



Basic Instruments

Debug designs with 4x the resolution and 1/2 the noise floor using the InfiniiVision HD3 Series oscilloscope

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Three years of
KeysightCare technical
support included on
all basic instruments.

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InfiniiVision HD3 Series Oscilloscope

Perform digital debugging using the portable Keysight InfiniiVision HD3 Series oscilloscope. It includes a custom application-specific integrated circuit (ASIC) that delivers four times more vertical resolution and half the injected noise of other general-purpose oscilloscopes. Troubleshoot your design and ensure product quality by debugging with an oscilloscope that can see the small signals beyond the noise to catch the slightest and most infrequent signal glitches.

- Increase vertical resolution by four times with a 14-bit analog-to-digital converter (ADC).
- See smaller signals with a 50 μ V RMS noise floor.
- Identify infrequent signal glitches with an uncompromised 1.3 M waveform / second update rate enabled by a custom ASIC.
- Capture longer time spans at full sample rate with 100 Mpts of deep memory.
- Display up to four independent signals and control the scaling individually.
- Isolate signals in seconds with zone triggering — simply draw a box with your finger on the screen.
- Characterize signals, hunt for errors, and save automatically with Keysight Fault Hunter.
- Perform advanced analysis with fast Fourier transforms (FFTs), mask testing, histograms, and Bode plots.

➤ DATA SHEET

➤ LEARN MORE ABOUT THE HD3 SERIES



SPECIAL OFFERS AND EVENTS

Limited Time Offers

Free 100 Mpts Memory

ON INFINIIVISION HD3 SERIES OSCILLOSCOPES



Capture longer time spans at full sample rate when you purchase an HD3 oscilloscope.

Save 11%

ON E36150 SERIES BUNDLES



Keysight offers two types of value bundles for Keysight E36150 Series DC bench power supply.

Save up to 10%

ON A E36731ABV VALUE BUNDLE



The Keysight E36731ABV battery emulation bundle is a complete software and hardware solution for performing battery profiling and emulation, current drain analysis, and battery run-down and cycle testing.

Choose Your Reward Promotion



Claim a gift of your choice when you purchase a qualifying Keysight instrument.

30% Off

ON KEYSIGHT SMART BENCH ESSENTIALS SERIES FOR EDUCATORS



Educators, save 30% when you outfit your new labs or refresh existing ones with Keysight Smart Bench Essentials instruments.

New Portable

ANALOG SIGNAL GENERATORS



Keysight portable analog signal generators combine compactness with high performance, offering outstanding output power range, phase noise, and switching speed.

Free Memory and Software Package

ON EXR OSCILLOSCOPES



Recieve a free memory upgrade and software package when you purchase an Infiniium EXR-Series Oscilloscope.

Instrument Control Software Applications

TECHNICAL OVERVIEW

- Connect and control multiple instruments simultaneously.
- Save time with automated test sequences with no programming.
- Analyze, record results, visualize, and export data in multiple formats.



Model	PathWave BenchVue Basic	PathWave BenchVue Apps	PathWave BenchVue Complete Control Collection
Pricing	Free	Paid	Paid
Licensing	No license required	License required	License required
Version	Previous version	Latest version	Latest version
Instrument Support	Individual instruments	Individual instruments	All instrument families and models
KeysightCare Support	Not available	Available	Available
	Download	Get a Quote >	Get a Quote >

I Did It on BenchVue

EXPLORE HERE

Join us here for tips and tricks, how-to videos, interactive product tours, and free software trials. Discover how PathWave BenchVue saves you time by automating your testing.

Learn all you need to know — connecting and controlling your instruments, creating automated test sequences without programming, time and frequency domain analysis, creating multi-tone signals, battery run-down tests, automated I²C protocol testing, and more — in a few minutes.



Smart Bench Essentials

The Keysight Smart Bench Essentials Series is a set of four professional-grade instruments designed for university teaching labs:

- Industry-grade hardware with clean and reliable power, high-integrity signals, and stable and accurate measurements
- Intuitive and easy interfaces such as a large 7-inch color display, color-coded channels, backlight keypads, and built-in USB and LAN PC interfaces
- Smart remote connectivity with the Keysight PathWave BenchVue instrument application software or the latest new Keysight Digital Learning Suite software

Model	Description	
 <p>EDU34450A</p>	<p>This 5.5-digit digital multimeter has 11 input signals: DC voltage, DC current, true RMS AC voltage, AC current, two- and four-wire resistance, frequency, continuity, diode test, temperature, and capacitance. This solution comes with 5,000 points of logging memory for recording more data and performing analysis</p>	Get a Quote >
 <p>EDU36311A</p>	<p>This 30 W triple-output power supply offers excellent line / load regulation, overvoltage, current and temperature protection, and programming / readback accuracy.</p>	Get a Quote >
 <p>EDU33211A / EDU33212A</p>	<p>This single- / dual-channel 20 MHz waveform and function generator includes 17 popular built-in waveforms and modulation capabilities. The models come with 16-bit arbitrary waveform generation capability and memory of up to 8 Msa per channel.</p>	Get a Quote >
 <p>EDUX1052A</p>	<p>This 50 MHz oscilloscope provides dual analog input channels, a maximum sampling rate of 1 GSa per second, and up to 200,000 points of memory depth.</p>	Get a Quote >

[▶ DOWNLOAD THE SOLUTION BRIEF](#)

Digital Learning Suite

Keysight SR101EDUA is a unified web-based digital learning suite with secure one-stop access to university engineering lab resources, measurement data analysis tools, and industry-relevant learning resources. This software consists of two key modules:

- The Keysight KS8400EDU industry-grade test sequencer has an integrated web interface that controls instruments and characterizes your designs.
- The Keysight PW9300EDU remote collaborative learning tool with a built-in 1EdTech LTI connection and single-sign-on (SSO) authentication easily integrates with your favorite learning management system (LMS) or identity provider.

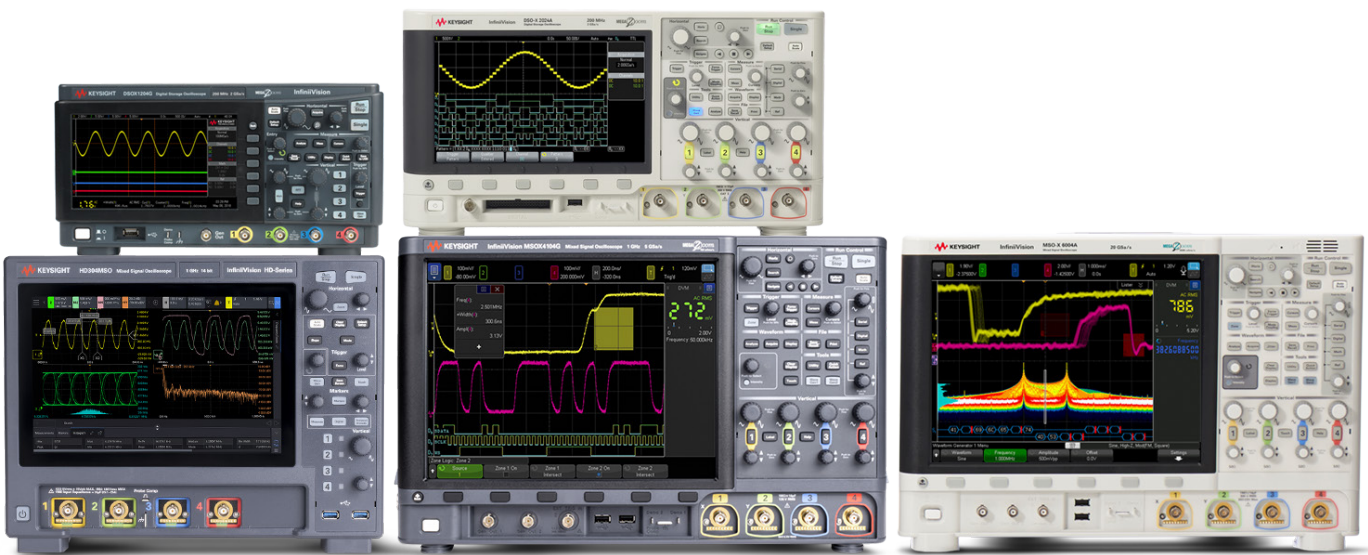


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InfiniiVision Oscilloscopes

- Experience up to 14-bit ADC resolution and a low noise floor, enabled by a custom ASIC.
- Capture signal data with up to 100 Mpts deep memory and segmented memory.
- Display waveforms with a fast, uncompromised update rate of up to 1.3 M waveforms / second.
- Expand your platform with upgradable bandwidth, a mixed-signal oscilloscope, serial analysis, and up to seven-in-one instrument integration.



Get more functionality with available software packages

	Automobile	Aerospace & Defense	Embedded	Power	USB	Ultimate Bundle
1000X	Standard (DSOX)	NA	Standard	NA	NA	NA
2000X	D2000AUTB	NA	D2000GENB	NA	NA	D2000BDLB
HD3	HD300AUTA	NA	HD300EMB	NA	NA	NA
4000X	D4000AUTB	D4000AERB	D4000GENB	D4000PWRB	D4000USBB	D4000BDLB
6000X	D6000AUTB	D6000AERB	D6000GENB	D6000PWRB	D6000USBB	D6000BDLB

Model	1000 X-Series	2000 X-Series	HD3 Series	4000G X-Series	6000 X-Series	Infiniium EXR-Series
Description	Professional-level capabilities in an entry-level oscilloscope <ul style="list-style-type: none"> • Protocol analysis • Bode plots • FFT 	Entry-level with more capabilities <ul style="list-style-type: none"> • Serial bus options • Mixed-signal oscilloscope options 	Separate signal from noise <ul style="list-style-type: none"> • 14-bit ADC vertical resolution • Less than 50 μV_{RMS} noise floor • Display and control scaling for up to four independent signals 	See more of your signal <ul style="list-style-type: none"> • Standard embedded analysis software • Waveform and measurement histograms • Up to four active probes 	Dive deeper and analyze more signal detail <ul style="list-style-type: none"> • Voice control • Advanced jitter analysis, time interval error plots, histograms, and eye diagrams 	Engineered for power and high-speed analysis <ul style="list-style-type: none"> • Extra large touch screen • Advanced Fault Hunter debugging software • Multiscope capability
Bandwidth	50 MHz to 200 MHz	70 MHz to 200 MHz	200 MHz to 1 GHz	200 MHz to 1.5 GHz	1 GHz to 6 GHz	500 MHz to 6 GHz
Channels (analog + digital)	2, 4	2, 2+8, 4, 4+8	2, 2+16, 4, 4+16			4, 4+16, 8, 8+16
Sample rate	Up to 2 GSa/s		Up to 3.2 GSa/s	Up to 5 GSa/s	Up to 20 GSa/s	Up to 16 GSa/s
Memory depth	Up to 2 Mpts and segmented memory standard	Up to 1 Mpts and segmented memory standard	Up to 4 Mpts and segmented memory standard			Up to 3.2 Gpts and segmented memory standard
Waveform update rate	> 200,000 wfms/s	> 200,000 wfms/s	> 1,000,000 wfms/s		> 450,000 wfms/s	> 200,000 wfms/s
Display	7-inch	8.5-inch	10.1-inch capacitive touch screen	12.1-inch capacitive touch screen	12.1-inch capacitive multi-touch screen	15.6-inch capacitive touchscreen
Built-in instruments	20-MHz function generator, 5-digit counter, frequency response analyzer ¹	20-MHz function generator, 5-digit counter ¹	100-MHz AWG, 8-digit counter, frequency response analyzer ¹	Dual 20-MHz AWG, 5-digit counter, and frequency response analyzer ¹	Dual 20-MHz AWG, 10-digit counter, and frequency response analyzer ¹	50-MHz AWG, 10-digit counter, and frequency response analyzer ¹
Service and support	3-year warranty and 3-year KeysightCare technical support included					
	DATA SHEET	DATA SHEET	DATA SHEET	DATA SHEET	DATA SHEET	DATA SHEET
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1. All models have a built-in protocol analyzer and 3- or 4-digit digital voltmeter

**FREE 100 MPTS
MEMORY PROMO**

BUY AN HD3 OSCILLOSCOPE, GET
100 MPTS MEMORY FREE



EXR PROMO

BUY AN EXR OSCILLOSCOPE, GET FREE
MEMORY AND SOFTWARE

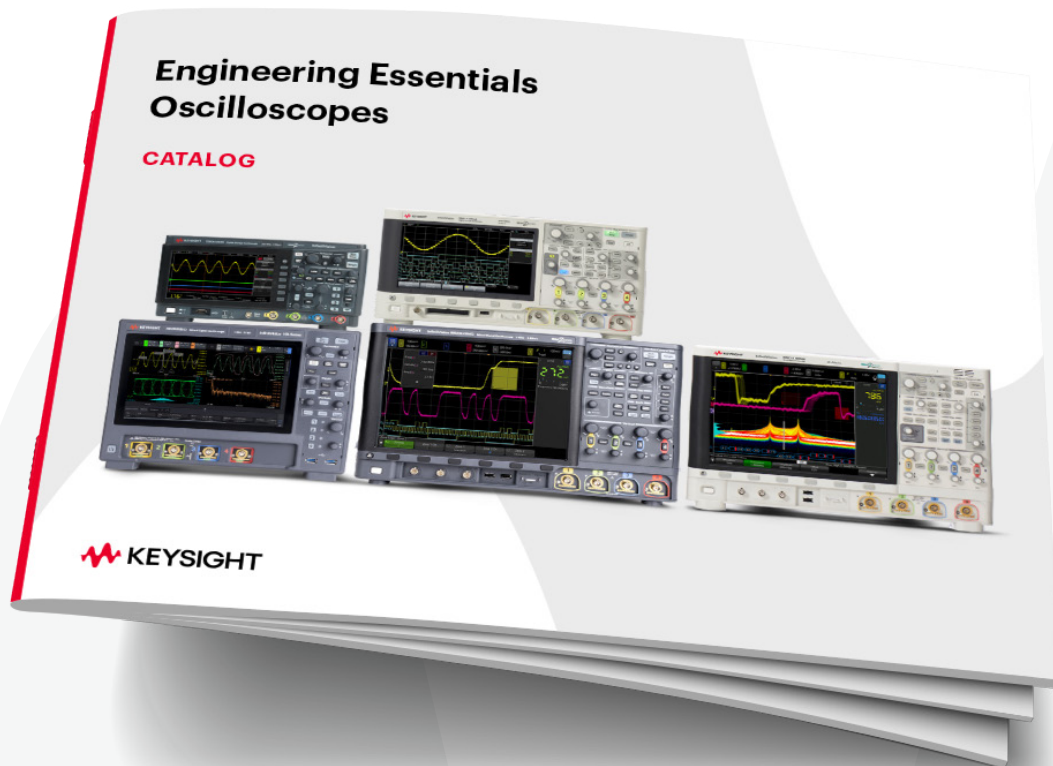


Featured Resource

A Step Beyond the Basics: 6 Advanced Oscilloscope Tips

Plenty of information is available about oscilloscope basics and high-end features. What about everything in between? Discover some less-talked-about oscilloscope functions with this catalog.

➔ [DOWNLOAD THE CATALOG](#)



DAQ970A and DAQ973A Data Acquisition System

Get the next-generation Keysight data acquisition (DAQ) system with a three-slot mainframe and your choice of nine plug-in modules. Interface with the DAQ using BenchVue DAQ software, the intuitive graphical front panel with task-oriented, self-guiding menus, or a web browser.

- Features an advanced 6.5-digit internal DMM with improved accuracy and faster measurement speed (50,000 readings / second) to sample more signals.
- Measures very low current ranges (1 μ A DC and 100 μ A AC) and higher resistance range (1,000 M Ω).
- Compensates using new auto-calibration for internal drifts caused by time and temperature changes.
- Comes with additional GPIB for the DAQ973A; easy connectivity to your PC with LAN and USB.
- Code compatible with Keysight 34970A / 34972A.
- Each module updated with improved switching speeds and accuracies.
- Fast Keysight DAQM900A solid-state multiplexer with scan rate speed of up to 450 channels / second.
- Includes DAQM909A 4-channel simultaneous sampling digitizer module with a sampling rate of up to 800 kSa / second.



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DAQ970A/73A Modules	Description	Key specifications	
DAQM900A	20-channel solid-state multiplexer	Up to 450 ch/s, 2 / 4 wire, up to 120 V	Get a Quote >
DAQM901A	20-channel multiplexer plus 2 current channels	Armature 2 / 4 wire, 80 ch/s, up to 300 V, 1 A	Get a Quote >
DAQM902A	16-channel high-speed multiplexer	Reed 2 / 4 wire, 250 ch/s, up to 300 V, 50 mA	Get a Quote >
DAQM903A	20-channel actuator / GP switch	SPDT / Form C, 120 ch/s, up to 300 V, 1 A	Get a Quote >
DAQM904A	4 x 8 two wire matrix switch	Armature 2-wire, 120 ch/s, up to 300 V, 1 A	Get a Quote >
DAQM905A	2 GHz, dual 4-channel, RF mux, 50 Ω	SWR 1.4 @ 2 GHz, 60 ch/s up to 42 V, 0.7 A	Get a Quote >
DAQM907A	Multifunction module	<ul style="list-style-type: none"> Two 16-bit digital I/O ports, up to 42 V, 400 mA 26-bit 100 kHz event counter, up to 42 Vpk Two analog outputs, up to ± 12 V (voltage mode), ± 24 mA (current mode) 	Get a Quote >
DAQM908A	40-channel single-ended multiplexer	Common low (without 4-wire measurements) 80 ch/s, up to 300 V, 1 A	Get a Quote >
DAQM909A	4-channel simultaneous sampling digitizer	Differential inputs, up to 800 kSa/s sampling rate, 24-bit resolution	Get a Quote >



Featured Resource

4 Considerations for Data Acquisition Systems

As industries design more feature-rich products, the complexity of test development increases. To help you navigate this challenge, this eBook offers four considerations for a DAQ system that will optimize your test development for speed and accuracy.

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Truevolt Digital Multimeters

- Delivers 6.5- and 7.5-digit performance.
- Features graphical capabilities such as bar, trend, histogram, and histogram charts.
- Measures very low current, 1 μ A range with pA resolution, enabling measurements on very low-power devices.
- Uses auto-calibration to compensate for temperature drift to maintain measurement accuracy.
- Provides basic measurements such as DCV, ACV, DCI, ACI, 2- and 4-wire resistance, frequency, period, continuity, diode, temperature, and capacitance.

Model	Description	Digits of resolution	Max reading rate at 4½ digits (RDGS/S)	Built-in PC interfaces	Service and support
34460A	Display DMM results in histogram, bar, and trend charts on color graphical display for easy monitoring and to speed up statistical analysis	6.5	300	USB; optional GPIB, LAN	3-year warranty and 3-year KeysightCare technical support included
34461A			1,000	USB, LAN; optional GPIB	
34465A	Comes with a digitizer and advanced triggering capability so you can make more measurements with higher speed, better accuracy, and more memory	6.5	50,000	USB, LAN; optional GPIB	
34470A		7.5			



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3458A Digital Multimeter, 8.5-Digit

- Provides 8.5-digit resolution and 0.1 ppm transfer accuracy.
- Performs accurate measurements with 8 ppm (0.0008%) 1-year DCV accuracy (4 ppm with option).
- Offers a maximum reading rate of 100,000 readings / second.
- Executes measurements that include DC and AC voltage and DC and AC current.
- Measures using 2- and 4-wire resistance, frequency, and period.
- Provides 148K reading memory for prolonged data logging (now comes standard).
- Complies with RoHS.
- Includes a 3-year warranty and 3 years of KeysightCare technical support.



➤ [DATA SHEET](#)

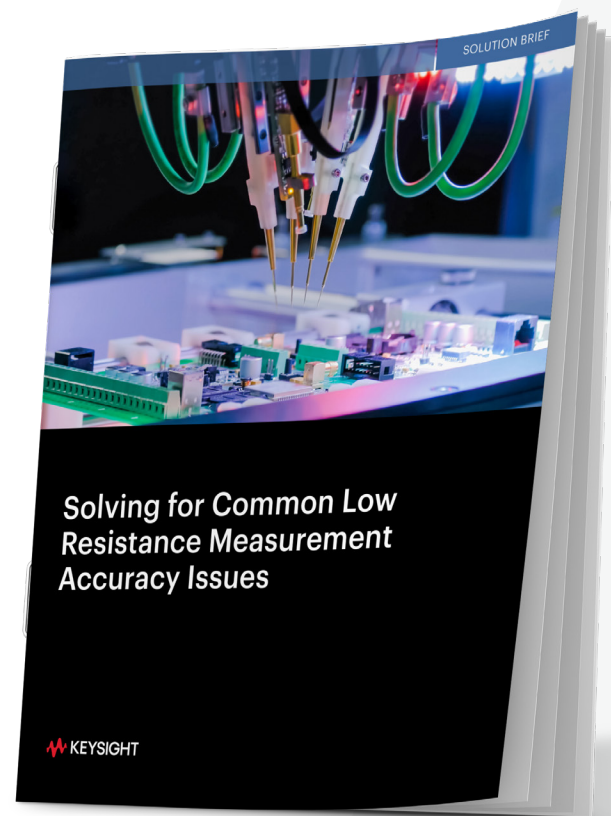
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Featured Resource

Solving for Common Low Resistance Measurement Accuracy Issues

A four-wire measurement is the most accurate method to measure small resistances, especially in ranges below 100 Ω . The four-wire method eliminates measurement errors that long leads and switches introduce into your test setups. This approach is also useful when you need to monitor for accurate and precise temperature changes. This solution brief examines various applications that require a four-wire measurement approach to help you make an informed decision for your testing needs.

[DOWNLOAD THE SOLUTION BRIEF](#)



N6700 Modular Power System

The Keysight N6700 DC power supply is well-suited for automated test systems.

- Features a small 1U mainframe (400, 600, 1,200 W) that holds up to four output modules.
- Offers more than 35 programmable DC modules with unique capabilities, performance, voltage, and current combinations.
- Includes multiple DC electronic load modules, 100 and 200 W, that allow current sourcing and sinking in the same mainframe.
- Includes a 3-year warranty and 3 years of KeysightCare technical support.



The Keysight N6705C DC power analyzer provides deep insight without a complex test system.

- Holds and uses up to four N6700 Series modules (600 W total).
- Integrates DMM, oscilloscope, arb, and data logger capabilities.
- Characterizes and improves battery runtime with a source / measure unit (SMU) and BV9200B analysis software.
- Includes a 3-year warranty and 3 years of KeysightCare technical support.



➤ N6700C, N6701C AND
N6702C DATA SHEET

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➤ N6705C DATA SHEET

[Get a Quote >](#)

➤ BV9200B DATA SHEET

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E36300 Series Triple-Output DC Power Supplies

PATHWAVE
SOFTWARE SUPPORTED

- Includes a large display with voltages and currents for all three outputs.
- Provides accurate programming / readback as low as 0.03%.
- Offers low output ripple and noise less than 2 mVpp / 350 μ Vrms.
- Enables precise data logging plus output sequencing and coupling.
- Contains convenient front and rear output terminals.
- Features color-coded outputs and individual knobs for voltage and current.
- Supports LAN (LXI Core), USB, and GPIB (optional).

Model	E36311A			E36312A			E36313A		
	Economy model			Most popular			Twice the current		
Power	80 W			80 W			160 W		
Channels	1	2	3	1	2	3	1	2	3
DC output rating (0 to 40 °C)	0 to 6 V	0 to +25 V	0 to -25 V	0 to 6 V	0 to 25 V	0 to 25 V	0 to 6 V	0 to 25 V	0 to 25 V
	0 to 5 A	0 to 1 A	0 to 1 A	0 to 5 A	0 to 1 A	0 to 1 A	0 to 10 A	0 to 2 A	0 to 2 A
Service and support	3-year warranty and 3-year KeysightCare technical support included								
	Get a Quote >			Get a Quote >			Get a Quote >		



[DATA SHEET](#)

E36200 Series DC Power Supplies

- Includes single or dual outputs; easily combine the dual outputs into a single output with 400 W.
- Enables users to auto-parallel the Keysight E36233A 400 W autoranging dual output power supply to create a single 40 A (30 V) output.
- Enables users to auto-series the E36233A to create a single 120 V (10 A) output.
- Provides programming / readback accuracy as low as 0.03%.
- Offers output ripple and noise < 350 μ Vrms.
- Enables data logging plus output sequencing and coupling.
- Includes front and rear output terminals.
- Features color-coded outputs and individual knobs for voltage and current.
- Supports LAN, USB, and GPIB (optional).

Model	E36231A		E36232A		E36233A		E36234A	
Power	200 W		200 W		400 W		400 W	
Channels	1		1		1	2	1	2
DC output rating (0 to 40 °C)	0 to 30 V	0 to 20 A	0 to 60 V	0 to 10 A	0 to 30 V	0 to 20 A	0 to 60 V	0 to 10 A
Service and support	3-year warranty and 3-year KeysightCare technical support included							
	Get a Quote >		Get a Quote >		Get a Quote >		Get a Quote >	



[DATA SHEET](#)

E36150 Series Autoranging Benchtop Power Supplies

- Peak power that handles up to three times the maximum power rating to accommodate startup power surge requirements from electromechanical and high capacitance devices under test.
- High performance with precise output accuracy, minimal noise, and excellent load / line regulation.
- Adjustable slew rate, data logging, voltage and current meter, four-wire remote sensing, LIST output programming, and digital controls.
- Comprehensive overvoltage, overcurrent, and overtemperature provide device protection.
- Flexible Keysight BV0003B PathWave BenchVue power supply application and test flow automation support.
- Comprehensive PathWave PW9253A advanced battery test and emulation software.
- Scalable and upgradable with Keysight Option E36150ADVU for scope view and arbitrary waveform generator (AWG) functions that offer advanced characterization and power simulation.
- Adaptable LAN / LXI, USB, and GPIB (upgrade option) interfaces.
- Upgradable with Keysight E36150ATMU to enable enhanced programming speed, automotive ISO preset library, playback simulation, and E-logging features.

Model	E36154A	E36155A
Output	1	
Power	800 W	
Voltage	0 to 30 V	0 to 60 V
Current	0 to 80 A	0 to 40 A
Service and support	3-year warranty and 3-year KeysightCare technical support included	
	Get a Quote >	Get a Quote >



Save 11%

ON E36150 SERIES VALUE BUNDLES



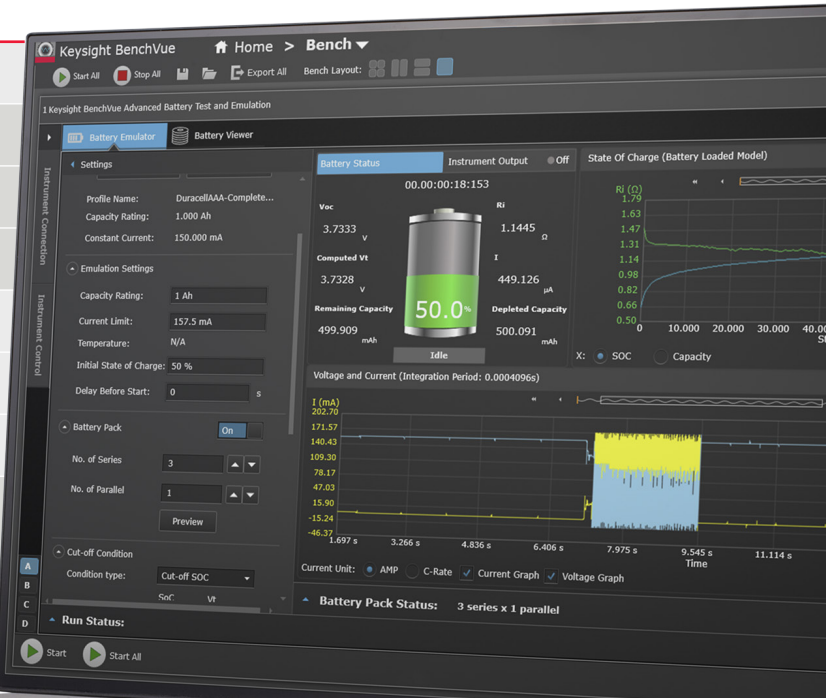
[DATA SHEET](#)

E36731A Battery Emulator and Profiler

The Keysight E36731A battery emulator and profiler operates with PathWave PW9253A advanced battery test and emulation.

- Use software plus hardware solution to:
 - Profile batteries through charge / discharge to create a unique battery model.
 - Emulate charge states to reduce test time, improve safety, and test repeatability.
 - Automates battery run-down testing to accurately determine battery life.
 - Automates battery cycling to determine aging effects
- Integrates a power supply and an electronic load.
- Power up to 200 W, 30 V, and 20 A.
- Access a wide dynamic measurement range and measures from microamps to amps.

Model		E36731A
Output		1
Power supply	Power	200 W
	Voltage	0 to 30 V
	Current	0 to 40 A
Electronic load	Power	250 W
	Voltage	0 to 60 V
	Current	0 to 40 A
Service and support		3-year warranty and 3-year KeysightCare technical support included
		Get a Quote >



[E36731A DATA SHEET](#)

[BV9210B DATA SHEET](#)

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[BV9211B DATA SHEET](#)

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Save 10%
ON E36731ABV SOFTWARE AND
HARDWARE BATTERY EMULATION BUNDLE



Featured Resource

4 Ways to Build Your Power Supply Skills

Today's designs place higher demands on the systems that power them, creating design problems.

Use these four practical tips to ensure that you deliver reliable power during the design phase and get the most out of your power supply.

[▶ DOWNLOAD THE EBOOK](#)

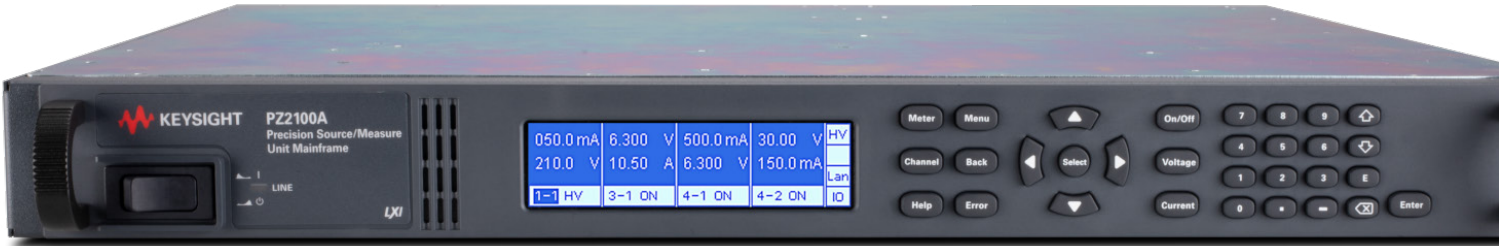


Precision Source / Measure Units (SMUs)

PZ2100 Series High-Channel Density Precision SMU

Solve your design, test, and validation challenges using the PZ2100 SMU solution. Focus more on characterization and less on synchronization with multiple configurable SMU module options for different channel and specification needs. Save valuable test rack space with the highest-density 1U SMU in the market, with up to 20 channels within a 1U full-width rack space.

Model	Ch / Slot	DC output range	Resolution	Pulse capability	Digitizer mode	Digitizing sampling rate
PZ2110A	1 Ch / 2 Slot	210 V / 315 mA	10 fA	315 mA / 20 μ s	Yes	1.25 MSa/s
PZ2120A	1 Ch / 1 Slot	60 V / 3.5 A	100 fA	10.5 A / 50 μ s	Yes	1 MSa/s
PZ2121A	1 Ch / 1 Slot	60 V / 3.5 A	100 fA	10.5 A / 10 μ s	Yes	15 MSa/s
PZ2130A	5 Ch / 1 Slot	30 V / 500 mA	100 pA	N/A	No	250 kSa/s
PZ2131A	5 Ch / 1 Slot	30 V / 500 mA	10 pA	500 mA / 100 μ s	Yes	500 kSa/s



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Get a Quote >

B2900B Series Precision Source Measure Units

These compact benchtop SMUs enable you to quickly take various current versus voltage measurements requiring high resolution and accuracy.

B2960B Series Low Noise Power Sources

These benchtop units are a new generation of power sources offering precision, wide bipolar output ranges, and other innovative features.

Model	Number of channels	Maximum voltage	Maximum current (DC)	Output resolution	Output noise (10 Hz to 20 MHz)	Measurement resolution
B2901BL	1	21 V	1.5 A	5.5 digit	3 mVrms	6.5 digit
B2910BL	1	210 V	1.5 A	5.5 digit	3 mVrms	6.5 digit
B2901B	1	210 V	3.03 A	5.5 digit	3 mVrms	6.5 digit
B2902B	2	210 V	3.03 A	5.5 digit	3 mVrms	6.5 digit
B2911B	1	210 V	3.03 A	6.5 digit	3 mVrms	6.5 digit
B2912B	2	210 V	3.03 A	6.5 digit	3 mVrms	6.5 digit
B2961B	1	210 V	3.03 A	6.5 digit	3 mVrms	4.5 digit
B2962B	2	210 V	3.03 A	6.5 digit	3 mVrms	4.5 digit



➤ [B2900B DATA SHEET](#)

➤ [B2960B DATA SHEET](#)

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ELECTRONIC LOADS

EL30000 Series Bench DC Electronic Loads

The Keysight EL30000 Series bench DC electronic loads provide superior performance in a compact bench form factor.

- Test up to 600 W, 1 or 2 inputs.
- Operate in constant current (CC), constant voltage (CV), constant resistance (CR), or constant power (CP) modes.
- Make accurate measurements with excellent programming / feedback accuracy.
- Perform static and dynamic tests.
- View measurements on a 4.3-inch LCD color display.
- Transfer data via USB drive, LAN, USB, or GPIB.

Model	Number of inputs	Input power	DC Input voltage	DC Input current	Service and support	
EL34143A	1	350 W	150 V	60 A	3-year warranty and 3-year KeysightCare technical support included	Get a Quote >
EL34243A	2	600 W	150 V	60 A per input, 120 A parallel		Get a Quote >
EL33133A	1	250 W	150 A	40A		Get a Quote >
EL34143A	1	350 W	150 V	60A		Get a Quote >
EL34243A	2	600 W	150 V	60 A per input, 120 A parallel		Get a Quote >

Need more power?

See the Keysight E36200 Series and Keysight E36150 Series autoranging power supplies.

- [DATA SHEET](#)
- [ELECTRONIC LOAD FUNDAMENTALS WHITE PAPER](#)



33500B and 33600A Series Trueform Waveform Generators

- Generate Trueform arbitrary waveforms with high fidelity and less jitter and harmonic distortion.
- Access ease-of-use features, such as modulation, sweep, burst, dual-channel coupling, and IQ baseband signal player.

Model	Description	Channels	Frequency range	Pulse	Arbitrary waveforms				Service and support
					Std / Opt arb	# Bits	Sample rate	Memory/ Channel	
33509B 33510B	Exclusive Trueform waveform technology with < 40 ps jitter and < 0.04% THD.	1 2	20 MHz	20 MHz	Optional	16	160 MSa/s	1 M Standard, 16 M Optional	3-year warranty and 3-year KeysightCare technical support included
33511B 33512B		1 2			Standard				
33519B 33520B		1 2	30 MHz	30 MHz	Optional		250 MSa/s		
33521B 33522B		1 2			Standard				
33611A 33612A	Exclusive Trueform waveform technology at higher frequency ranges with < 1 ps jitter < 0.03% THD.	1 2	80 MHz	80 MHz	Standard	14	660 MSa/s	4 M Standard, 64 M Optional	
33621A 33622A		1 2	120 MHz	100 MHz			1 GSa/s		



➤ DATA SHEET

Get a Quote ➤

X-Series Signal Generators

The Keysight X-Series creates signals capable of testing your very best devices. From the pure and precise MXG to the cost-effective EXG and general-purpose CXG, the X-Series helps you generate true performance.

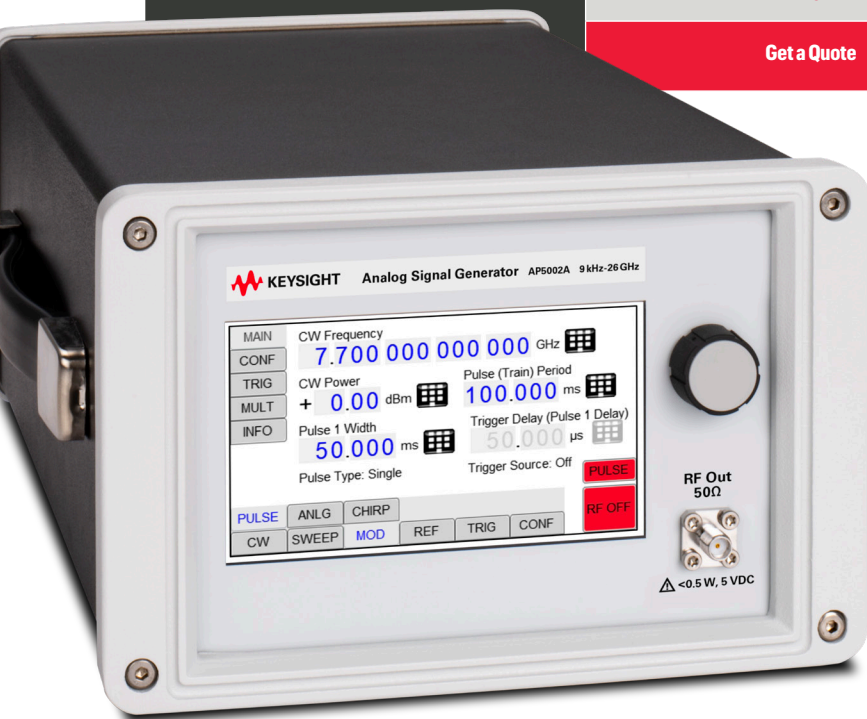
	MXG-Analog	EXG-Analog	CXG-Analog
Model number	N5181B	N5171B	N5166B
Frequency range	9 kHz to 6 GHz	9 kHz to 6 GHz	9 kHz to 6 GHz
Maximum output power	+24 dBm	+21 dBm	+18 dBm
Frequency switching (list mode)	800 μ s	800 μ s	5 ms
Level accuracy	\pm 0.6 dB	\pm 0.6 dB	\pm 0.6 dB
SSB phase noise (1 GHz, 20 kHz offset)	-146 dBc/Hz	-122 dBc/Hz	-119 dBc/Hz
Harmonics (at 1 GHz)	-35 dBc	-35 dBc	-35 dBc
Analog modulation	AM, FM, PM, and pulse modulation	AM, FM, PM, and pulse modulation	AM, FM, PM, and pulse modulation
Digital modulation	N/A	N/A	120 MHz bandwidth
Service and support	3-year warranty and 3-year KeysightCare technical support included		
	DATA SHEET	DATA SHEET	DATA SHEET
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NEW Portable Analog Signal Generators Basic Spectrum Analyzers (BSAs)

Keysight portable analog signal generators combine compactness with high performance, offering outstanding output power range, phase noise, and switching speed.

Model	AP5001A	AP5002A
Frequency range	9 kHz to 2, 4, or 6.1 GHz	9 kHz to 12, 20, or 26 GHz
Output power range	-30 to +17 dBm; -120 to +17 dBm (Opt.1E1)	-20 to +15 dBm; -120 to +23 dBm (Opt. 1E1 / 1EA)
Phase noise at 10 GHz, 10 / 20 kHz offset	-128 dBc/Hz, -130 dBc/Hz typical	-128 dBc/Hz, -130 dBc/Hz typical
Harmonics at 1 GHz	-30 dBc, -40 dBc typical	-30 dBc, -40 dBc typical
Non-harmonics at 1 GHz	-55 dBc, -65 dBc typical	-65 dBc, -75 dBc typical
Frequency switching speed	200 μ s	300 μ s
Modulation capabilities	AM, FM, PM, pulse, frequency chirps	AM, FM, PM, pulse, frequency chirps
Dimensions	W x L x H = 174 x 262 x 117 mm [6.83 x 10.30 x 4.60 in]	
Weights	\leq 2.5 kg / 6 lbs	
Service and support	3-year warranty and 3-year KeysightCare technical support included	
	DATA SHEET	DATA SHEET
	Get a Quote	Get a Quote

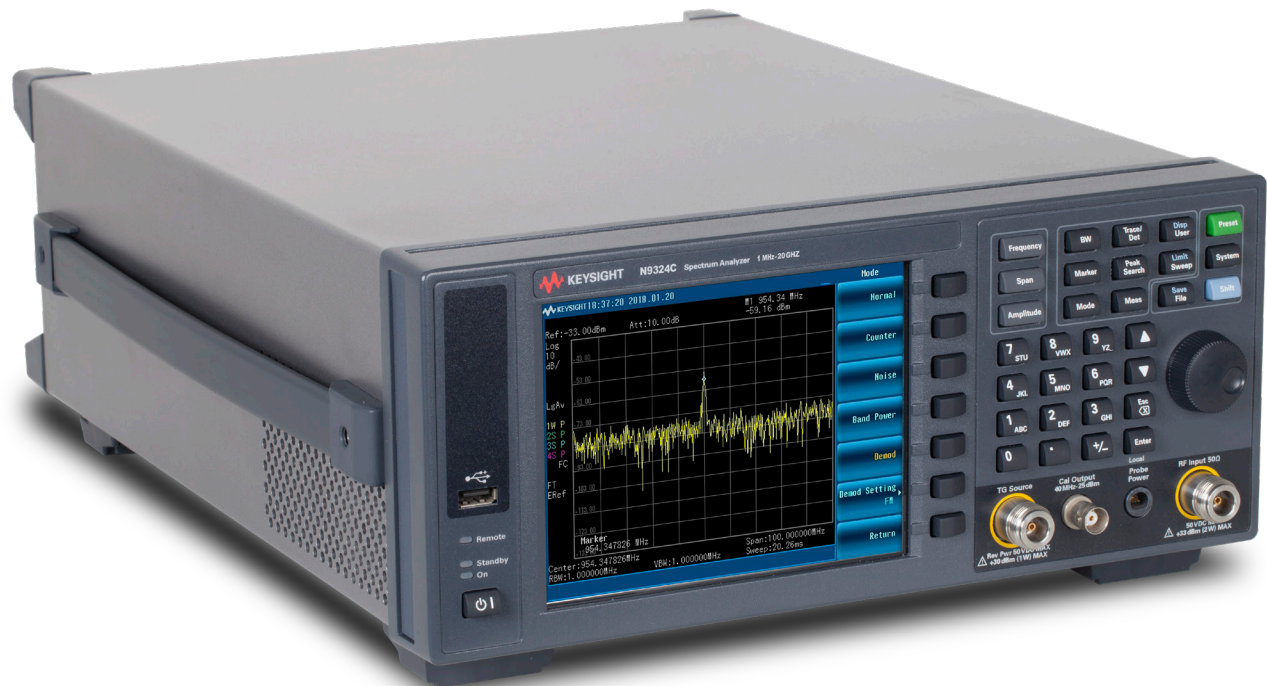


Basic Spectrum Analyzers (BSAs) ¹

The Keysight basic spectrum analyzers (BSAs) define value-priced general-purpose instruments up to 20 GHz. You can rely on the BSA for proven testing efficiency, usability, and the flexibility to adapt to new requirements.

Model	N9321C	N9322C	N9323C	N9324C
Frequency	9 kHz to 4 GHz	9 kHz to 7 GHz	1 MHz to 13.6 GHz	1 MHz to 20 GHz
Overall amplitude accuracy	± 0.6 dB	± 0.6 dB	± 0.7 dB	± 0.7 dB
DANL at 1 GHz	-152 dBm	-152 dBm	-144 dBm	-144 dBm
Maximum analysis bandwidth	1 MHz	1 MHz	1 MHz	1 MHz
Phase Noise at 1 GHz	-90 dBc / Hz	-90 dBc / Hz	-92 dBc / Hz	-92 dBc / Hz
Service and support	3-year warranty and 3-year KeysightCare technical support included			
	DATA SHEET	DATA SHEET	DATA SHEET	DATA SHEET
	Get a Quote >	Get a Quote >	Get a Quote >	Get a Quote >

1. From selected distributors only



E5063A ENA Vector Network Analyzer ¹

- Offers frequency options to suit your test needs and budget, upgradable at any time.
- Includes PCB manufacturing test capability with Option 011.
- Supports six languages via soft key and the embedded help manual in English / simplified Chinese.
- Supports all Keysight calibration kits, including the Keysight N755xA economy ECal module.

ENA Series E5063A

Frequency	100 kHz to 500 M, 1.5, 3, 4.5, 6.5, 8.5, 14 or 18 GHz
Test port	2-port 50 Ω S-parameter test set
Dynamic range	117 dB (spec.), 122 dB (typ.)
Trace noise	0.005 dBrms (spec.), 0.015 dBrms (typ.)
Source power	-20 to 0 dBm
Key software capability	Fixture simulator, time domain analysis / test wizard option ² , wireless power transfer analysis ² , and materials measurement ³
Interface	LAN, USB (front 2, rear 4), USBTMC, GPIB ² , handler I/O ²
Service and support	3-year warranty and 3-year KeysightCare technical support included

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2. Optional capability
3. External software; Keysight N1500A material measurement suite required



➤ DATA SHEET

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FieldFox Handheld RF and Microwave Analyzers

- ▶ DATA SHEET
- ▶ VIEW ALL MODELS

Carry precision with you

The Keysight FieldFox is an all-in-one combination analyzer that performs cable and antenna testing, vector network analysis, spectrum analysis, signal analysis, pulse signal generator, interference finding, and more.

Model	N9912C	N9915C	N9935C	N9918A	N9952A	N9960A
Base model	Combo analyzer	Combo analyzer	Spectrum analyzer	Combo analyzer	Combo analyzer	Spectrum analyzer
Frequency range	3 kHz – 10 GHz	3 kHz – 10 GHz	3 kHz – 10 GHz	9 kHz – 26.5 GHz	9 kHz – 50 GHz	9 kHz – 32 GHz
Maximum analysis / Real-time bandwidth	40 MHz	120 MHz	120 MHz	10 MHz	10 MHz	10 MHz
DANL at 1 GHz	-165 dBm	-165 dBm	-165 dBm	-155 dBm	-159 dBm	-159 dBm
Overall spectrum analyzer amplitude accuracy	± 0.20 dB	± 0.20 dB	± 0.20 dB	± 0.5 dB	± 0.5 dB	± 0.5 dB
Service and support	3-year warranty and 3-year KeysightCare technical support included					
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Meet the NEW
Software-Defined FieldFox

MIX AND MATCH YOUR VECTOR NETWORK AND SPECTRUM ANALYSIS, WITH FULLY UPGRADABLE AND LICENSE-KEY ACTIVATED FREQUENCY, BANDWIDTH, AND OVER 20 SOFTWARE APPLICATIONS.



FEATURED RESOURCE

FieldFox Fox Hunt RF Analysis on the Move

Join our hunt to track down elusive signals in the RF spectrum



Embark on a nine-episode adventure filled with entertaining demonstrations and real-life scenarios to learn about the newest methods and tools for RF analysis.

Get a sneak peek of what is in store — [tune in now.](#)



Step into the Silence

Join our field trip to the anechoic chamber and discover the power of electromagnetic interference measurements.



Let FieldFox Do the Channel Scanning

Buckle up and join us to experience the Keysight FieldFox channel-scanning mode in action.

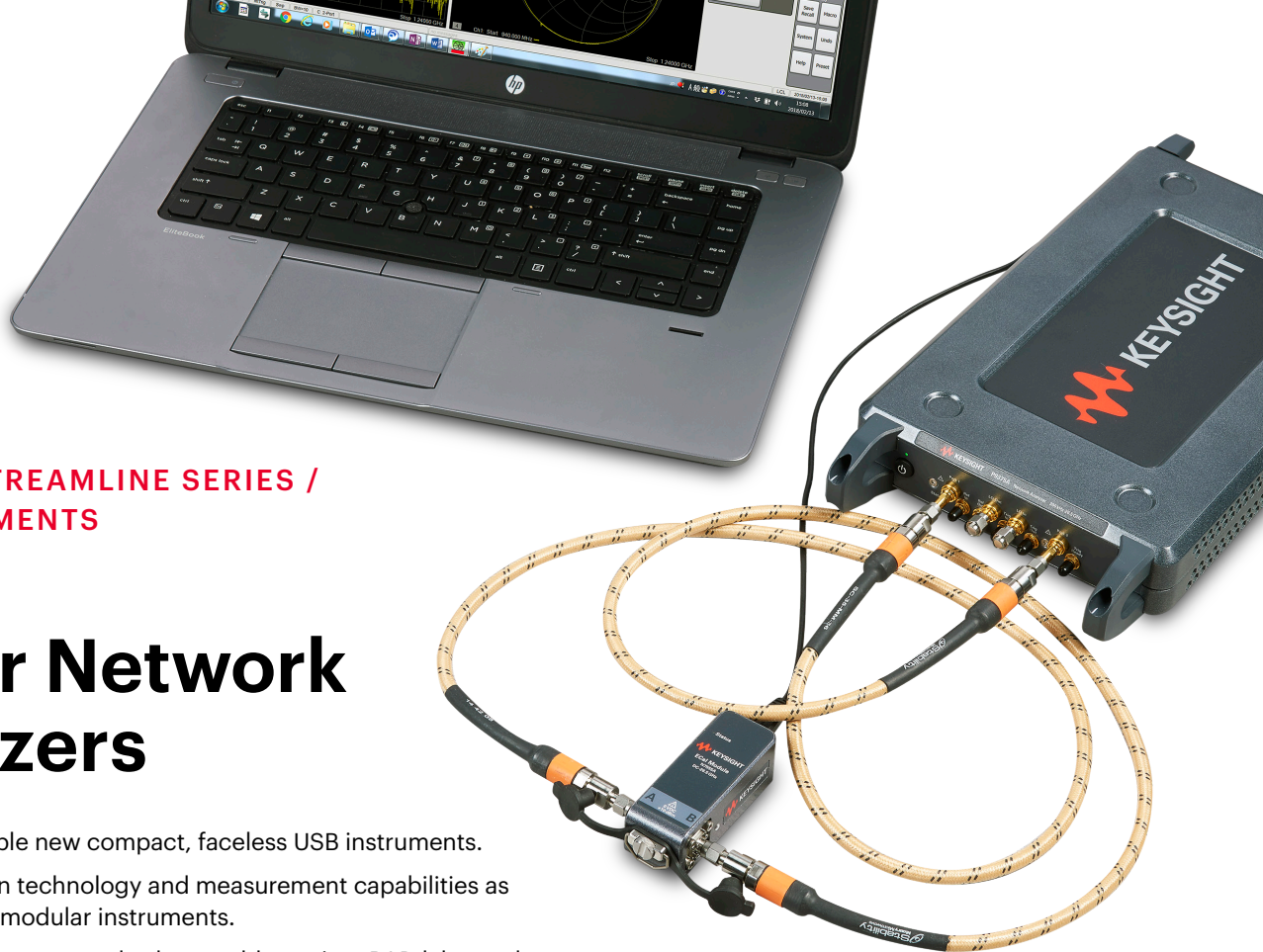


Real-Time Spectrum Analysis

Discover the hidden culprit slowing down your Wi-Fi and Bluetooth® connections.

[WATCH ALL EPISODES HERE](#)





KEYSIGHT STREAMLINE SERIES / USB INSTRUMENTS

Vector Network Analyzers

- Features multiple new compact, faceless USB instruments.
- Offers common technology and measurement capabilities as benchtop and modular instruments.
- Works for component and subassembly testing, R&D labs, and light manufacturing.
- Uses a small footprint in size, weight, and power.
- Fits in a rack at 1U high.

Vector Network Analyzer (VNA)¹

Models	P9370A/B, P9371A/B, P9372A/B, P9373A/B, P9374A/B P9375A/B, P9377B, P9382B, P9384B	
Bandwidth	300 kHz to 26.5 GHz (P937xA) 9 kHz to 20 GHz (P937xB/P938xB) 100 kHz to 44 GHz (P937xB)	
Capabilities	<ul style="list-style-type: none"> • Includes full 2-port (P937xA/B) and 4-port (P938xB) VNA • Extends the number of ports • Offers the same calibration and metrology as all trusted Keysight VNAs 	
Service and support	3-year warranty and 3-year KeysightCare technical support included	
	P937XA DATA SHEET	P93XXB DATA SHEET
Get a Quote >		

1. From selected distributors only

Uptime, Precision, Expertise. At Your Service.

Access to experts

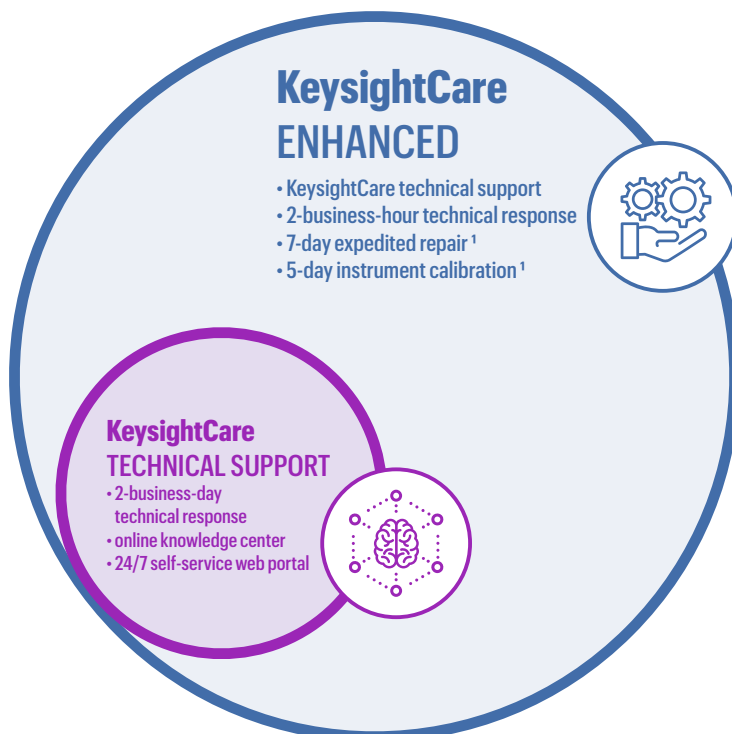
- In addition to your three-year warranty, you will receive three years of **KeysightCare technical support** on all basic instruments in this catalog.

Keysight support

- Receive personalized, proactive, and priority support. Find answers in the knowledge center, manage service requests, and interact with Keysight experts.
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Lock in price and peak performance

- Extend your peace of mind and eliminate budgetary surprises for up to 5 years with KeysightCare Enhanced. Trust your test results with calibrated in tolerance instruments and accurate measurements. Available in select countries.
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KeysightCare technical
support included on
all basic instruments.

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1. Excluding shipment and customs processing



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

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