and more)
D9010MPLP	MIPI Low Speed (RFFE, I^3C, SPMI)
D9010MCDP	MIPI CSI/DSI (C-PHY and D-PHY)
D9010MPMP	MIPI M-PHY (DigRF, LLI, CSI-3, UniPro, and more)
D9010MILP	Military (ARINC 429, MIL-STD 1553, SpaceWire)
D9011BDLP	D9010LSSP + EMBP + AUTP + MPLP + MILP

Compliance Software	
D9021HDMC	HDMI
D9010USBC	USB 2.0
D9030DDRC	DDR/LPDDR 3
D9040PCIP	PCIe Gen 1, 2, 3, 4
D9010CPHC	MIPI C-PHY
D9020DPHC	MIPI D-PHY
D9040MPHC	MIPI M-PHY
AE6910T	Auto Ethernet Tx



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Applications—Engineered to Turn Measurements into Answers

You need fast, accurate answers to your measurement questions. That's why Keysight offers the broadest selection of compliance and debugging applications in the industry. Keysight applications work with your oscilloscope to quickly and easily provide exceptional insight into your signals.

Increase specialized functionality

Instantly integrate instruments or upgrade your scope's functionality

The Education Training Kit and built-in DVM are now standard on all InfiniiVision oscilloscopes.

Applications	1000 X-Series	2000 X-Series	3000G X-Series	4000 X-Series	6000 X-Series	EXR Series
WaveGen function generator	Standard on G models	DSOX-2WAVEGEN	Standard on G models			
WaveGen arbitrary/function generator			Standard on G models	DSOX-4WAVEGEN2	DSOX-6WAVEGEN2	EXR2WAV
Frequency Response Analysis (FRA)	Standard on G models		Standard on G models	Included with any software option		
DSO to MSO upgrade kit		DSOX2MSO	DSOXT3MSO	DSOX-PERFMSO	DSOX6MSO	EXR2MSO
Bode plot training kit	DSOXBODE available on all models except 2000 X-Series					



Debug your designs faster

Industry-specific software options

Applications	1000 X-Series	2000 X-Series	3000G X-Series	4000 X-Series	6000 X-Series	P924xA
Automotive	Standard [1]	D2000AUTB	D3000AUTB	D4000AUTB	D6000AUTB	P9240AUTC
Aerospace & Defense			D3000AERB	D4000AERB	D6000AERB	P9240AERC
Embedded	Standard	D2000GENB	D3000GENB	D4000GENB	D6000GENB	P9240GENC
Power			D3000PWRB	D4000PWRB	D6000PWRB	
USB			D3000USBB	D4000USBB	D6000USBB	
Ultimate Bundle		D2000BDLB	D3000BDLB	D4000BDLB	D6000BDLB	P9240BDLC

1. DSO models only



Simplify your job

PC-based software, limit testing and segmented memory all help organize your data

Applications	1000 X-Series	2000 X-Series	3000G X-Series	4000 X-Series	6000 X-Series	EXR Series
Mask/waveform limit testing	Standard on DSO models	●	Standard	●	●	Standard
Segmented memory	Standard on DSO models	Standard	Standard	Standard	Standard	Standard
Infiniium Offline PC-based analysis software	●	●	●	●	●	●
Software application bundle		●	●	●	●	●
Jitter					●	●
PathWave BenchVue Basic	Download PathWave BenchVue Basic software for all models, free at www.keysight.com/find/BVBasic					



Save with InfiniiVision Application Bundles

Up to 25% off hardware, software, and accessories

Learn more!

Application Bundles			
Automotive	DSO3054GAUT	Better	DSOX3054G, D3000AUTB, DP0010A, DP0021A-009
	MSO4154AAUT	Best	MSOX4154A, D4000BDLBX, DSOX4WAVEGEN2, DP0010A, DP0021A-009
Power	DSO3054GPWR	Better	DSOX3054G, D3000PWRB, N2790A, 1147B, U1880A
	MSOX4154PWR	Best	MSOX4154A, D4000BDLB, DSOX4WAVEGEN2, N2790A, M7026A, U1880A
Jitter	DSOX6004JIT	Better	DSOX6004A, D6000BDLB, DSOX6WAVEGEN2, N2750A
	MSOX6004JIT	Best	MSOX6004A, DSOX6004A-02G, D6000BDLB, DSOX6WAVEGEN2, N2751A

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Probes—Engineered for Signal Access and Measurement Accuracy

To get top performance from your scope, you need the right probe for your application. Keysight offers a broad selection.

Hi-Z+ Passive Probing System

The best of passive and active probes in one.

- PP0001A: 1 GHz bandwidth passive probe with input voltages up to 300 V CAT II*
- PP0002A: 800 MHz passive probe that provides more than 1 kV of input voltage*
- PP0003A: MMCX-Compatible, 1 GHz passive probe with a 30 V CAT II input voltage range

*Requires the use of the PP0004A adapter



DP0001A high voltage differential probe

Confidently Test Your Power Converters, WBG Devices, and More

- High voltage differential probe for high voltage, high speed power device testing
- Measure up to 2 kV mains isolated, 1 kV CAT III and 400 MHz
- Unmatched electrical performance - flat frequency response and high CMRR
- Includes 1 year of KeysightCare Assured

www.keysight.com/find/DP0001A

KEYSIGHTCARE



N7020A/24A power rail probe

Industry's most accurate view of DC power rail behavior up to 6 GHz

- 2 or 6 GHz single-ended active probe for power rail noise measurements
- 16x less noise than a conventional 1:1 differential probe
- Low DC loading with input impedance of 50 kΩ
- Large offset range (± 24 V) enables use of a scope's max vertical sensitivity

www.keysight.com/find/N7020A

KEYSIGHTCARE



	1000 X-Series	2000 X-Series	3000G X-Series	4000 X-Series	6000 X-Series
Scope bandwidth	50 to 200 MHz	70 to 200 MHz	100 MHz to 1 GHz	200 MHz to 1.5 GHz	1 to 6 GHz
Probe interface	BNC	BNC	AutoProbe Lite	AutoProbe	
Standard probe (scope bandwidth)	N2140A (70 MHz/100 MHz) N2142A (50 MHz)	N2841A (70 MHz/100 MHz) N2842A (200 MHz)	N2843A (all)	N2894A (all)	
Passive probe 1:1	N2140A/ N2142A	10070D, N2870A	10070D, N2870A, PP0001A/2A/3A (requires PP0004A adapter)		
10:1	N2140A/ N2142A	N2841A, N2842A, N7007A	N2841A, N2842A, N2890A, N2871A, N7007A	N2894A, N7007A	
High-voltage passive probe 100:1	10076C				
Low Z passive probe	—	—	N2874A, N2876A		
Active differential probes (high speed)	—	—	N2750A, 1130B[1]		N2750A/51A/52A, 1130B/31B/32B[1]
(high voltage)	N2791A, N2891A	N2791A, N2891A	N2790A/91A, N2891A, N2804A/05A, DP0001A, DP0010A/11A/12A/13A		
Active single-ended probe	—	—	N2795A/96A/97A, N7020A	N2795A/96A/97A, N7020A	N2795A/96A/97A, N7020A[3]
Current probe	1146B, N2780B/81B/82B/83B[2], N7040A/41A/42A	1146B, N2780B/81B/82B/83B[2], N7040A/41A/42A	1146B, 1147B, N2893A, N2780B/81B/82B/83B[2], N2820A/21A , N7026A, N7040A/41A/42A		

1. Order one or more InfiniiMax. Probe heads or connectivity kits required per amplifier model shown. 2. Requires N2779A power supply. 3. With 6000X Series ordered after February 1, 2016

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Truevolt Digital Multimeters

Lower DC current ranges and faster reading rates, allows enhanced measurements

Get more details quickly – with graphical capabilities such as trend and histogram

Measure low-power devices – with the ability to measure very low current with the 1 µA range with pA resolution.

Maintain calibrated measurements – with auto calibration to compensate for temperature drift throughout your workday

DM6 34460A / 34461A Basic Truevolt DMMs

- Up to 1,000 readings / s at 6½ digits
- 12 measurement functions including temperature
- Up to 10 k readings internal memory
- Color, graphical display, with built-in graphics, math, and statistics
- 34461A DMM is a replacement for the previous-generation 34401A model



DM6 34465A / DM7 34470A Performance Truevolt DMMs

- DCV measurement accuracy of 16-30 ppm
- Measure sleep and standby current with pico-amp resolution
- View DC and AC volts with dual display
- 1 µA range and up to 50,000 rdgs / sec
- Up to 50 k readings standard internal memory and 2 M readings option



	Bench / System		Performance	
	34460A	34461A	34465A	34470A
Digits of resolution	6½	6½	6½	7½
1 year DCV accuracy	0.0075%	0.0035%	0.0030%	0.0016%
Maximum measurement speed (readings / s)	300	1,000	50,000	50,000
DC, True RMS AC voltage ranges	100 mV – 750 V	100 mV – 750 V	100 mV – 750 V	100 mV – 750 V
DC, True RMS AC current ranges	100 µA – 3 A	100 µA – 10 A	1 µA – 10 A	1 µA – 10 A
2- and 4-wire resistance ranges	100 Ω – 100 MΩ	100 Ω – 100 MΩ	100 Ω – 1 GΩ	100 Ω – 1 GΩ
Frequency range	3 Hz – 300 kHz	3 Hz – 300 kHz	3 Hz – 300 kHz	3 Hz – 300 kHz
Diode / continuity	5 V / yes	5 V / yes	5 V / yes	5 V / yes
Other measurements	Capacitance, temperature, period			
Connectivity	USB, LAN (opt), and GPIB (opt)	USB, LAN, and GPIB (opt)		

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Digital Multimeters

Lab accuracy at production-line speeds

ESSENTIAL → ADVANCED → EXPERT → PRO

DM6 DM34460 Series
6½ digit Smart Bench Essentials Plus DMM

Measurement confidence that goes beyond basic

- 7-inch dual-measurement color display.
- 0.0040% one-year DCV accuracy.
- Memory capacity of up to 2 million readings.
- Reading speed of up to 50K with digitizer for graphing trend charts.



DM5 34450A 5½ digit dual-display DMM

Achieve throughput breakthrough in a low-cost DMM

- 11 measurement functions, including temperature and capacitance
- Built-in histogram and basic statistical functions
- Ultra-bright OLED with dual display capability
- Up to 50,000 memory points, log up to 14 hours of data
- Download PathWave BenchVue Basic software for free at www.keysight.com/find/BVBasic



DM8 3458A 8½ digit performance DMM

High precision and high-performance measurement solution

- 8½ digit resolution with 0.1 ppm transfer accuracy
- Measurements include DC & AC voltage, DC & AC current, 2- and 4-wire resistance, frequency and temperature
- Up to 100,000 readings / s
- Similar performance, specifications, and 100% code compatible with the previous version
- 148K memory for data logging
- PathWave BenchVue software not supported



34420A 7½ digit nanovolt / micro-ohm meter

High sensitivity for low-level measurements, plus resistance and temperature

- 1.3 nVrms, 8 nVpp noise performance
- 100 pV / 100 nΩ sensitivity
- Low-noise voltage measurements with resistance and temperature functions



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PathWave BenchVue Basic software supported except where noted.

Femto / Picoammeters and Electrometers

Instruments for measuring ultra-low current and high resistance

B2980C Series femto / picoammeter and electrometer / high resistance meter

Confidently measure down to 0.01 fA and up to 10 PΩ with the world's only graphical picoammeter / electrometer.

- Current measurement resolution of 0.01 fA (0.01 x 10^{-15} A)
- Resistance measurements up to 10 PΩ (10 x 10^{15} Ω)
- 4.3" liquid crystal display for numeric, graph, trend chart, and histogram viewing
- Battery-powered versions available for low-level measurements in the presence of AC power line noise



Frequency Counters / Timers

For Continuous Wave Measurements to Complex Pulse Analysis

FC1 53200 Series RF and universal frequency counters / timers

Accelerate measurement and analysis with histograms, trend charts and statistics

- 350 MHz, with options up to 15 GHz
- Advanced capabilities: histograms, trending, data logging, optional pulse / burst microwave measurements
- Up to 20 ps single-shot time interval measurements
- Continuous, gap-free measurements, with time stamps on signal edges
- Onboard memory for 1 M readings
- 53181A, 53131A, 53132A counter emulation mode



53210A
53220A
53230A

LXI

	53210A	53220A	53230A
Type	1 channel; optional RF channel	2-channel universal; optional RF channel	
Measurements	Frequency, frequency ratio, period, max. / min. / peak-to-peak input voltage		
		Time interval, rise / fall time, single period, pulse width, duty cycle, phase, totalize	
		NA	Timestamp / modulation domain analysis
Analysis	Math: smoothing (reading moving average), scaling, Δ-change, null		
	Statistics: mean, standard deviation, max., peak-to-peak, count; full color display for trendline, histograms		
		Allan deviation	
Frequency range (optional)	DC to 350 MHz (6 or 15 GHz)		
Frequency resolution	10 digits / s	12 digits / s	
Time interval	NA	100 ps	20 ps
Connectivity	USB, LAN, and GPIB		

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True*form* Waveform Generators

Superior signal fidelity with True*form* technology provides the highest resolution, lowest distortion and lowest jitter when compared to DDS function / arbitrary waveform generators all at a comparable price.

Large, color, graphical display offers simultaneous parameter setup, signal viewing and editing for easy operation.

Supports remote operation using a Web browser to connect to a built-in Web page.

Rear panel: USB, LAN and optional GPIB for quick and easy connectivity to a PC or network.



Front-panel USB port for file management.

True*form* arbitrary waveforms with sequencing for more accurate representation of user-defined signals.

33600A Series: Same easy to use front panel as 33500B models.

Dual-channel mode with independent or coupled channels.

WG2 33500B and WG3 33600A Series Waveform Generators with True*form* Technology

Key Features

- High-bandwidth pulses with selectable leading and trailing edge times
- Capability to sum any two signals with either the 1- or 2-channel version
- Pseudo-random binary sequences (PRBS) with standard sequence numbers
- True*form* arbitrary waveforms with sequencing
- Dual-channel frequency and amplitude coupling, differential, and combined channels
- Choose among models with the capability you need now and easily upgrade later
- Baseband IQ player available on 2-channel arb models
- Download PathWave BenchVue Basic software for free at www.keysight.com/find/BVBasic

	33509B 33510B	33511B 33512B	33519B 33520B	33521B 33522B	33611A	33612A	33621A	33622A
Number of channels	1/2				1	2	1	2
Frequency	1 µHz to 20 MHz		1 µHz to 30 MHz		1 µHz to 80 MHz		1 µHz to 120 MHz	
Standard waveforms	Sine, square, ramp, pulse, triangle, Gaussian noise, PRBS (pseudorandom binary sequence), DC							
Arbitrary waveforms	Optional	1 MSa/channel 16 M	Optional	1 MSa/channel 16 M	4 MSa/channel standard, 64 MSa/channel optional			
Sampling rate, resolution	160 MSa/s, 16 bits		250 MSa/s, 16 bits		660 MSa/s, 14-bits		1 GSa/s, 14-bits	
Modulation types	AM, FM, PM, FSK, BPSK, PWM, Sum (carrier + modulation)							
Operating modes	Continuous, modulate, frequency sweep, burst							
PRBS	7, 9, 11, 15, 20, 23				3...32 and all integers inbetween			
Sweep	Linear, logarithmic and frequency list							
Burst	Counted or gated							
Timebase	TCXO standard, OCXO optional for higher stability							
Total harmonic distortion and jitter	< 0.04% THD and < 40 ps jitter				< 0.03% THD and < 1 ps jitter			
Options and security	NISPOM and file security, OCXO high-stability timebase							
Connectivity	USB, LAN, GPIB				USB, LAN, GPIB (optional)			

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WG2 FG33531A/2A Smart Bench Essentials Plus Function Generators

Subheading: Generate true representations of your waveforms

- 7-inch color display for simultaneous parameter setup, signal viewing, and editing.
- Jitter of less than 50 ps.
- Total harmonic distortion of less than 0.06%.
- 16-bit arbitrary waveform capability with up to 16 M samples per channel memory.



	FG33531A	FG33532A
Number of channels	1	2
Max bandwidth	100 MHz	
Max Arbitraty waveform length	Up to 8 MSa/channel (16 MSa/channel with option MEM)	
Max sample rate	320 MSa/s	
Total harmonics distortion	0.060%.	
Jitter	<50 ps	

Learn more at www.keysight.com/find/FG33530

WG1 EDU33210A Series Function Generators

Get all the standard functions and waveforms with the most stable, lowest-distortion function generator in its class. It offers the standard signals and features you expect and features that give you the capabilities and flexibility you need to get your job done quickly, no matter how complex.



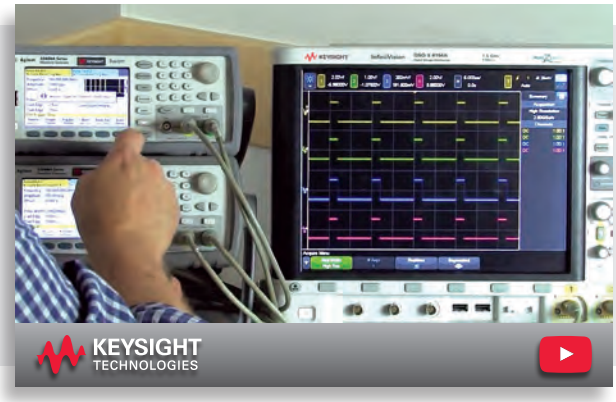
	EDU33211A	EDU33212A
Maximum frequency	20 MHz	
Number of Channels	1	2
Standard waveforms	Sine, Square, Ramp, Pulse, Triangle, Gaussian Noise, PRBS Pseudorandom Binary Sequence, DC	
Built-in arbitrary waveforms	Cardiac, Exponential Fall, Exponential Rise, Gaussian Pulse, Haversine, Lorentz, D-Lorentz, Negative Ramp, Sinc	
User-defined arbitrary waveforms	Up to 8 MSa per channel; with up to 1 MSa per waveform	
Operating modes	Continuous, Modulate, Frequency Sweep, Gated Burst	
Modulation types	AM, FM, PM, FSK, BPSK, PWM	

Learn more at www.keysight.com/find/EDU33210-series

Don't know how to phase synchronize multiple waveform generators?

Watch this video to see how easy it is.

Synchronizing Multiple Waveform Generators



PathWave BenchVue Software

Data Acquisition Control & Analysis

Easily control Keysight data acquisition units to configure channels, execute scan lists and log data. Clearly analyze or view measurement data using visualization tools and a broad choice of display options.

PathWave BenchVue software supports 34970A, 34972A, 34980A, DAQ970A, DAQ973A and modules.

http://www.keysight.com/find/benchvueDAQapp

34980A multifunction data acquisition switch / measure unit

Achieve maximum versatility in a minimum footprint

This 8-slot mainframe includes a choice of 21 optional plug-in modules for custom configurations. As a one-instrument solution it is ideal for medium to high-density switch / measure applications in design verification, automated test, and data acquisition applications.

- Optional built-in 6½ digit DMM—make 11 measurements with up to 3,000 readings / s
- High-performance switching—up to 560 2-wire multiplexer channels or 4,092 matrix cross-points in one mainframe
- Built-in USB, LAN, and GPIB



21 modules to choose from

Model	Description	Key specifications
34921A-25A	Multiplexers	Up to 300 V / 1 A
34931A-33A	Matrix switches	Up to 128 crosspoints
34934A	High-density matrix switch	512-crosspoint reed matrix
34937A / 38A	GP switches	1 A and 5 A
34939A	High-density GP switch	64-channel Form A channels up to 60 W
34941A / 42A	RF switches	50 Ω or 75 Ω
34945A	µW switch / attenuation driver	Drive 64 coils
34946A / 47A	µW switches	SPDT switch to 26.5 GHz
34950A-34959A	System control	Choose from D / A, DIO, counter and breadboard



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DAQ970A / DAQ973A data acquisition systems

This data acquisition (DAQ) system includes a 3-slot mainframe and your choice of 9 plug-in modules. Interface with the DAQ using Keysight PathWave BenchVue DAQ software or a web browser.



- Advanced 6½ digit internal DMM with high accuracy and fast measurement speed
- Measure very low current ranges (1 µA DC and 100 µA AC) and higher resistance range (1000 MΩ)
- Auto-calibration that compensates for internal drifts caused by time and temperature changes
- 3497XA compatible, program and configuration
- LAN and USB for easy PC connectivity (DAQ973A includes additional GPIB)
- Improved module switching speeds and accuracies
- DAQM900A solid state multiplexer and DAQM909A 4-channel digitizer modules
- DAQM909A 4 channel simultaneous sampling digitizer module, up to 800 kSa/sec sample rate

Modules for DAQ970A and DAQ973A Systems

Description	Modules	Key specifications
20-channel solid-state multiplexer	DAQM900A	Up to 450 ch/s
20-channel multiplexer + 2 current channels	DAQM901A	Armature 2/4 wire, 60 ch/s (80 ch/s for DAQ970A), up to 300 V, 1 A
16-channel multiplexer	DAQM902A	Reed 2/4 wire, 250 ch/s, up to 300 V, 50 mA
20-channel actuator/GP switch	DAQM903A	SPDT/Form C, 120 ch/s, up to 300 V, 1 A
4x8 matrix	DAQM904A	Armature 2-wire, 120 ch/s, up to 300 V, 1 A
2 GHz, dual 4-channel, RF mux, 50 Ω	DAQM905A	Common low (not terminated, 60 ch/s up to 42 V, 0.7 A
Multifunction module	DAQM907A	Two 8-bit digital I/O ports, up to 42 V, 400 mA 26-bit 100 kHz event counter, up to 42 V Two 16-bit analog outputs, up to ± 12 V, 10 mA
40-channel single-ended multiplexer	DAQM908A	Common low (no 4-wire meas.) 60 ch/s (80 ch/s for DAQ970A), up to 300 V, 1 A
4-channel simultaneous sampling digitizer	DAQM909A	Differential inputs, up to 800kSa/s sampling rate, 24-bit resolution
20-Channel Low-Voltage Multiplexer (2/4-Wire) Module	DAQM910A	Armature 2 / 4 wire, 60 ch / s (80 ch / s for DAQ970A), up to 40Vpk

Accessories

Explore the complete portfolio of Keysight accessories designed to complement and extend your instruments. Use the filters below to quickly find compatible accessories such as modules, cables, adapters, and other system components to configure, expand, and optimize your test system for your specific measurement needs.

www.keysight.com/find/mta







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The Keysight RF Bench and Handheld Instruments

Reach higher in RF—with confidence

Keysight Authorized Distributors now offer a range of RF instruments that deliver tremendous value, balancing excellent performance with affordable pricing. To see the full portfolio of RF products offered by Keysight Authorized Distributors, visit: www.keysight.com/find/rf

1. FieldFox Handheld Analyzers

Quality measurements in the field with rugged handheld instruments.

See pages 23-24

2. Spectrum/signal analyzers

From general purpose spectrum analysis to next-level signal demodulation analysis, we have you covered.

See pages 26-27

3. Signal generators and audio analyzer

Assure quality while minimizing the cost of your general-purpose testing with reliable RF performance and capability.

See pages 28-29

4. Power sensors and meters

Meters and sensors cover numerous frequency and power ranges to accurately measure the power of RF and microwave signals.

See page 30

5. RF & Microwave test accessories

Keysight test accessories complete your test solution and eliminate the weak links in your measurement system.

See page 31

6. Network analyzers

Industry standard of middle-range vector network analyzer, providing best-in-class performance, for passive device test.

See page 32

7. LCR meters

Bring unparalleled accuracy to your lab for component evaluation.

See page 46



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KEYSIGHTCARE

PathWave BenchVue Basic software supported.

FieldFox Handheld Analyzers

Quality measurements ranging from RF to mmWave in the field and lab environment: carry precision with you

Measuring up and earning a spot in your field kit is the driving idea behind Keysight's FieldFox handheld analyzers. Compact and lightweight at 3.34 kg or 7.35 lbs, FieldFox eliminates the need to transport benchtop equipment to the field or carry multiple instruments. FieldFox offers budget flexibility allowing you to choose the capabilities you need today and easily upgrade later.

Precise and portable

- Maximum frequency from 4 to 54 GHz
- Measurement results agree with those obtained with benchtop analyzers
- Compact form factor measures 29 x 19 x 8 cm (11.5 x 7.4 x 3.2 in) approximately
- Light weight at just 3.34 kg (7.35 lbs) approximately

Rugged and weather resistant

- Dust-free design with no internal fans or vents extends reliability in harsh environments
- Weather-resistant design withstands salty, humid environments
- MIL-PRF-28800F Class 2 compliant



N9912C FieldFox RF Analyzer

Achieve high-performance analysis, for test and troubleshooting of a wide range of high frequency and wireless applications with the C-Series FieldFox providing accurate, comprehensive spectrum and network analysis from 3 kHz, up to 4, 6.5 or 10 GHz.

- Save time in the field with this single, rugged handheld analyzer that can be solely software license-key defined as test needs evolve
- Choose your analyzer capabilities, including a mix of VNA, CAT, and SA with different frequency coverages. You can also add more capabilities and extend maximum frequency up to 20 Ghz later when needed

C-Series FieldFox RF Analyzers

Form-fit-functional replacement for FieldFox A- and B-Series handheld analyzers up to 9 GHz, with expanded frequency coverage from 3 kHz to 10 GHz.

PathWave Vector Signal Analysis (89600 VSA)

A comprehensive set of tools for demodulation and vector signal analysis

Signal analysis software tools that explore every facet of a signal and optimize your designs. Measure a broad range of signals including 5G, IoT, radar and more. Gain greater insight in frequency, time and modulation domains. Compatible with signal analyzers, network analyzers, oscilloscopes and many more test instruments.

Learn more here.



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KEYSIGHTCARE

PathWave BenchVue Basic software supported.

	Combination analyzers			Spectrum analyzers	
Model number	N9912C	N9913/4/5C		N9933/4/5C	
Maximum frequency range	3 kHz to 4, 6.5, 10 GHz	3 kHz to 4, 6.5, 10 GHz		3 kHz to 4, 6.5, 10 GHz	
Model number		N9916/7/8A	N9950/1/2A	N9936/7/8A	N9960/1/2A
Maximum frequency range		30 kHz to (5 kHz optional) 14, 18, 26.5 GHz	300 kHz to 32, 44, 50 GHz	100 kHz to 14, 18, 26.5 GHz	100 kHz to 32, 44, 50 GHz
Cable and antenna analyzer	Optional	Standard		Optional (VSWR & RL)	
Vector network analyzer	Optional	Standard		—	
QuickCal	—	Optional[1]	—	—	
Full 2-port S-parameters	Optional			—	
VNA time domain	Optional			—	
Spectrum analyzer	Optional			Standard	
Analysis bandwidth	10 MHz (standard), (Optional 40, 120 MHz[2])			10 MHz (standard), (Optional 40, 120 MHz[2])	
Real-time spectrum analyzer	Optional			Optional	
Indoor/Outdoor mapping	Optional			Optional	
Pathwave VSA software support	Optional			Optional	
Over-the-Air 5G NR	Optional	Optional (C-Series only)		Optional (C-Series only)	
Over-the-Air LTE FDD	Optional			Optional	
Over-the-Air LTE TDD	Optional			Optional	
EMF measurements	Optional			Optional	
Analog Demodulation	Optional			Optional	
Noise figure analyzer	—	Optional		Optional	
IQ analyzer	—	Optional		Optional	
IQ streaming	—	Optional		Optional	
EMI measurement	Optional			Optional	
Interference analyzer	Optional			Optional	
Extended range transmission analysis (ERTA)	—	Optional		Optional	
Tracking generator	Optional			Optional	
Pulse generator	—	Optional		Optional	
Vector voltmeter	Optional			—	
Built-in power meter	Optional				
USB power sensor support	Optional				
DC voltage source	Optional				
GPS receiver	Optional				
Remote control capability[3]	Optional				

1. QuickCal is not available on models N995xA or N991xC.
2. Available on C-Series models only (with exception of N9912C that goes up to 40 MHz maximum bandwidth).
3. Supports an iOS device or an Android device to remotely control a FieldFox analyzer.

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Increased Precision is Here with Wider Bandwidth

Given the new dynamics of wideband, microwave and millimeter wave (mmWave) communications, Keysight has developed the next generation FieldFox Microwave/mmWave Analyzer with 120 MHz of real-time bandwidth and enhanced RF performance to address the ever increasing demands of 5G NR (FR1 and FR2), satellite communications, signal monitoring, and RADAR/EW applications.

The FieldFox base combination model functions as a cable and antenna tester and can be configured to support over 20 key RF, microwave, and mmWave instrument functions including signal analyzer, full 2-port vector network analyzer, real-time spectrum analyzer, over-the-air demodulation, CW signal source, power meter, and many more, in an all-in-one field proof package.

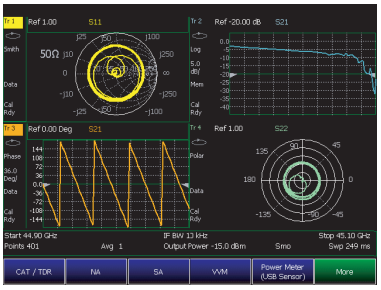
Cable and antenna analyzer

- Distance-to-fault (DTF) and return loss/VSWR
- 1-port cable loss, optional 2-port insertion loss, and time-domain reflectometry (TDR)
- Optional integrated QuickCal for simple field measurements – no calibration kit required



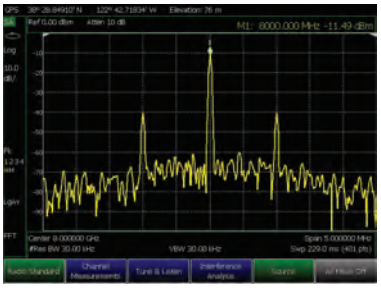
Vector network analyzer

- All four S-parameters, magnitude and phase
- Time-domain analysis, mixed-mode reflection S-parameters
- CalReady, QuickCal, full 2-port cal, TRL, waveguide cal, ECal support, and a Guided Calibration Wizard



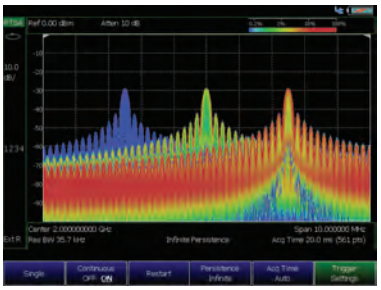
Spectrum analyzer

- Unprecedented amplitude accuracy of ± 0.2 dB with InstAlign—no warm-up required
- Tracking generator, independent source, and preamplifier covering the full frequency range
- Channel power (CHP), occupied bandwidth (OBW), interference analysis, and analog demodulation
- Interference signal locating with TDOA and AoA techniques



Real-time spectrum analyzer (RTSA)

- Capture signals as short as 5.52 µs with 100% probability of intercept (POI) using up to 120 MHz real-time bandwidth
- Cover signal frequency up to 54 GHz



Pulse generator

- Industry's only pulse generator built into the handheld signal analyzer up to 54 GHz
- Supports analog modulation and user-definable pulse sequences

Enhancement continues…

Keysight continues to invest in FieldFox to make it more versatile helping customers to address the increasing demands due to rapidly evolving technologies. The latest enhancements include:

- N9912C, the most flexible FieldFox analyzer, offers truly software-defined combination of options including analyzer types and frequency coverages
- Built-in pulse generator up to 54 GHz
- Expanding the FieldFox application library such as adding optional Time Difference of Arrival (TDoA) and Interference finding

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XA1 Basic Spectrum Analyzers (BSA) Series

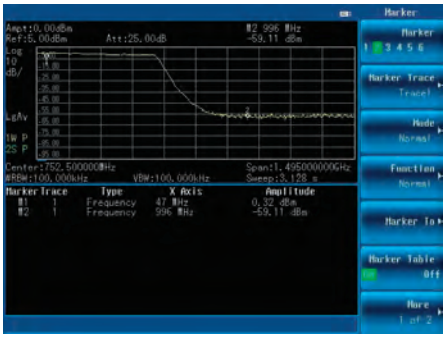
Proven reliability on your bench

For a low-cost spectrum analyzer, targeting general purpose and consumer electronics test, the BSA-C family has grown and now includes the N9321C (4 GHz), N9322C (7 GHz), N9323C (13.6 GHz) and N9324C (20 GHz). The BSA-C modules provide a full frequency range from RF to µW with one code set.



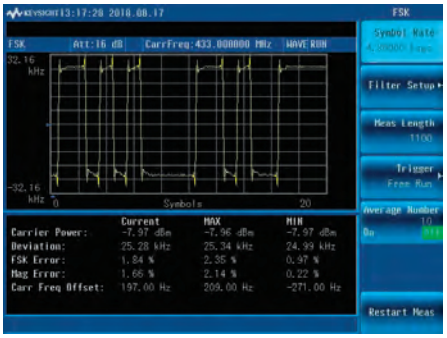
N9324C

Key specifications	N9321C	N9322C	N9323C	N9324C
Frequency range	9 kHz – 4 GHz	9 kHz – 7 GHz	1 MHz – 13.6 GHz	1 MHz – 20 GHz
Reference aging rate	± 1 ppm, ± 0.1 ppm (w/Opt. PFR)			
Amplitude accuracy	± 0.6 dB		± 0.7 dB	
Displayed average noise level, 1 GHz	-149 dBm		-140 dBm	
Resolution bandwidth	10 Hz – 3 MHz			
Third-Order Intercept (TOI)	+15 dBm			
Standard attenuator	50 dB, in 1 dB steps		50 dB, in 5 dB steps	
Phase noise, 1 MHz offset	-121 dBc/Hz		-119 dBc/Hz	



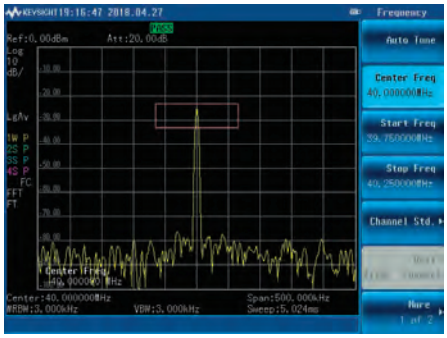
Tracking generator option (N9321C-TG4, N9322/3/4C-TG7)

This option provides a signal source with an RF output that follows the tuning of the spectrum analyzer and increases test coverage for component-level characterization, such as insertion loss, amplifier gain, and frequency response.



ASK/FSK demodulation analysis (DMA) option

Make one-button ASK/FSK signals measurements in low power, low data rate RF, and IoT device applications for fast signal characterizations, including transmission power, FSK deviation, FSK error, and carrier frequency offset.



Window limit feature

Quickly determine the pass/fail of measurement results for frequency and power test criteria using the automatic signal peak marker. This feature will simultaneously analyze the upper and lower limits of signal frequency and power and generate an audio alert for signals outside the passing margins.

RF and microwave accessories kit

An assortment of antenna, filters, attenuators, cables, adapters, and close-field probes provide a complete solution when using Keysight handheld and benchtop solutions.

www.keysight.com/find/n9311x

N9311X-100
Near Field Probes



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XA1 N9000B CXA X-Series signal analyzer

(9 kHz to 3.0, 7.5, 13.6 or 26.5 GHz)

Master the essentials with the CXA

Whether you're rapidly updating a next-generation product or revising an existing design, the CXA signal analyzer helps you perform signal characterization, circuit design verification, and troubleshooting. The CXA's built-in capabilities let you perform essential measurements of frequency, power, spurious and distortion without overspending your budget.

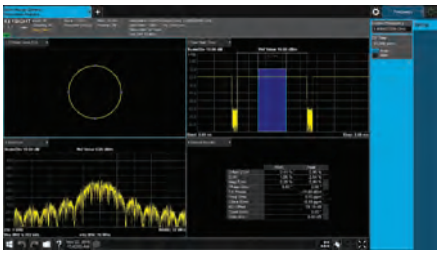
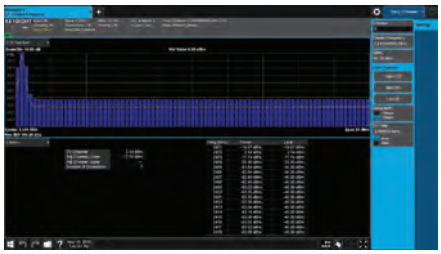
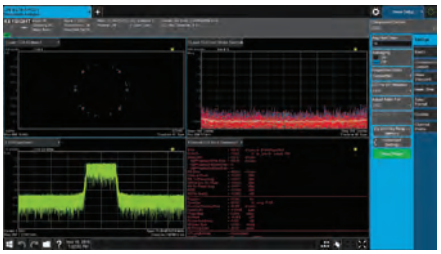
- Characterize signals and devices with general-purpose spectrum analysis and one-button PowerSuite measurements
- -163 dBm DANL @ 1 GHz (preamp on)
- Phase Noise (10 kHz offset) -110 dBc/Hz at 1 GHz
- 25 MHz analysis bandwidth
- Up to 6 GHz built-in tracking generator for stimulus/response measurements
- USB 2.0, LAN, GPIB and LXI Class C compliance
- Use X-Series measurement applications for signal demodulation analysis



Enable deeper insight into signal quality– Equip your CXA signal analyzer with X-Series measurement applications

X-Series measurement applications for CXA

These apps provide fast, one-button RF conformance measurements to help you design, evaluate, and manufacture devices and equipment.




Featured apps	Description
General purpose	Analog demodulation, phase noise, noise figure, pulse analysis, vector modulation analyzer (VMA), EMI emission measurements
Cellular communications	W-CDMA/HSPA+, LTE/LTE-Advanced FDD, NB-IoT and eMTC, LTE/LTE-Advanced TDD, GSM/EDGE/EVO
Wireless connectivity	WLAN 802.11, *Bluetooth*®, *Bluetooth 5*, ZigBee/Z-Wave

Complete offering available at www.keysight.com/find/x-series_apps

Good, Better, Best Value bundles Keysight N9000B CXA Signal Analyzer

The N9000B CXA signal analyzer is crafted for essential RF and microwave signal characterizations, that span from frequency selective power measurements, to noise analysis, EMI emission test, and digital signal demodulation analysis.

https://www.keysight.com/us/en/assets/3121-1415/flyers/Good-Better-Best-Value-Bundles-Keysight-N9000B-CXA-Signal-Analyzer.pdf

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XG1 AP500xA RF/µW Analog Signal Generator

The AP5001A and AP5002A are compact analog signal generators (analog signal sources) covering RF from 9 kHz to 2, 4 and 6.1 GHz (AP5001A) and microwave frequency ranges from 9 kHz to 12, 20 and 26 GHz (AP5002A). A combination of characteristics such as high output power, low phase noise, fast frequency switching speed and standard analog modulation, along with their very compact size and low power consumption, make these instruments a very useful and cost-effective tool in labs and production test areas.

Key Features include:

- OCXO stabilized, low phase noise signal creation
- Wide and accurately levelled output power range
- Portable 3U benchtop model, weighing < 4.5 kg / 10 lb (battery power option available)
- Low-profile, 1U rackmount model, great for production test
- Standard modulation capabilities such as AM, FM, PM, Pulse Modulation, and Frequency Chirp.
- Frequency switching speed as fast as ≤ 40µs
- Sweep and trigger functions along with user-programmable external reference frequency
- Low power consumption
- Front panel touchscreen GUI operation, local PC control or remote SCPI command operation via USB, Ethernet or GPIB ports and
- Frequency, output power and attenuator options are license key upgradeable – no return to factory needed

Learn more at http://www.keysight.com/find/AP500xA







	AP5001A: RF analog	AP5002A: µW analog
Frequency range	9 kHz to 2, 4, or 6.1 GHz	9 kHz to 12, 20, or 26 GHz
Output power range	–120 to +17 dBm (Opt 1E1)	–120 to +23 dBm (Opt 1E1/1EA)
Phase noise at 1 GHz, 20 kHz offset	–130 dBc / Hz (nom)	
Harmonics at 1 GHz	–40 dBc (nom)	
Non-harmonics at 1 GHz	–65 dBc (nom)	–75 dBc (nom).
Frequency switching speed	400 µs	400 µs, (≤ 40 µs with option UNZ)
Modulation capabilities	AM, FM, PM, Pulse, Frequency chirps	

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KEYSIGHTCARE

PathWave BenchVue Basic software supported.

X-Series Signal Generators

To know a device's behavior, you'll take many paths. That's the idea behind X-Series signal generators, producing signals needed to test design within and beyond its limits.

CXG X-Series RF vector signal generator

Cost-effective RF vector signal generation



The Keysight N5166B CXG RF vector signal generator supports essential receiver and general-purpose tests. Produce the signals you need from simple to complex, or clean to dirty. You may also playback Signal Studio waveforms for functional verification of your devices.

EXG X-Series RF analog signal generator

Achieve faster throughput



The cost-effective EXG X-Series signal generators are optimized for manufacturing test. Analog models provide the signals you need for basic parametric testing of components, functional verification of receivers, and virtually anything in between.

- Verify receiver performance by simulating complex analog modulation scenarios
- Maximize throughput with < 800 µs of frequency and power switching

MXG X-Series RF analog signal generator

Reach better performance



The pure and precise MXG X-Series signal generators are fine-tuned to be your "golden transmitter" in R&D. Whether you're pushing for a linear RF chain or an optimized link budget, MXG models deliver what you need: phase noise, output power, and more.

- Test radar receiver sensitivity or characterize ADCs
- Characterize nonlinear PA behavior

The MXG N5181B will be discontinued June 1, 2027

	ESSENTIAL → ADVANCED → EXPERT → PRO		
	CXG: N5166B RF vector	EXG: N5171B RF analog	MXG: N5181B RF analog[1]
	XG1		XG5
Frequency range	9 kHz to 3 or 6 GHz	9 kHz to 1, 3 or 6 GHz	9 kHz to 3 or 6 GHz
Phase noise (20 kHz offset)	–119 dBc/Hz at 1 GHz	–122 dBc/Hz at 1 GHz	–146 dBc/Hz at 1 GHz
Spurious (non-harmonic)	–72 dBc at 1 GHz	–72 dBc at 1 GHz	–96 dBc at 1 GHz
Output power (1 GHz)	+18 dBm	+26 dBm	+26 dBm
Switching speed	5 ms	≤ 800 µs	≤ 800 µs
Internal IQ modulation	60 or 120 MHz	—	—
Features	Narrow pulse modulation Custom digital modulation	LF function generator, Step/list sweep USB power meter, PathWave BenchVue software supported	
	AM, FM, PM, Pulse, Pulse train		

1. The MXG N5181B will be discontinued June 1, 2027

AZ2 U8903B performance audio analyzer

Measure and quantify analog and digital audio signals with a single box



- Combined functionality of a distortion meter, SINAD meter, frequency counter, AC voltmeter, DC voltmeter and FFT analyzer with a low-distortion audio source
- Configure 2 to 8 analog analyzer channels
- Two-in-one digital card covers AES3, SPDIF and DSI formats
- Measure speech quality with POLQA options

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USB and LAN Power Sensors



USB power sensors plug directly into your PC or enabled Keysight instrument and give you the capability to measure power in a compact and portable form factor. All models feature internal zeroing to eliminate external calibration. Setup is fast and easy; just connect and start measuring immediately with PathWave BenchVue software.

U/L2050/60 X-Series USB/LAN peak and average wide dynamic range power sensors

- 10 MHz to 6 / 18 / 33 / 40 / 50 / 54 / 67 GHz; wide power range, from –70 to +0 / 26 dBm
- Extremely fast measurement speed of 50,000 readings per second

U2020 X-Series USB peak and average power sensors

- 50 MHz to 18 / 40 / 50 GHz; –45 to +20 dBm power range
- Fast pulse analysis with 30 MHz video bandwidth

U8480 Series USB thermocouple power sensors

- Wide frequency range DC / 10 MHz to 18 / 33 / 50 / 67 / 120 GHz; –35 to +20 dBm power range
- Fastest available thermal power sensor

U2000 Series USB average power sensors

- 9 kHz to 6 / 18 / 24 / 26 GHz
- –60 to +20 dBm or -30 to +44 dBm power range

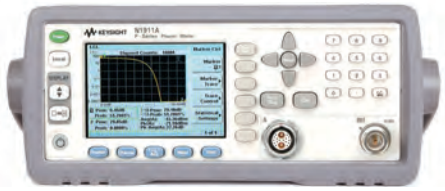


N8486DD/DG D&G-band waveguide power sensors with wide dynamic range

Precise and direct waveguide measurements in the D-band frequency range via a WR-06 flange connector.

- Diode sensing element enables a wide dynamic range for CW/Average power measurement
- Comprehensive frequency and power coverage for source power calibration measurement up to 220GHz
- Built-in EEPROM for calibration factors storage, Option 200

Power Meters



PM2 P-Series N1911/12A (single-channel/dual-channel)

- Key measurements: peak, average, peak-to-average ratio, rise time, fall time, and pulse width
- 30 MHz video bandwidth; 13 ns rise/fall time
- Single-shot real-time capture at 100 Msamples per second
- 22 predefined signal formats, including LTE
- USB, LAN and GPIB standard; LXI Core compliant



PM4 EPM Series N1913/14B (single-channel/dual-channel)

- Color LCD screen with Keysight color code front panel
- Compatible with all legacy average (except thermistor) and all USB power sensors (including USB peak power sensors with limited to average power measurement)
- Multi-channel power measurement up to 4 (2 legacy + 2 USB power sensors)
- USB, LAN, and GPIB standard; LXI Core compliant

Use these compatible sensors with your Keysight power meters

	Model number	N8480 Series sensors	P-Series sensors	E-Series E9320 sensors	E-Series E9300 sensors	E-Series CW sensors	8480D Series sensors	E/V/W8486A waveguide sensors
P-Series	N1912A	–35 to +20 dBm –5 to +44 dBm	–35 to +20 dBm	–65 to +20 dBm	–60 to +20 dBm –30 to +44 dBm	–70 to +20 dBm	–70 to –20 dBm	–70 to –20 dBm –35 to +20 dBm
	N1911A							
EPM Series	N1914B		N/A	N/A				
	N1913B							
	E4417A (PM2)			–65 to +20 dBm				
	E4416A (PM2)							

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Eliminate the Weak Links in Your Measurement System

RF and microwave manual and programmable step attenuators

- Fast, precise signal-level control up to 50 GHz
- High reliability and exceptional repeatability reduces downtime
- Attenuation range of 121 dB in 1 dB steps



Fixed attenuators

- Precise attenuation, flat frequency response, and low SWR over broad frequency range up to 67 GHz

Model	Frequency range (DC to)	Type	Attenuation
8494G	4 GHz	Programmable	0 to 11 dB, 1 dB steps
8491A	12.4 GHz	Fixed	3, 6, 10, 20, 30, 40, 50, 60 dB
8495B	18 GHz	Manual	0 to 70 dB, 10 dB steps
8495D	26.5 GHz	Manual	0 to 110 dB, 10 dB steps

Model	Frequency range (DC to)	Type	Attenuation
84904L	40 GHz	Programmable	0 to 11 dB, 1 dB steps
8490G	67 GHz	Fixed	3, 6, 10, 20, 30, 40 dB
J7204/5 A/B	6/18 GHz	One box 4/5 channels	0 to 121 dB, 1 dB steps

J7201A/B/C attenuation control units, DC to 6/18/26.5 GHz, 0 to 101/121 dB, 1 dB steps

- Attenuation sweep function defines the sweep time (–50 ms to 10 s; 50 ms incremental), number of cycles and step size
- Relative attenuation step function
- Attenuation steps - 0 dB to 101/121 dB, 101/121 dB to 0 dB for the preset number of cycles (1 to 1000)
- 0.03 dB insertion loss repeatability
- Includes 1 year of KeysightCare Assured

KEYSIGHTCARE



U9422A/B/C SPDT, U9424A/B/C SP4T, and U9428A/B/C SP8T FET Solid State Switches, 300 kHz to 26.5/50/54 GHz

- Broad operating frequency range from 300 kHz to 26.5/50/54 GHz
- Prevent damage to sensitive components with low video leakage
- Flexible USB with multiport configuration to PXIe and USB VNA, or solder options
- Includes 1 year of KeysightCare Assured

KEYSIGHTCARE



U7104/6E/N/F, U7108/10A/B/C

- Broad selection of configuration SP4T, SP6T, SP8T and SP10T with operating frequency from DC to 9/20/26.5/50/54/67 GHz
- Superior isolation of more than 65 dB to 67 GHz and low VSWR
- Extend the number of test ports and achieve lower cost-per-port test without compromising performance for multi-DUT or multiport device measurement



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XN3 E5061B ENA Series vector network analyzer

- Choose 50 Ω or 75 Ω inputs
- Hardware options 3L3, 3L4/3L5 for applications, including power integrity
- Down to 5 Hz frequency
- Combine network and impedance analysis (+Option 005)
- PathWave BenchVue software supported



XN3 E5063A ENA vector network analyzer

- Many frequency options, upgradable at any time
- Option 011 for PCB manufacturing test
- Six languages supported via softkey
- Help in English/Simplified Chinese
- All Keysight calibration kits supported, including ECal modules
- PathWave BenchVue software supported



XN4 P937xA/B and P938xB vector network analyzers

- Most compact VNA for easy sharing between test locations
- Wide choice of frequency ranges up to 44 GHz
- Ability to extend the number of test ports (max 8-port)
- Measurements, automated code capabilities, calibration metrology and intuitive GUI are the same as trusted Keysight VNAs
- Support of Electronic Calibration (ECal) modules for easy and quick calibration



	E5061B	E5063A	P937xA	P937xB/P938xB
Form factor	Benchtop	Benchtop	Compact	Compact
Test port	2-port 50 Ω or 75 Ω	2-port 50 Ω	2-port 50 Ω	2-port 50 Ω (P937xB), 4-port 50 Ω (P938xB)
Connector type	Type-N	Type-N	3.5 mm	3.5 mm (up to 26.5 GHz), 2.4 mm (44 GHz)
Minimum frequency	5 Hz (Option 3L3/3L4/3L5) 100 kHz (Option 1xx/2xx)	100 kHz (Settable to 50 kHz)	300 kHz	9 kHz (up to 20 GHz models), 100 kHz (above 20 GHz models)
Maximum frequency	0.5, 1.5, 3 GHz	0.5, 1.5, 3, 4.5, 6,5, 8.5, 14, 18 GHz	4.5, 6.5, 9, 14, 20, 26.5 GHz	4.5, 6.5, 9, 14, 20, 26.5, 44 GHz (P937xB) 9, 20 GHz (P938xB)
Dynamic range	120 dB (spec.)	117 dB (spec.), 122 dB (typ.)	115 dB (spec.), 122 dB (typ.)	115 dB (spec.), 122 dB (typ)
Cycle time (2-port measurements, 201 points, narrowband)	21 msec	19 msec	23 msec	15 msec

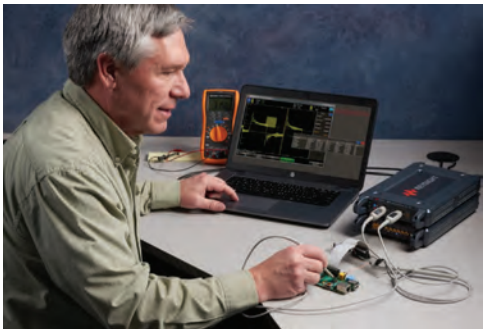
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USB VNA Products

Compact form with zero compromise in performance

- Faceless USB instruments controlled via PC
- Same technology and measurements as Keysight benchtop and modular instruments
- High-performance USB 3.0 or Thunderbolt 3 interface
- PathWave BenchVue Basic software supported

www.keysight.com/find/streamline-series



	Vector Network Analyzer (VNA)				
Model	P9370A to P9375A	P9370B to P9375B	P9377B	P9382B	P9384B
Bandwidth	300 kHz to 26.5 GHz	9 kHz to 20 GHz 100 kHz to 26.5, 44 GHz		9 kHz to 20 GHz	
Key Features	Full 2- or 4-port, Extendable number of ports, Same calibration and metrology as all trusted Keysight VNAs, Automatic fixture removal, Time domain analysis, Enhanced time-domain analysis with TDR (P937xB/8xB only), Scalar/mixer converter measurements				

ECal Modules

Achieve faster calibration with zero wait time using the Keysight ECal modules with three series offering a choice of frequency and connections.

8509xD Series electronic calibration modules (ECal)

- 2-ports, frequency coverage from DC/300 kHz to 6/7.5/9 GHz frequency range.
- Connector choices of type Type-N (50 ohm), Type-N (75 0hm), 3.5 mm, 7-16, 4.3-10, Type F (75 ohm) with mixed connector option available for one of the port.
- USB interface for direct control with PNA, ENA, PXIe and Streamline series of network analyzers.
- Precision, accurate transfer standards of calibration
- Supported by trusted Keysight vector network analyzer



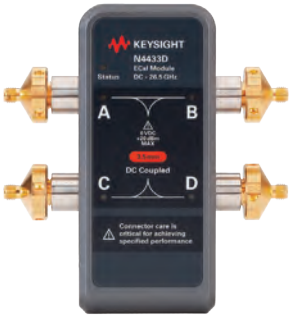
N7550 Series electronic calibration modules (ECal)

- Frequency coverage from DC to 4, 6.5, 9, 14, 18, 26.5 GHz
- Supports Type-N and 3.5 mm connectors
- Smaller, lighter 2-port ECal module
- Zero wait time for faster calibration
- Convenience of ECal with the performance of an economy mechanical kit



N443xD Series electronic calibration modules (ECal)

- 4-ports, frequency coverage from DC to 13.5, 18, 26.5 GHz
- Connector choices of Type-N, 3.5 mm, 7-16, 4.3-10
- Efficient single calibration standard
- Precision, accurate transfer standards
- Supported by Keysight vector network analyzers



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KEYSIGHTCARE

PathWave BenchVue Basic software supported.

Power Supply Collection

Low-noise, accuracy and speed

Our broad selection of both bench-friendly and system-ready instruments meet your test challenges from basic to your most complex.

DC bench power supplies

ESSENTIAL → ADVANCED → EXPERT → PRO

E3600 Series	E36100 Series	E36300 Series	E36200 Series	E36150 Series
NB1	NB1	NB2	NB2	NB1
				
• 15 models • 1 or 2 outputs • 30 to 200 W • A model for every application	• 5 models • 1 output • 30 to 40 W • Testing low power devices	• 3 models • 3 outputs • 80 or 160 W • Power and characterizing devices	• 4 autoranging models • 1 or 2 outputs • 200 or 400 W • Mid-power characterization	• 2 autoranging models • 1 output • 800 W • High power and advanced features

DC power analyzer and sources

N6705 DC power analyzer	B2961/62C low-noise source	B2900C/CL source measure units		PZ2100 Series source measure units
NP2	NB6	SM1	SM2	
				
• 35+ modules • 1 to 4 outputs • 50 to 500 W per output • Characterize your devices in real-time without a PC	• 2 models • 1 or 2 output • 6.5 digit resolution • Component testing, low noise voltage/current source 10 µVrms	• 6 models • 1 or 2 output • 5.5 or 6.5 digit resolution • Component I-V measurements without PC programming		• 5 modules, flexible for expanding and changing with test needs • 1 to 20 outputs in a 1U full rack space • Lower cost/ch and smaller footprint

Power Products Solutions Guide

Keysight offers more than 300 power products to meet your specific needs

The Keysight Power Products Solutions Guide helps you choose your instrument by the number of outputs, output power characteristics, packaging, special features and application specific solutions.

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Power Supply Collection (continued)

DC system power supplies

ESSENTIAL → ADVANCED → EXPERT → PRO

N6700 Modular Series



- 35+ modules
- 1 to 4 outputs per mainframe
- 50 to 500 W per output
- Modular flexible to expand and change with your testing needs over time

N5700 Series

NS1



- 24 models
- 1 output
- 750 or 1500 W
- Meets your test needs up to 1500 W in a compact 1 U size

NEW DP5700 Series

NS1



- 92 models
- 1 output
- 1.5kW in 1U ½ rack or 7.5kW in 1U full rack
- Stackable series and parallel connections for greater output power

NEW DP5800 Series

NS1



- 7 models, 1 output
- 10.2kW – 12kW
- 10V to 1500V
- PW9252A Pathwaved Advance Power Suite supportability

N8700 Series

NS1



- 21 models
- 1 output
- 3300 or 5200 W
- Meets your high-power test needs in a compact size

NEW RP5900 Series

NS4



- 12 models, 1 output
- 2kW, 4kW, 6kW & 12kW
- Fully regenerative
- PW9252A & PW9253A Pathwave Advanced Power Suite supportability

N8900 Series

NS1



- 28 models
- 1 output
- 5000, 10000, or 15000 W
- Flexibility to expand up to 100 kW to meet your highest power test needs

High Power ATE Power Supplies

The RP5900 Regenerative Power Supply and the DP5700/DP5800 DC Power Supplies now offer more voltage current and power configurations.

These Keysight power solutions deliver superior density paired with robust automation software, empowering engineers to validate complex multi-kilowatt devices faster, using substantially less space, with no compromises on performance or programmability. See pages 40-41 for more information on these new power supplies.

Check out Keysight's new energy-efficient, high-performance EL4900 Regenerative Electronic Load on page 44.

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NB2 E36100 Series DC power supplies

Designs change—and so should your DC power supply. Meet the E36100, engineered to power your designs safely during manual tests or automated sequences.

- Choose the best model for your needs: five models offer up to 5 A or 100 V
- Save space on your bench, 2U ¼-form factor
- Connect for computer control with standard LAN (LXI Core) and USB connectivity
- Easily view the high-contrast OLED display from anywhere on your bench, even from a sharp angle



Model	Voltage	Current	Power
E36102B	6 V	5 A	30 W
E36103B	20 V	2 A	40 W
E36104B	35 V	1 A	35 W
E36105B	60 V	0.6 A	36 W
E36106B	100 V	0.4 A	40 W

Other E3600 Series DC power supplies

Reliable power, repeatable results

For environments that need to watch test costs as closely as they watch test results.

- Extremely low output noise—as low as 1 mV_{pp}/0.2 mVrms
- Tight 0.01% load and line regulation for steady output power levels
- Fast load transient response time (< 50 µs)
- 15 models from 30 to 200 W output power, 2-3U high
- Convenient front-panel, GPIB, and RS-232 programming (except on E3620A and E3630A)



E3640A

Model	Output	Range	Voltage	Current	Power
E3632A	1	2	15 V 30 V	7 A 4 A	120 W
E3620A	2	1	25 V	1 A	50 W
E3630A	3	1	6 V 20 V -20 V	2.5 A 0.5 A 0.5 A	35 W
E3640A	1	2	8 V 20 V	3 A 1.5 A	30 W
E3641A	1	2	35 V 60 V	0.8 A 0.5 A	30 W
E3642A	1	2	8 V 20 V	5 A 2.5 A	50 W
E3643A	1	2	35 V 60 V	1.4 A 0.8 A	50 W
E3644A	1	2	8 V 20 V	8 A 4 A	80 W
E3645A	1	2	35 V 60 V	2.2 A 1.3 A	80 W
E3646A	2	2	8 V 20 V	3 A 1.5 A	60 W
E3647A	2	2	35 V 60 V	0.8 A 0.5 A	60 W
E3648A	2	2	8 V 20 V	5 A 2.5 A	100 W
E3649A	2	2	35 V 60 V	1.4 A 0.8 A	100 W

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NB2 E36300 Series DC power supplies



With low output ripple/noise and accurate voltage/current measurement, you can test with confidence—and power your next insight.

- Triple output power supply with independent or tracking outputs
- Low output ripple and noise: < 2 mVpp/350 µVrms
- Data logging plus output sequencing and coupling
- Modern I/O (USB, LAN and optional GPIB)

NB2 E36200 Series DC power supplies



Autoranging architecture provides more current at all voltage setting. More usable power means that these 200 and 400 W supplies can test your power hungry devices.

- Single or dual outputs. Dual outputs can be internally combined into a single output with 400 W
- Low output ripple and noise: < 350 µVrms
- Data logging plus output sequencing and coupling
- Modern I/O (USB, LAN and optional GPIB)

NB1 E36150 Series DC high-power supply



Built for performance with advanced characterization capabilities to meet your high-power test requirements. The E36150 Series offers great performance at an affordable price.

- Two autoranging modes, 30V/80A and 60V/40A
- Detachable high current front binding post for safe/easy wire connection
- Software options: PathWave PS App with BenchVue Test Flow, and
  PW9252A/1B Pathwave BenchVue Advance Power Control and Analysis
- Scope View and AWG options (requires E36150ADVU upgrade)

NB2 E36441A Smart Bench Essentials Plus 4-Channel DC power supply



Reliability and safety certified to industry standards

- Fast transient response to dynamic load changes.
- Accurate programming and readback for precise voltage and current control.
- Support for two-wire and four-wire remote sensing for accurate voltage regulation

Model	Power	Outputs	DC output Rating (0 to 40 °C)	
E36300 Series				
E36311A	80 W	1	0 to 6 V	0 to 5 A
		2	0 to +25 V	0 to 1 A
		3	0 to –25 V	
E36312A	80 W	1	0 to 6 V	0 to 5 A
		2	0 to 25 V	0 to 1 A
		3		
E36313A	160 W	1	0 to 6 V	0 to 10 A
		2	0 to 25 V	0 to 2 A
		3		
E36200 Series				
E36231A	200 W	1	0 to 30 V	0 to 20 A
E36232A			0 to 60 V	0 to 10 A
E36233A	400 W	1	0 to 30 V	0 to 20 A
		2		
E36234A	400 W	1	0 to 60 V	0 to 10 A
		2		
E36400 Smart Bench Essentials Plus				
E36441A	400 W	4	0 to 32 V	0 to 10 A
E36150 Series				
E36154A	800 W	1	0 to 30 V	0 to 80 A
E36155A			0 to 60 V	0 to 40 A

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N6700 low-profile modular power system

Accelerate ATE with small, flexible, fast DC power

- Small size: up to 4 power supply outputs and/or electronic load inputs in 1U of rack space
- Streamline tasks with built-in measurements, output sequencing, flexible triggering and digital I/O; LIST mode for user-defined arbitrary waveforms (module dependent)
- Fast output response and command processing (< 1 ms)
- Perform remote programming with USB, LAN, and GPIB



Mainframes

Model	Description
N6700C	Low-profile MPS (400 W)
N6701C	Low-profile MPS (600 W)
N6702C	Low-profile MPS (1200 W)



Modules

Model	Type	Maximum power	Voltage	Current	Number of slots used	Number of ranges	Ripple & noise (Vp-p)	Programming accuracy	Up or down programming time with load (typical)
N6731B	Basic	50 W	0-5 V	0-10 A	1	1	10 mV	0.1% + 19 mV	20 ms
N6732B		50 W	0-8 V	0-6.25 A			12 mV	0.1% + 19 mV	
N6733B		50 W	0-20 V	0-2.5 A			14 mV	0.1% + 20 mV	
N6734B		50 W	0-35 V	0-1.5 A			15 mV	0.1% + 35 mV	
N6735B		50 W	0-60 V	0-0.8 A			25 mV	0.1% + 60 mV	
N6736B		50 W	0-100 V	0-0.5 A			30 mV	0.1% + 100 mV	
N6741B		100 W	0-5 V	0-20 A			20 mV	0.1% + 19 mV	
N6742B		100 W	0-8 V	0-12.5 A			12 mV	0.1% + 19 mV	
N6743B		100 W	0-20 V	0-5 A			14 mV	0.1% + 20 mV	
N6744B		100 W	0-35 V	0-3 A			15 mV	0.1% + 35 mV	
N6745B		100 W	0-60 V	0-1.6 A			25 mV	0.1% + 60 mV	
N6746B		100 W	0-100 V	0-1 A			30 mV	0.1% + 100 mV	
N6773A		300 W	0-20 V	0-15 A			20 mV	0.1% + 20 mV	
N6774A		300 W	0-35 V	0-8.5 A			22 mV	0.1% + 35 mV	
N6775A		300 W	0-60 V	0-5 A			35 mV	0.1% + 60 mV	
N6776A		300 W	0-100 V	0-3 A			45 mV	0.1% + 100 mV	
N6777A		300 W	0-150 V	0-2 A			68 mV	0.1% + 150 mV	
N6751A	Performance	50 W	0-50 V	0-5 A	1	Autoranging	4.5 mV	0.06% + 19 mV	0.2 ms
N6752A		100 W	0-50 V	0-10 A	1		4.5 mV	0.06% + 19 mV	0.2 ms
N6753A		300 W	0-20 V	0-50 A	2		5 mV	0.06% + 10 mV	0.4 ms
N6754A		300 W	0-60 V	0-20 A	2		6 mV	0.06% + 25 mV	0.35 ms
N6755A		500 W	0-20 V	0-50 A	2		5 mV	0.06% + 10 mV	0.5 ms
N6756A		500 W	0-60 V	0-17 A	2		6 mV	0.06% + 25 mV	0.7 ms
N6761A	Precision	50 W	0-50 V	0-1.5 A	1	Autoranging	4.5 mV	0.016% + 6 mV	0.6 ms
N6762A		100 W	0-50 V	0-3 A	1		4.5 mV	0.016% + 6 mV	0.6 ms
N6763A		300 W	0-20 V	0-50 A	2		5 mV	0.03% + 5 mV	0.4 ms
N6764A		300 W	0-60 V	0-20 A	2		6 mV	0.03% + 12 mV	0.35 ms
N6765A		500 W	0-20 V	0-50 A	2		5 mV	0.03% + 5 mV	0.5 ms
N6766A		500 W	0-60 V	0-17 A	2		6 mv	0.03% + 12 mV	0.7 ms
N6781A	Source Measure Unit (SMU)	20 W	0-20 V	0±3 A	1	Multiple	12 mV	0.025% + 200 µV	15-300 µs
N6782A		20 W	0-20 V	0±3 A	1		12 mV	0.025% + 200 µV	
N6784A		20 W	0±20 V	0±3 A	1		12 mV	0.025% + 200 µV	
N6785A		80 W	0-20 V	0±8 A	2		15 mV	0.025% + 1.8 mV	12-300 µs
N6786A		80 W	0-20 V	0±8 A	2		15 mV	0.025% + 1.8 mV	
N6791A	DC Electronic Load	100 W	0-60 V	0-20 A	1	Multiple	N/A	0.03% + 7.2 mV	N/A
N6792A		200 W	0-60 V	0-40 A	2		N/A	0.03% + 7.2 mV	N/A

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NS1 N5700/N8700 Series DC system power supplies

Basic high-power, single output power supplies

- 45 affordable models in compact 1U (750 and 1500 W) and 2U (3.3 and 5 kW) packages
- Built-in measurements and advanced programming features simplify system design
- Perform remote programming with USB, LAN, and GPIB



750 W models	
N5741A	0-6 V, 0-100 A, 600 W
N5742A	0-8 V, 0-90 A, 720 W
N5743A	0-12.5 V, 0-60 A, 750 W
N5744A	0-20 V, 0-38 A, 760 W
N5745A	0-30 V, 0-25 A, 760 W
N5746A	0-40 V, 0-19 A, 760 W
N5747A	0-60 V, 0-12.5 A, 750 W
N5748A	0-80 V, 0-9.5 A, 760 W
N5749A	0-100 V, 0-7.5 A, 750 W
N5750A	0-150 V, 0-5 A, 750 W
N5751A	0-300 V, 0-2.5 A, 750 W
N5752A	0-600 V, 0-1.3 A, 780 W

1500 W models	
N5761A	0-6 V, 0-180 A, 1080 W
N5762A	0-8 V, 0-165 A, 1320 W
N5763A	0-12.5 V, 0-120 A, 1500 W
N5764A	0-20 V, 0-76 A, 1520 W
N5765A	0-30 V, 0-50 A, 1500 W
N5766A	0-40 V, 0-38 A, 1520 W
N5767A	0-60 V, 0-25 A, 1500 W
N5768A	0-80 V, 0-19 A, 1520 W
N5769A	0-100 V, 0-15 A, 1500 W
N5770A	0-150 V, 0-10 A, 1500 W
N5771A	0-300 V, 0-5 A, 1500 W
N5772A	0-600 V, 0-2.6 A, 1560 W

3.3 kW models	
N8731A	0-8 V, 0-400 A, 3200 W
N8732A	0-10 V, 0-330 A, 3300 W
N8733A	0-15 V, 0-220 A, 3300 W
N8734A	0-20 V, 0-165 A, 3300 W
N8735A	0-30 V, 0-110 A, 3300 W
N8736A	0-40 V, 0-85 A, 3300 W
N8737A	0-60 V, 0-55 A, 3300 W
N8738A	0-80 V, 0-42 A, 3300 W
N8739A	0-100 V, 0-33 A, 3300 W
N8740A	0-150 V, 0-22 A, 3300 W
N8741A	0-300 V, 0-11 A, 3300 W
N8742A	0-600 V, 0-5.5 A, 3300 W

5 kW models	
N8754A	0-20 V, 0-250 A, 5000 W
N8755A	0-30 V, 0-170 A, 5100 W
N8756A	0-40 V, 0-125 A, 5000 W
N8757A	0-60 V, 0-85 A, 5100 W
N8758A	0-80 V, 0-65 A, 5200 W
N8759A	0-100 V, 0-50 A, 5000 W
N8760A	0-150 V, 0-34 A, 5100 W
N8761A	0-300 V, 0-17 A, 5100 W
N8762A	0-600 V, 0-8.5 A, 5100 W

Non-GPIB option not available in Korea.

NS1 N8900 Series autoranging high-power system supplies

Do the job of multiple power supplies with a single high-power autoranging DC power supply

- 5, 10 and 15 kW single output, autoranging programmable DC power for Automated Test Equipment (ATE) applications
- 28 models that offer up to 1500 V or 510 A
- Easily parallel to create "one" power supply with up to 100 kW of power
- Director/follower (group) operation, 10 store/recall states, Web server



N8924A

DC output ratings

5 kW models (1 phase line-to line)		
N8920A	80 V, 170 A	208 VAC (187 – 229 VAC)
N8921A	200 V, 70 A	
N8923A	500 V, 30 A	
N8924A	750 V, 20 A	
N8940A	80 V, 170 A	400 VAC (360 – 440 VAC)
N8941A	200 V, 70 A	
N8943A	500 V, 30 A	
N8944A	750 V, 20 A	

10 kW models (L1, L2, L3, PE)		
N8925A	80 V, 340 A	208 VAC (187 – 229 VAC)
N8926A	200 V, 140 A	
N8928A	500 V, 60 A	
N8929A	750 V, 40 A	
N8930A	1000 V, 30 A	
N8945A	80 V, 340 A	400 VAC (360 – 440 VAC)
N8946A	200 V, 140 A	
N8948A	500 V, 60 A	
N8949A	750 V, 40 A	
N8950A	1000 V, 30 A	

15 kW models (L1, L2, L3, PE)		
N8931A	80 V, 510 A	208 VAC (187 – 229 VAC)
N8932A	200 V, 210 A	
N8934A	500 V, 90 A	
N8935A	750 V, 60 A	
N8937A	1500 V, 30 A	
N8951A	80 V, 510 A	400 VAC (360 – 440 VAC)
N8952A	200 V, 210 A	
N8954A	500 V, 90 A	
N8955A	750 V, 60 A	
N8957A	1500 V, 30 A	

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NEW NS1 DP5700 Series System DC power supplies

Powering innovation across differentiated industries

- High density of up to 1.5kW in 1U ½ rack size and up to 7.5kW in 1U full rack
- Removable SD card option
- Stackable series and parallel connections for greater output power
- Protection from over-temperature, over-current, over/under voltage
- Lockable controls against accidental power-supply parameter changes

www.keysight.com/find/DP5700



DC output ratings

1.5 kW models		
DP5721A	10 V, 150 A	100 – 240 VAC
DP5722A	20 V, 75 A	
DP5723A	30 V, 50 A	
DP5724A	40 V, 38 A	
DP5726A	60 V, 25 A	
DP5728A	80 V, 19 A	
DP5730A	100 V, 15 A	
DP5731A	150 V, 10 A	
DP5733A	300 V, 5 A	
DP5736A	600 V, 2.6 A	

3.4 kW models		
DP5741AS/L/H	10 V, 340 A	AS: 200 – 240 (1-phase) AL: 200 – 240 (3-phase) AH: 380 – 480 (3-phase)
DP5742AS/L/H	20 V, 170 A	
DP5743AS/L/H	30 V, 112 A	
DP5744AS/L/H	40 V, 85 A	
DP5746AS/L/H	60 V, 56 A	
DP5748AS/L/H	80 V, 42 A	
DP5750AS/L/H	100 V, 34 A	
DP5751AS/L/H	150 V, 22.5 A	
DP5753AS/L/H	300 V, 11.5 A	
DP5756AS/L/H	600 V, 5.6 A	

5 kW models		
DP5761 AL/H	10 V, 500 A	AL: 200 – 240 (3-phase) AH: 380 – 480 (3-phase)
DP5762 AL/H	20 V, 250 A	
DP5763 AL/H	30 V, 170 A	
DP5764 AL/H	40 V, 125 A	
DP5765 AL/H	50 V, 100 A	
DP5766 AL/H	60 V, 85 A	
DP5768 AL/H	80 V, 65 A	
DP5770 AL/H	100 V, 50 A	
DP5771 AL/H	150 V, 34 A	
DP5772 AL/H	200 V, 25 A	
DP5773 AL/H	300 V, 17 A	
DP5774 AL/H	400 V, 13 A	
DP5775 AL/H	500 V, 10 A	
DP5776 AL/H	600 V, 8.5 A	

7.5 kW models		
DP5782 AL/H	20 V, 375 A	AL: 200 – 240 (3-phase) AH: 380 – 480 (3-phase)
DP5783 AL/H	30 V, 250 A	
DP5784 AL/H	40 V, 188 A	
DP5786 AL/H	60 V, 125 A	
DP5788 AL/H	80 V, 94 A	
DP5790 AL/H	100 V, 75 A	
DP5791 AL/H	150 V, 50 A	
DP5792 AL/H	200 V, 37.5 A	
DP5793 AL/H	300 V, 25 A	
DP5796 AL/H	600 V, 12.5 A	
DP5797 AL/H	1000 V, 7.5 A	
DP5799 AL/H	1500 V, 5 A	

NEW NS4 RP5900 Series Regenerative DC power supplies

- Power without compromise at high density
- Autoranging output: more voltage and current combinations in one power supply
- Compact 1U and 2U rack designs
- Smooth transition between sourcing and sinking current
- Stackable parallel connections for greater output current
- PW9252A & PW9253A Pathwave Advanced Power Software supportability

www.keysight.com/find/RP5900



DC output ratings

Models in the 2 columns below require 380/480VAC 3-phase input for full power output

1.7 kW model and 2 kW models	
RP5911A	10 V, 170 A, 1.7 kW
RP5912A	32 V, 80 A
RP5913A	80 V, 40 A
RP5914A	300 V, 20 A
RP5915A	500 V, 12 A
RP5916A	800 V, 8 A

3.4 kW model and 4 kW models	
RP5921A	10 V, 320 A, 3.4 kW
RP5922A	32 V, 160 A
RP5923A	80 V, 80 A
RP5924A	300 V, 40 A
RP5925A	500 V, 24 A
RP5926A	800 V, 16 A

5.1 kW model and 6 kW models	
RP5931A	10 V, 510 A, 5.1 kW
RP5932A	32 V, 240 A
RP5933A	80 V, 120 A
RP5934A	300 V, 60 A
RP5935A	500 V, 36 A
RP5936A	800 V, 24 A
RP5937A	1,500 V, 12 A

10.2 kw model and 12 kW models	
RP5941A	10 V, 1,020 A, 10.2 kW
RP5942A	32 V, 480 A
RP5943A	80 V, 240 A
RP5944A	300 V, 120 A
RP5945A	500 V, 72 A
RP5946A	800 V, 48 A
RP5947A	1,500 V, 24 A

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NEW NS1 DP5800 Series DC power supplies

The new DP5800 Series offers a wide range of voltage, current, and power configurations to address more application requirements. Ideal for R&D, validation, and production environments, the series combines high performance, flexible connectivity, and compact packaging to simplify power testing across a broad range of industries.

- High Density of 12kW in 2U
- Autoranging output with more voltage and current combination in one power supply
- Stackable parallel connection for greater output current.
- PW9252A Pathwave Advanced Power Software supportability

www.keysight.com/find/DP5800

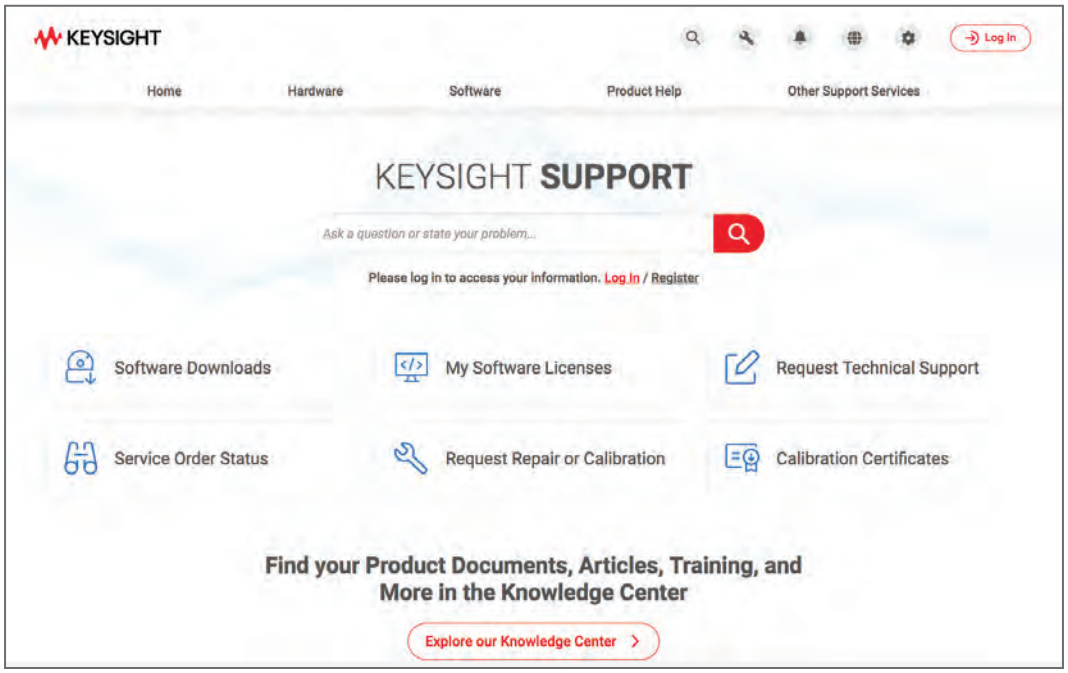


DC output ratings

10.2 kw model and 12 kW models		
DP5810A	10 V, 10.2 kW	380 – 480 VAC 3-phase input
DP5811A	32 V	
DP5812A	80 V	
DP5813A	300 V	
DP5814A	500 V	
DP5815A	800 V	
DP5816A	1,500 V	

Maximize KeysightCare benefits by logging in to Keysight Support today.

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PZ2100A Series High-Channel Density Precision source measure unit (SMU) Solution

High-channel density precision source measure unit (SMU) solution that integrates flexible SMU module options into a small 1U footprint.

- Save cost and valuable rack space
- Wide application converted from DC to dynamic measurements
- Simple integration and time efficiency
- PX011x accessories, specifically for PZ2100

www.keysight.com/find/pz2100



	Module	Ch/slot	Range	Resolution	Pulse	Digitizing
High Resolution	PZ2110A	1 Ch/2 slot	210 V/315 mA	10 fA	315 mA/20 µs	1.25 MSa/s
High Speed	PZ2120A	1 Ch/1 slot	60 V/3.5A (10.5 A pulse)	100 fA	10.5 A/10 µs	1 MSa/s
	PZ2121A					15 MSa/s
High Density	PZ2130A	5 Ch/1 slot	30 V/500 mA (Ch1 & 2: +750 mA)	100 pA	N/A	250 kSa/s
	PZ2131A			10 pA	500 mA (Ch1&2: +750 mA)/100 µs	500 kSa/s

B2900C/CL Series source measure unit (SMU)

Best-in-class source and measurement performance

- Innovative graphical user interface: I-V measurement without PC programming
- High sourcing and measurement resolution 10 fA/100 nV
- Wide output range (210 V / 3 A DC / 10.5 A pulse)
- Complimentary software control options for your application needs

www.keysight.com/find/B2900



B2912C

ESSENTIAL → ADVANCED → EXPERT → PRO

Model	B2901CL	B2910CL	B2901C	B2902C	B2911C	B2912C
	SM1		SM2		SM3	
Number of channels	1	1	1	2	1	2
Maximum voltage	21 V	210 V				
Maximum current (DC)	1.5 A		3.03 A			
Output resolution	5.5 digit				6.5 digit	
Output noise (10 Hz to 20 MHz)	3 mVrms					
Measurement resolution	6.5 digit					

N6781/85A SMUs

The N6781A and N6785A two-quadrant SMUs will power, characterize, and test battery-powered devices like smart phones.

- Stable, glitch-free sourcing and sinking (charge/eLoad)
- Seamless dynamic measurements down to nA
- Utilize with PW9253A PathWave BenchVue software to perform battery profiling and emulation, current drain analysis, and cycle testing. Software also works with N6700C, N6701C, and N6702C low-profile mainframes.
- Integrate with the N6705C power anaylzer (page 43)



N6781A



N6785A

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NP2 N6705C DC power analyzer

Use the N6705C DC power analyzer for sourcing and measuring DUT DC voltage and cu

- Integrates capabilities of up to four power supplies along with DMM, scope, ARB and data logger
- Select from over 35 different modules that offer different performance and power levels for critical test requirements
- Integrate the right module with basic, precise, or performance options to meet automotive, industrial, or IoT specifications
- Select any combination of N6700 Series modules (page 38)
- Pair with PW9252A PathWave BenchVue software to control and analyze measurements from up to four N6705 mainframes (16 power supplies) from a PC



PW9252A PathWave BenchVue Software N6705C



SMU Modules

BE3 E36731A battery emulator

Validate and extend your battery life, with the E36731A.

This battery emulator combines a power supply, and an electronic load, and works with Keysight PathWave BenchVue Advanced Battery Test and Emulation software.



- Power up to 200 W, 30 V, 20 A
- Profile batteries through charge/discharge to create a unique battery model
- Emulate charge states to reduce test time, improve safety, and test repeatability
- Visually charge/discharge batteries to determine run time

Model Comparison

Power supply	Power	200 W	
	Voltage	0 to 30 V	
	Current	0 to 20 A	
Power Supply Readback accuracy	Voltage	0.025% + 1.5 mV	
	Current	Low, 0.1 A	0.035% + 10 µA
		Mid, 2 A	0.03% + 300 µA
		High, 20 A	0.05% + 250 µA

Electronic load	Power	250 W	
	Voltage	0 to 60 V	
	Current	0 to 40 A	
Electronic Load Readback accuracy	Voltage	Low, 15 V	0.03% + 4.2 mV
		High, 60 V	0.03% + 15 mV
	Current	Low, 4 A	0.05% + 820 µA
		High, 40 A	0.03% + 7.2 mA

NB6 B2960C Series low-noise power sources

Best-in-class noise performance

- Ultra-low noise performance with the external low-noise filter (10 µVrms)
- High sourcing resolution (6.5 digit, 100 nV/10 fA)
- Innovative sourcing capability and superior GUI

www.keysight.com/find/B2960



B2962B

Model	B2961C/62C Low Noise Power Source	N1298C Low Noise Filter	N1298B Ultra-Low Noise Filter	N1298A High Current Ultra-Low Noise Filter
	NB6			
Number of channels	1 or 2			
Maximum voltage	210 V		42 V	21 V
Maximum current (DC)	3.03 A		105 mA	500 mA
Output noise (10 Hz to 20 MHz)	3 mVrms	350 µVrms	10 µVrms	
Measurement resolution	4.5 digit			

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NL1 EL30000 Series Bench DC electronic loads

Providing superior performance in a compact bench form factor.

- Operate in constant current (CC), constant voltage (CV), constant resistance (CR), or constant power (CP) modes
- Perform static and dynamic tests
- Conduct precise analysis with the built-in scope and data logger





Model	Number of inputs	Input power	DC input voltage	DC input current
EL34133A	1	250 W	150 V	40 A
EL34143A	1	350 W	150 V	60 A
EL34243A	2	600 W	150 V	60 A per input, 120 A parallel

N6790A DC electronic load modules for N6700-Series

Use loads with the N6700C/01C/02C modular power supply or on the bench with the N6705C DC power analyzer to characterize power supplies, batteries, supercapacitors, and PV cells.

- Built-in data logger records voltages and currents eliminating the need for an external oscilloscope or multimeter.
- Operate in constant current (CC), constant voltage (CV), constant resistance (CR), or constant power (CP) modes



N6791A N6792A

Model	Maximum power	Voltage	Current	Number of slots used	Number of ranges
N6791A	100 W	60 V	20 A	1	2
N6792A	200 W	80 V	40 A	2	2

N3300 Series DC electronic loads

Accelerate manufacturing test with fast electronic loads.

- N3300A (full rack, 6 slots) and N3301A (half rack, 2 slots) mainframes
- Combine modules up to 6 modules as single, parallel, or series outputs



N3300A

Input ratings	N3302A	N3303A	N3304A	N3305A	N3306A	N3307A
Current	0–30 A	0–10 A	0–60 A	0–60 A	0–120 A	0–30 A
Voltage	0–60 V	0–240 V	0–60 V	0–150 V	0–60 V	0–150 V
Maximum power at 40 °C	150 W	250 W	300 W	500 W	600 W	250 W

NEW NL3 EL4900 Series Regenerative DC electronic load

Energy-efficient, performance and minimal footprint

- Compact 1U and 2U rack designs
- Return consumed energy back to the grid cleanly
- Dual modes that adds flexibility: average mode for accurate readings, digitized mode for dynamic profiles
- Stackable parallel connections for greater input current
- Protection from over-voltage, over-current, over-power, over-temperature, and voltage transient drop



Model	DC input voltage	DC input current	Input power
EL4911A	10 V	120 A	1.2 kW
EL4912A	32 V	80 A	2 kW
EL4913A	80 V	40 A	
EL4914A	300 V	20 A	
EL4915A	500 V	12 A	
EL4916A	800 V	8 A	
EL4921A	10 V	240 A	2.4 kw
EL4922A	32 V	160 A	4 kW
EL4923A	80 V	80 A	
EL4924A	300 V	40 A	
EL4925A	500 V	24 A	
EL4926A	800 V	16 A	
EL4931A	10 V	360 A	3.6 kW

Model	DC input voltage	DC input current	Input power
EL4932A	32 V	240 A	6 kW
EL4933A	80 V	120 A	
EL4934A	300 V	60 A	
EL4935A	500 V	36 A	
EL4936A	800 V	24 A	
EL4937A	1,500 V	12 A	
EL4941A	10 V	720 A	7.2 kW
EL4942A	32 V	480 A	12 kW
EL4943A	80 V	240 A	
EL4944A	300 V	120 A	
EL4945A	500 V	72 A	
EL4946A	800 V	48 A	
EL4947A	1,500 V	24 A	

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NC1 AC6800B Series Basic and Performance AC Power Sources

Engineer dependability into your designs with stable, reliable AC power

Test your designs with confidence, knowing that your products will perform as designed—even if they encounter fluctuating voltages from the AC power grid, extreme inrush currents, or transient spikes. Keysight's family of AC power sources provide the capabilities you need for thorough AC testing, from basic power to more sophisticated source and measurement needs. The AC 6800B Series can also produce DC power, either alone or as a DC offset to an AC waveform.

AC6800B Series basic AC sources

A basic AC source alternative featuring stable and reliable power

- Four models, up to 4000 VA
- Intuitive user interface—if you've used a Keysight DC power supply, these will feel very familiar to you
- Flexible I/O: USB and LAN (standard), and GPIB (optional)
- Access and control the source remotely using a standard Web browser



AC6800 Series

	AC6800B Series Basic AC Sources			
	AC6801B	AC6802B	AC6803B	AC6804B
Phases	Single-phase			
Maximum output power	500 VA	1000 VA	2000 VA	4000 VA
AC output mode				
Voltage range	155 Vrms/310 Vrms			
Maximum rms current	5 A/2.5 A	10 A/5 A	20 A/10 A	40 A/20 A
Maximum peak current	15 A/7.5 A	30 A/15 A	60 A/30 A	120 A/60 A
Frequency	40 to 500 Hz			
DC output mode				
Voltage range	219 V/438 V			
Max current	4 A/2 A	8 A/4 A	16 A/8 A	32 A/16 A
Max instantaneous current	12 A/6 A	24 A/12 A	48 A/24 A	96 A/48 A
Power capacity	400 W	800 W	1600 W	3200 W
Measurements and I/O				
Measurements	Voltage, current, power			
Transients and advanced measurements	N/A Basic transient capability via optional analog card (AC68ALGU)			
I/O	USB and LAN/LXI Core with remote Web interface Optional GPIB (AC68GPBU)			

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LCR Meters

Keysight LCR meters provide the best combination of accuracy, speed, and versatility at affordable prices for both R&D and production applications.

ZA2 E4980B / BL precision LCR meter

Industry-leading combination of accuracy, speed, versatility and upgradability

- Exceptionally low noise at both low and high impedance
- 20 Hz to 2 MHz, test frequency with 4-digit resolution
- 20 Hz to 300 kHz / 500 kHz / 1 MHz, test frequency with 4-digit resolution
- Frequency upgradable to 500 kHz or 1 MHz
- 0.05% basic impedance accuracy
- PathWave BenchVue software supported



The E4980B and E4980BL are direct replacements of the A and AL models.

ZA2 E4981B capacitance meter

Fast, accurate, and repeatable measurement

- Ideal for reliable high-speed measurements for high-volume ceramic capacitor manufacturing
- 120 Hz 1 kHz 1 MHz test frequencies (E4981B-001)
- 120 Hz 1 kHz test frequencies (E4981B-002)
- High-speed measurement: 2.3 ms (1 MHz), 3.0 ms (1 kHz), 11.0 ms (120 Hz)
- Accurate C-D testing: 0.07%, 0.0005



ZA2 E4982A LCR meter

Best performance for the passive component manufacturing such as SMD inductors and EMI filters

- Four frequency options:
  1 MHz to 300 MHz / 500 MHz / 1 GHz / 3 GHz, upgradable
- High-speed measurement:
  0.9 ms (Mode 1), 2.1 ms (Mode 2), 3.7 ms (Mode 3)
- 0.8% basic accuracy with unparalleled measurement repeatability
- Wide impedance measurement range from 140 mΩ to 4.8 kΩ
- 1 kHz frequency resolution



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DM4 Handheld Digital Multimeters

Rich features and robust design for real-world conditions

- Up to 60,000 counts and 0.025% basic DCV accuracy, accurate true-RMS AC measurements and up to 800 hours of battery life (U1280 Series)
- High-contrast OLED display with 160° viewing angle (U1273AX, U1273A, U1253B)
- Re-invented with ergonomic design and dust- and water-resistant with IP 67 (U1240C, U1280 Series), and operating temperature as low as -40 °C (U1273AX)
- CAT III 1000 V and CAT IV 600 V over-voltage protection (U1240, U1240C, U1250, U1270 and U1280 Series)



Recommended for	Model	Counts	Bandwidth	Voltage AC/DC	Current AC/DC	Battery life	Additional features	Additional features
Electrical, HVAC and utilities	U1231A	6,000	1 kHz	600 mV to 600 V	NA	500 hours	Built-in flashlight, continuity alert with flashing backlight, Z_{Low}	N/A
	U1232A				60 µA to 10 A			
	U1233A							V_{sense} [1]
Installation and maintenance	U1241B	10,000	2 kHz	1 V to 1000 V	1 mA to 10 A	300 hours	Switch counter	N/A
	U1242B							Harmonic ratio, dual and differential temperature measurements
	U1241C			100 mV to 1000 V		400 hours	Built-in LED flashlight	N/A
	U1242C							Harmonic ratio, dual and differential temperature measurements, V_{sense} [1], Z_{Low}
Electronics troubleshooting	U1251B	50,000	30 kHz	50 mV to 1000 V	500 µA to 10 A	72 hours	NA	N/A
	U1252B		100 kHz			36 hours	20 MHz frequency counter, programmable square wave generator	
	U1253B					8 hours [2]		
Electronics troubleshooting	U1281A	60,000	30 kHz	60 mV to 1000 V	600 µA to 10 A	800 hours	N/A	
	U1282A		100 kHz				Frequency counter, square wave output, V_{sense} [1], low pass filter	

1. V_{sense} is a non-contact voltage detector. 2. Rechargeable.

ZA1 U1700 Series handheld capacitance and LCR meters

Save time with auto-ID and one-button access

- Auto-identification of L, C and R; and detailed component analysis with DCR, Z, ESR, D, Q and θ functions.
- Tolerance and compare modes for quick component sorting
- One-button access to measurements

www.keysight.com/find/u1700series



	U1701B	U1731C	U1732C	U1733C
Counts	11,000	20,000	20,000	20,000
Capacitance	1000 pF to 199.99 mF	200 pF to 20 mF	20 pF to 20 mF	20 pF to 20 mF
Inductance	N/A	200 µH to 2000 H	20 µH to 2000 H	20 µH to 2000 H
Resistance	N/A	2 Ω to 200 MΩ	2 Ω to 200 MΩ	2 Ω to 200 MΩ
Frequency	N/A	100 Hz, 120 Hz , 1 kHz	100 Hz, 120 Hz, 1 kHz, 10 kHz	100 Hz, 120 Hz, 1 kHz, 10 kHz, 100 kHz
Additional features	Dual display, min./max./avg. recording, data logging to PC			

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