

Basic Instruments

**Everything you need out-of-the-box:
InfiniiVision 4000G X-Series oscilloscope**

Table of Contents

3	Spotlight
4	Special Offers and Events
5	PathWave BenchVue Software
6	Smart Bench Essentials
8	Oscilloscopes
11	Data Acquisition / Switch Units
14	Digital Multimeters
17	DC Power Supplies
23	Source Measure Units
25	Electronic Loads
26	Waveform Generators
27	Signal Generators
28	Signal Analyzers
29	Vector Network Analyzers
30	Fieldfox Handheld Analyzers
32	Keysight Streamline Series / USB Instruments
33	KeysightCare

Three years of
KeysightCare Technical
Support included on
all Basic Instruments

▶ PAGE 33

Jumpstart General-Purpose Electronic Design Using Advanced Analysis Features

The advanced performance, intuitive usability, and versatile functionality of the Keysight InfiniiVision 4000G X-Series oscilloscopes enable you to capture elusive glitches and anomalies that are not possible with other oscilloscopes. These oscilloscopes come with everything you need to begin general-purpose electronic design test and debugging: 200 MHz to 1.5 GHz bandwidth, 2 or 4 analog channels with an optional 16 digital channels, and standard advanced analysis features. The 4000G X-Series offers a superior user experience and comes with the following features out-of-the-box:

Pre-loaded embedded analysis oscilloscope software

- Decode and trigger on the most common embedded serial buses — I2C, SPI, UART / RS232 / RS422 / RS485, I2S, and USB-PD.
- Perform advanced analysis with hardware-based mask limit and measurement limit testing, frequency response analysis (Bode plots), HDTV video analysis, and a dual-bus time-interleaved protocol lister display.

Standard 6-in-1 instrument integration

- Experience the multifunctional 4000G X-Series that comes with standard six-in-one instrument integration: oscilloscope, protocol analyzer, frequency response analyzer (Bode plots), dual-channel 20 MHz arbitrary waveform generator, three-digit digital voltmeter, and eight-digit counter and totalizer.
- Get 7-in-1 instrument integration when you select a mixed-signal oscilloscope (MSO) model, equipping the MSO with 16 additional digital channels.

Advanced performance to capture elusive glitches quicker

- Take advantage of the industry's only uncompromised waveform update rate of 1,000,000 per second — our waveform update rate does not slow down no matter which measurements, functions, or time base setting you use.
- Pair the 12.1-inch capacitive touch screen with zone triggering and automated software to turn the most advanced measurements into one easy step — simply draw a box with your finger on the screen.

- [DATA SHEET](#)
- [LEARN MORE ABOUT THE 4000G X-SERIES](#)



SPECIAL OFFERS AND EVENTS

Limited Time Offers

All Your Application Software Free

ON INFINIIVISION OSCILLOSCOPES



Get all automotive, embedded, power, A&D, and USB software for free when you purchase an InfiniiVision oscilloscope.

Free Memory and Software Package

ON EXR OSCILLOSCOPES



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

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.

Save 11%

ON E36150 SERIES BUNDLES



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

Save 10% Now

ON ELIGIBLE POWER SUPPLIES



Save on all eligible basic bench power supplies for a limited time when you buy online.

Save 15% Now

ON MODULAR POWER SUPPLIES



Save on eligible automated test equipment system power supplies and modules for a limited time.

Save 75%

ON THE DIGITAL LEARNING SUITE



Save 75% on the Digital Learning Suite when you outfit new labs or refresh existing ones with Keysight instruments.

Choose Your Reward Promotion



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

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>A 5.5-digit digital multimeter with 11 different input signals such as DCV, DCI, true RMS ACV, ACI, two- and four-wire resistance, frequency, continuity, diode test, temperature, and capacitance. This solution also comes with 5,000 points of logging memory for recording more data and performing analysis.</p>	<p>Get a Quote ></p>
 <p>EDU36311A</p>	<p>A 30 W triple-output power supply with excellent line / load regulation, overvoltage, current and temperature protection, and programming / readback accuracy.</p>	<p>Get a Quote ></p>
 <p>EDU33211A / EDU33212A</p>	<p>Single / dual channel 20 MHz waveform and function generator with 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>	<p>Get a Quote ></p>
 <p>EDUX1052A</p>	<p>Dual analog input channels in a 50 MHz oscilloscope with a maximum sampling rate of 1 GSa per second and up to 200,000 points of memory depth.</p>	<p>Get a Quote ></p>

[▶ 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.

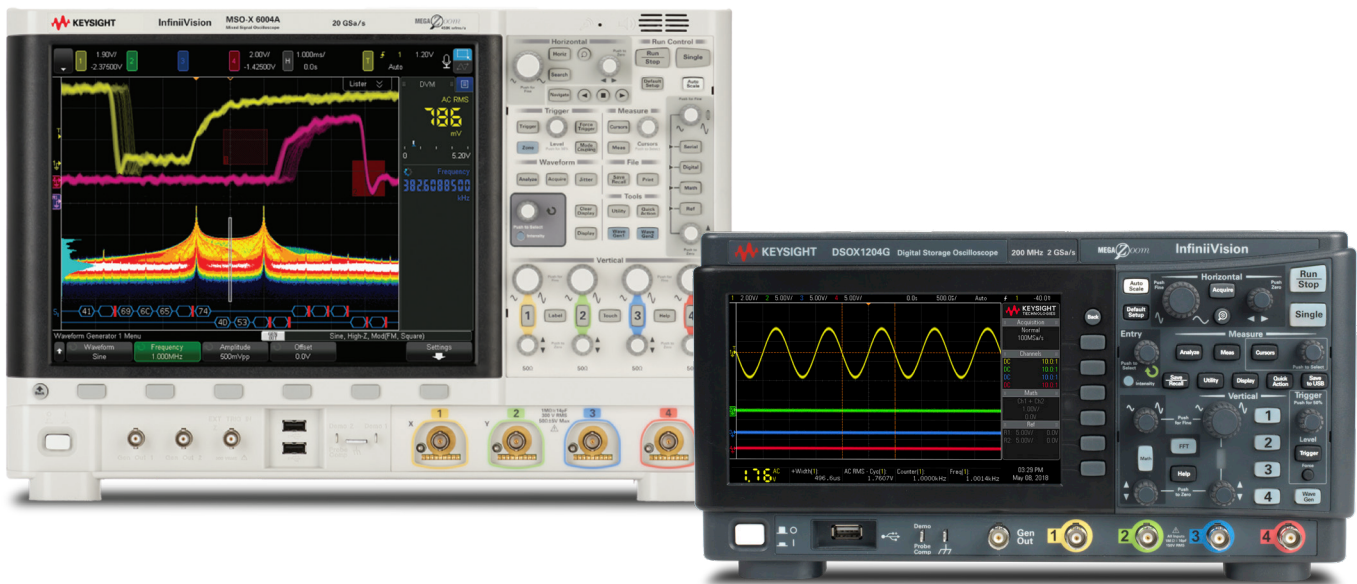


▶ REQUEST A FREE TRIAL

Get a Quote >

InfiniiVision Oscilloscopes

- Experience up to 1,000,000 waveforms / second update rate.
- Get MegaZoom IV and measure with uncompromised, responsive smart memory.
- Test using multiple instrument functionality.
- Expand your platform with upgradable bandwidth, a mixed-signal oscilloscope (MSO), serial analysis, and a built-in waveform function generator.



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
3000X	D3000AUTB	D3000AERB	D3000GENB	D3000PWRB	D3000USBB	D3000BDLB
4000X	D4000AUTB	D4000AERB	D4000GENB	D4000PWRB	D4000USBB	D4000BDLB
6000X	D6000AUTB	D6000AERB	D6000GENB	D6000PWRB	D6000USBB	D6000BDLB

Buy an InfiniiVision Oscilloscope, Get the Ultimate Bundle Software Free



Model	1000 X-Series	2000 X-Series	3000G X-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 Fast Fourier transform (FFT) 	Entry-level with more capabilities <ul style="list-style-type: none"> Serial bus options Mixed-signal oscilloscope options 	Advanced capabilities simplified <ul style="list-style-type: none"> Advanced math Standard embedded software Waveform and measurement histograms 	Everything the 3000G has plus see more of your signal <ul style="list-style-type: none"> Higher bandwidth Larger touch screen 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	100 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 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	8.5-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	20-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 and frequency response analyzer, 10-digit counter, DVM, and protocol analyzers
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
	Get a Quote >	Get a Quote >	Get a Quote >	Get a Quote >	Get a Quote >	Get a Quote >

¹ All X-Series models have a built-in protocol analyzer and 3-digit digital voltmeter (DVM)

INFINIVISION PROMO BUY AN INFINIVISION OSCILLOSCOPE, GET THE ULTIMATE BUNDLE SOFTWARE FREE 

EXR PROMO BUY AN EXR OSCILLOSCOPE, GET FREE MEMORY AND SOFTWARE 

Featured Resource

5 Mistakes People Make When Getting a Low-Cost Scope

Choosing the right oscilloscope is a difficult task, especially if you're on a budget. You want to make the best decision for your needs while saving money and maintaining quality.

Avoid five common mistakes people make when selecting a low-cost oscilloscope so you — and your wallet — are happy with your decision.

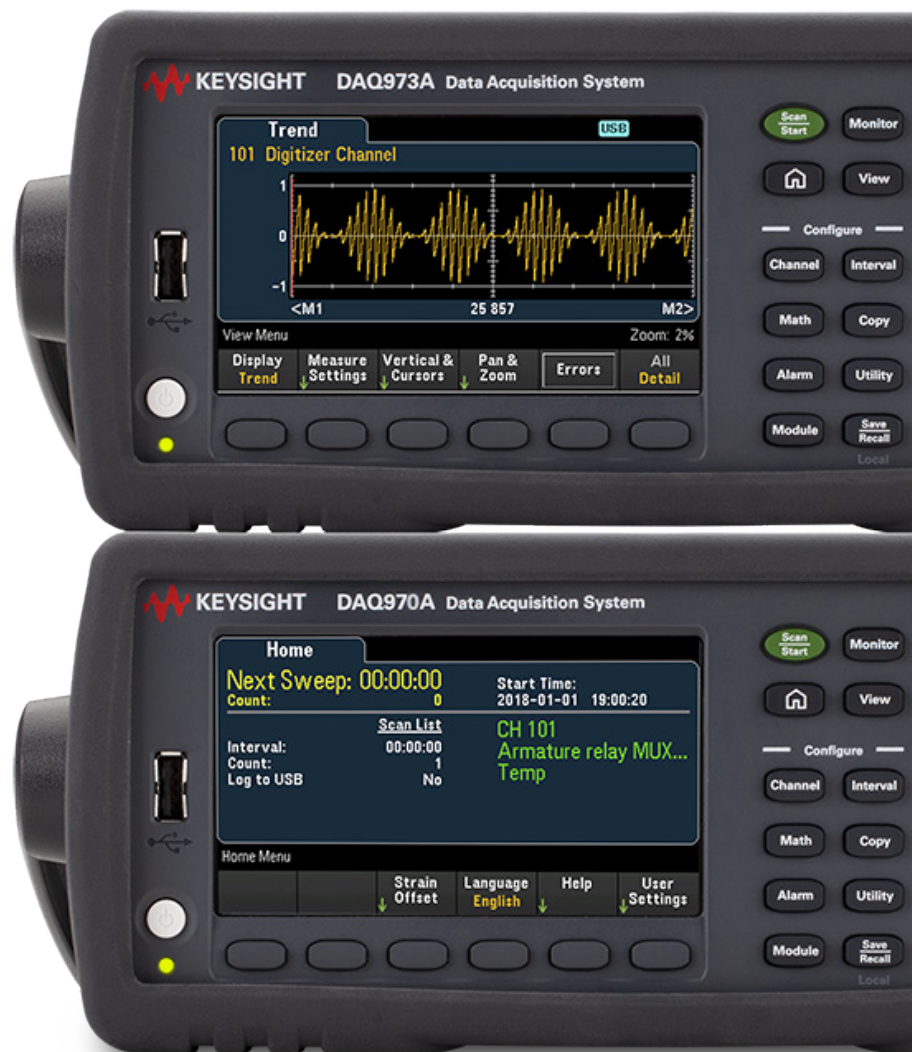
[▶ DOWNLOAD THE WHITE PAPER](#)



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.
- New Keysight DAQM909A 4-channel simultaneous sampling digitizer module with a sampling rate of up to 800 kSa / second.



➤ DATA SHEET

Get a Quote >

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, 50Ω	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

There is a growing trend across all industries to design feature-rich products. However, you know that the more features added, the more complex the test development becomes.

Explore four considerations for a DAQ that will help you develop a test system optimized for speed and accuracy.

[▶ DOWNLOAD THE EBOOK](#)



Truevolt Digital Multimeters

- 6.5- and 7.5-digit performance
- Graphical capabilities such as bar, trend, histogram and histogram charts
- Measure very low current, 1 μ A range with pA resolution, enabling measurements on very low power devices
- Auto-calibration to compensate for temperature drift to maintain measurement accuracy
- 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					



[DATA SHEET](#)

[Get a Quote >](#)

3458A Digital Multimeter, 8.5-Digit

- Get 8.5-digits resolution and 0.1 ppm transfer accuracy.
- Perform accurate measurements with 8 ppm (0.0008%) 1-year DCV accuracy (4 ppm with option).
- Experience a maximum reading rate of 100,000 readings / second.
- Execute measurements that include DC and AC voltage, DC and AC current.
- Measure using 2- and 4-wire resistance, frequency, and period.
- Use the 148K reading memory for prolonged data logging (now comes standard).
- RoHS compliant.
- 3-year warranty and 3-year KeysightCare Technical Support included.



[▶ DATA SHEET](#)

[Get a Quote >](#)

Featured Resource

Solving for Common Low Resistance Measurement Accuracy Issues

A 4-wire measurement method is the most accurate method to measure small resistances, especially in ranges below 100 ohms. The 4-wire method eliminates measurement errors that long leads and switches introduce in your test setups. The method is also very useful when you need to monitor for accurate and precise temperature changes. This solution brief will examine various applications that require a 4-wire measurement approach and help you make an informed decision for your testing needs.

[▶ DOWNLOAD THE SOLUTION BRIEF](#)



N6700 Modular Power System

N6700: DC power supply — ideal for automated test systems.

- Small 1U mainframe (400, 600, 1200 W) holds up to four output modules.
- Over 35 programmable DC modules offer unique capabilities, performance, voltage, and current combinations.
- Multiple DC electronic load modules, 100 and 200 W, allow current to be sourced and sinked in the same mainframe.
- 3-year warranty and 3-year KeysightCare Technical Support included



N6705C: DC power analyzer — deep insight without a complex test system.

- Holds and uses up to four N6700 Series modules (600 W total).
- Integrates digital multimeter (DMM), oscilloscope, arb, and data logger capabilities.
- Characterizes and improves battery run time with a source / measure unit (SMU) and BV9200B analysis software.
- 3-year warranty and 3-year KeysightCare Technical Support included.



➤ [N6700C, N6701C, & N6702C DATA SHEET](#)

[Get a Quote >](#)

➤ [N6705C DATA SHEET](#)

[Get a Quote >](#)

➤ [BV9200B DATA SHEET](#)

[Get a Quote >](#)

E36300 Series Triple-Output DC Power Supplies

PATHWAVE
SOFTWARE SUPPORTED

- Large display with voltages and currents for all three outputs
- Accurate programming / readback as low as 0.03%
- Low output ripple and noise less than 2 mVpp / 350 uVRms
- Precise data logging plus output sequencing and coupling
- Convenient front and rear output terminals
- Color-coded outputs and individual knobs for voltage and current
- 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

- Single or dual outputs; easily combine the dual outputs into a single output with 400 W
- Auto-parallel the Keysight E36233A 400 W autoranging dual output power supply to create a single 40 A (30 V) output
- Auto-series the E36233A to create a single 120 V (10A) output
- Programming / readback accuracy as low as 0.03%
- Output ripple and noise < 350 μ Vrms
- Data logging plus output sequencing and coupling
- Front and rear output terminals
- Color-coded outputs and individual knobs for voltage and current
- 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 start-up 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
- Inclusive Keysight BV9200B / BV9201B PathWave BenchVue advanced power control and analysis software assistance
- 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 general purpose interface bus (GPIB) (upgrade option) interfaces
- Option to upgrade 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

Designed to operate with Keysight PathWave BenchVue BV9210/11B battery emulation and test software.

- 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 200W, 30V, and 20A.
- Offers 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](#)

[Get a Quote >](#)

[BV9211B DATA SHEET](#)

[Get a Quote >](#)

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. You may find that more of your design problems are created by these power systems.

Use these four practical tips to ensure 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



[DATA SHEET](#)

[Get a Quote >](#)

B2900B Series Precision Source Measure Units

This compact benchtop SMUs enable you to quickly take various I-V (current versus voltage) measurements requiring high resolution and accuracy.

B2960B Series Low Noise Power Sources

This benchtop power source 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](#)

[Get a Quote >](#)



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 >

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	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
		2			Standard				
33511B 33512B		1	30 MHz	30 MHz	Optional				
		2			Standard				
33519B 33520B		1	80 MHz	80 MHz	Standard	14	660 MSa/s	4 M Standard, 64 M Optional	
		2							
33521B 33522B		1	120 MHz	100 MHz	Standard	14	1 GSa/s	4 M Standard, 64 M Optional	
		2							
33611A 33612A	Exclusive Trueform waveform technology at higher frequency ranges with < 1 ps jitter and < 0.03% THD.	1	120 MHz	100 MHz	Standard	14	1 GSa/s	4 M Standard, 64 M Optional	3-year warranty and 3-year KeysightCare Technical Support included
33621A 33622A	1	120 MHz	100 MHz	Standard	14	1 GSa/s	4 M Standard, 64 M Optional		



➤ DATA SHEET

Get a Quote >

SIGNAL GENERATORS

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
	Get a Quote >	Get a Quote >	Get a Quote >



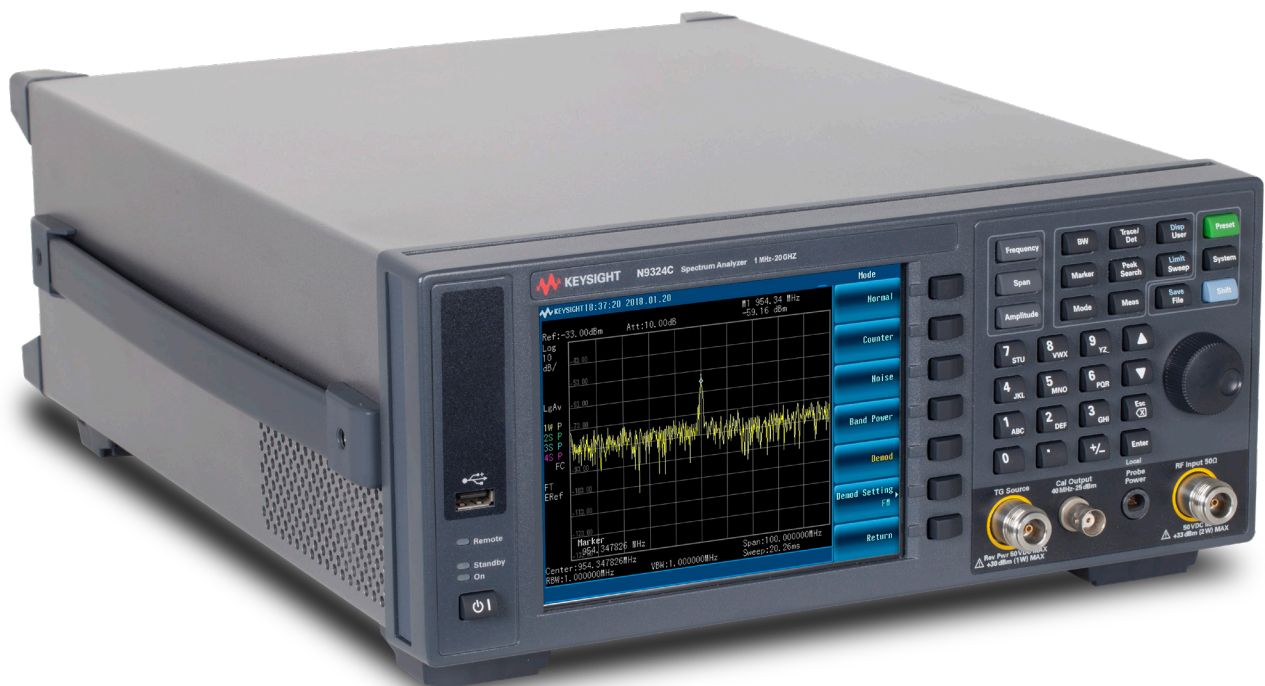
SIGNAL ANALYZERS

Basic Spectrum Analyzers (BSAs)*

The 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 >

* From selected distributors only



E5063A ENA Vector Network Analyzer*

- Frequency options to suit your test needs and budget, upgradable at any time
- PCB manufacturing test capability with Option 011
- Support for six languages via softkey and the embedded help manual in English / Simplified Chinese
- Support 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 ¹ , Wireless power transfer analysis ¹ , and Materials measurement ²
Interface	LAN, USB (front 2, rear 4), USBTMC, GPIB ¹ , Handler I/O ¹
Service and support	3-year warranty and 3-year KeysightCare Technical Support included

1. Optional capability.
2. External software; Keysight N1500A Material Measurement Suite required.

* From selected distributors only



➤ DATA SHEET

Get a Quote >

FieldFox Handheld RF and Microwave Analyzers

- DATA SHEET
- VIEW ALL MODELS

Carry precision with you

Use an all-in-one combination analyzer that performs cable and antenna testing, vector network analysis, spectrum analysis, signal analysis, 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 - Up to 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	-164 dBm	-164 dBm	-164 dBm	-155 dBm	-159 dBm	-159 dBm
Overall spectrum analyzer amplitude accuracy	±0.25 dB	±0.25 dB	±0.25 dB	±0.5 dB	±0.5 dB	±0.5 dB
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 >	Get a Quote >	Get a Quote >



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.



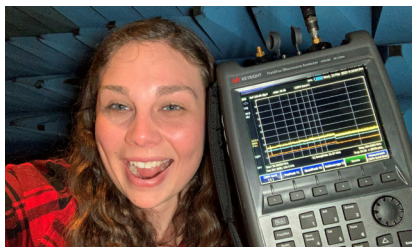
FieldFox Fox Hunt RF Analysis on the Move



Join our Fox Hunt and 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.

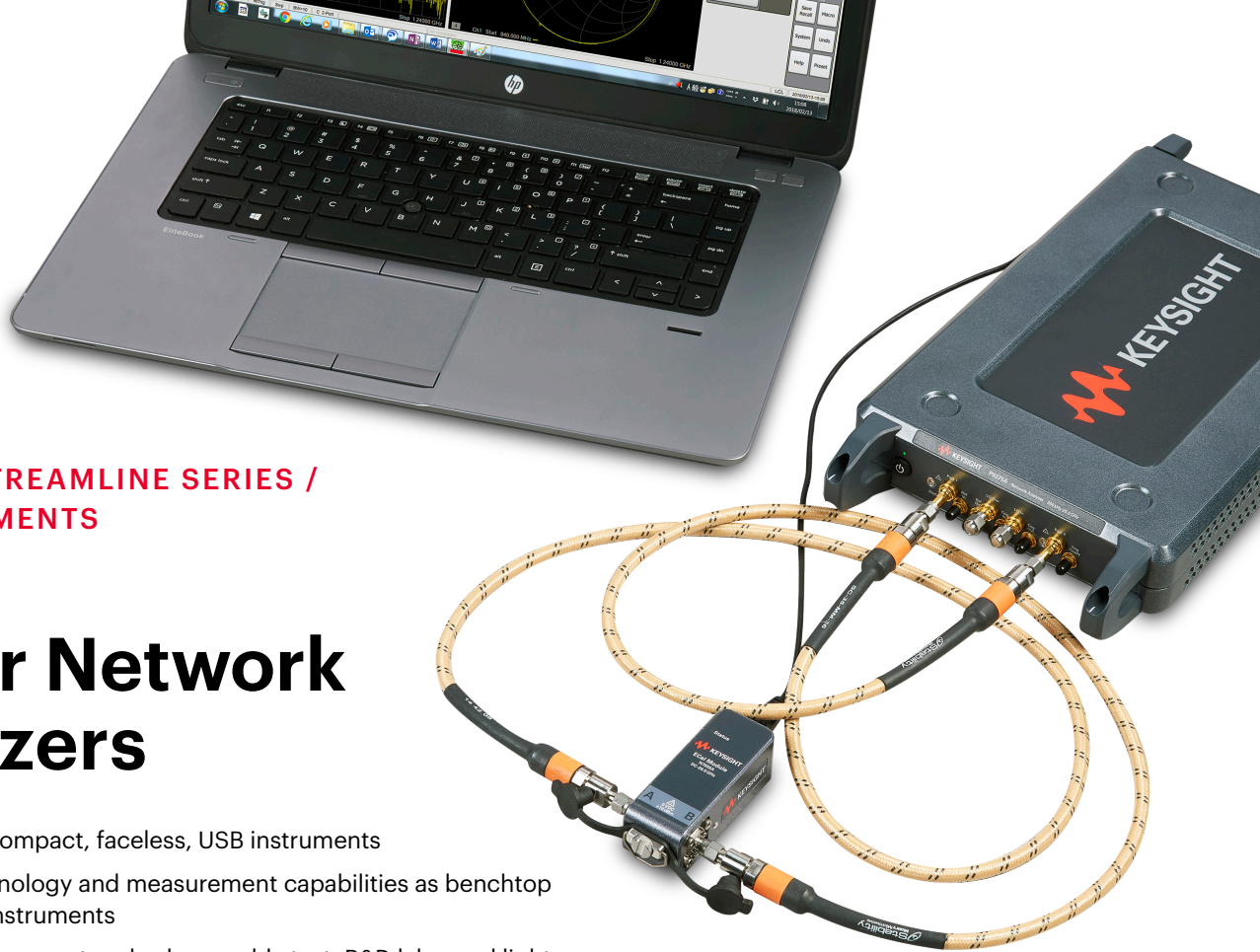


Real-Time Spectrum Analysis

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

[WATCH ALL EPISODES HERE](#)





**KEYSIGHT STREAMLINE SERIES /
USB INSTRUMENTS**

Vector Network Analyzers

- Multiple new compact, faceless, USB instruments
- Common technology and measurement capabilities as benchtop and modular instruments
- Perfect for component and subassembly test, R&D labs, and light manufacturing
- Small footprint in size, weight, and power
- Ideal for a rack at 1U high

Vector Network Analyzer (VNA)*

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"> • Full 2-port (P937xA/B) and 4-port (P938xB) VNA • Ability to extend the number of ports • 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 >		

* From selected distributors only

Remove the Barriers to Your Success with KeysightCare

Access to experts

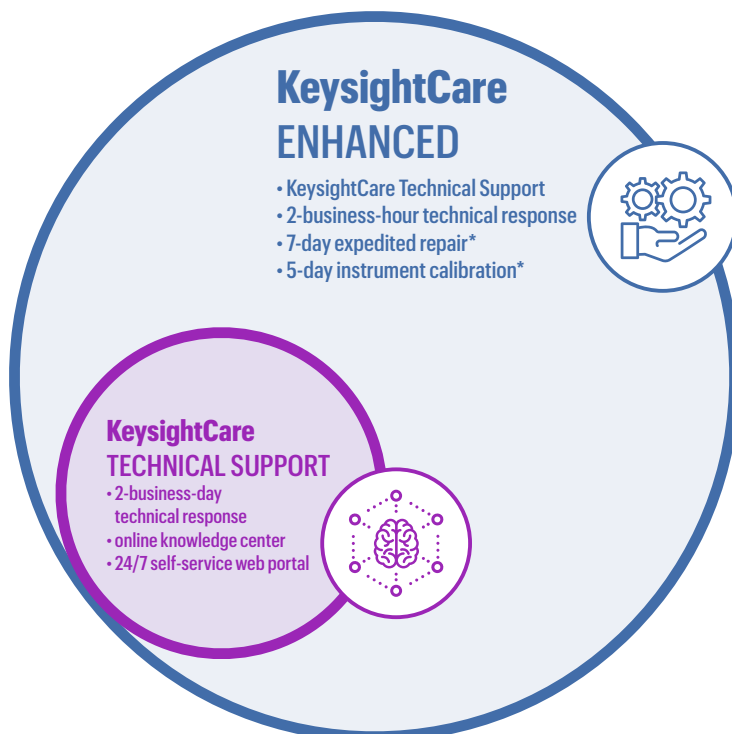
- In addition to your three-year warranty, you will receive three years of **KeysightCare Technical Support** on all basic instruments in this catalog.

Keysight support

- Receive personalized, proactive, and priority support. Find answers in the knowledge center, manage service requests, and interact with Keysight experts.
 - [Start here](#)

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.
 - [Learn more](#)



Three years of
KeysightCare Technical
Support included on
all Basic Instruments

[START HERE](#)



* 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.

This information is subject to change without notice.

© Keysight Technologies, 2020 – 2024, Published in USA, February 16, 2024, 5992-0112EN