Oscilloscopes

CATALOG

KEYSIGHT

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Keysight Oscilloscopes

One family. Four performance grades. 8 classes.

ESSENTIAL

XR1, XR2, XR3-class

- 70 MHz to 1 GHz Maximum bandwidth
- 2 to 4 Analog channels and up to 16 digital channels

ADVANCED

XR4, XR5-class

- 200 MHz to 1.5 GHz Maximum bandwidth
- 2 to 4 Analog channels and up to 16 digital channels

EXPERT

XR6-class

- 500 MHz to 6 GHz Maximum bandwidth
- 4 to 8 Analog channels and 16 digital channels

PRO

XR8, XR9-class

- 10 GHz to 110 GHz Maximum bandwidth
- 2 to 4 Analog channels

Introduction

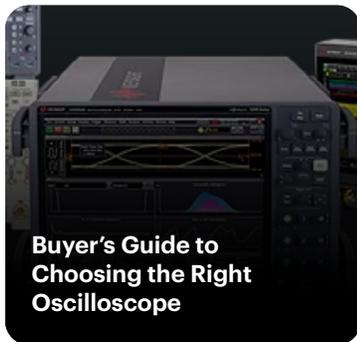## Keysight Oscilloscopes — from debugging to standards compliance testing

The Keysight InfiniiVision and Infiniium oscilloscopes are now offered in eight capability classes across four performance grades. Essential, our most affordable entry-level oscilloscopes, can be configured as one of three classes — XR1, XR2, or XR3 — for the widest range of everyday measurements. Advanced includes the XR4- and XR5-class, extending the frequency range and sample rates. Expert includes XR6-class, taking bandwidths to 6 GHz with automated test functions. Pro includes the XR8- and XR9-class, delivering our highest performance research-level features. A comprehensive library of oscilloscope resources is available to help you find the performance grade and class best suited to your lab.

Get better insights with greater precision

The oscilloscope is a fundamental tool for any engineer. Whether you design, debug, or perform compliance tests, you need accurate and reliable tools to measure and analyze signals to be successful. Keysight courses cover the basics and complex applications to help you develop a deeper understanding of oscilloscopes.

Here are a few examples of the resources you will find to help you select the oscilloscope that is right for you:

Buyer's Guide to Choosing the Right Oscilloscope

Evaluating Oscilloscope Bandwidths for Your Application

Basic Oscilloscope Measurement Fundamentals

Benchtop Oscilloscopes

Keysight benchtop oscilloscopes enable you to troubleshoot and debug designs, perform enhanced circuit analysis, decode protocols, and ensure compliance with next-generation standards. Select the oscilloscope performance you need based on bandwidth, analog and digital channels, sample rate, and memory depth. Explore our wide range of benchtop oscilloscopes from Essential to Pro performance grades to find the one that is right for your application.

	Essential XR1, XR2, XR3-class	Advanced XR4, XR5-class	Expert XR6-class	Pro XR8, XR9-class
Maximum bandwidth	70 MHz to 1 GHz	200 MHz to 1.5 GHz	500 MHz to 6 GHz	10 GHz to 110 GHz
Analog channels	2 to 4	2 to 4	4 to 8	2 to 4
Digital channels	0 to 16	0 to 16	16	0
Maximum sample rate	2 GSa/s to 5 GSa/s	5 GSa/s to 20 GSa/s	16 GSa/s	128 GSa/s to 256 GSa/s
Maximum memory depth	1 Mpt to 100 Mpts	4 Mpts	1.6 Gpts	2 Gpts to 8 Gpts
ADC resolution	8 bits to 14 bits	8 bits	10 bits	10 bits to 12 bits
Display size	7-inch to 10.1-inch	12.1-inch	15.6-inch	15.4-inch to 15.6-inch
Brands included	1000 Series 2000 Series 3000 Series HD3 Series	4000 Series 6000 Series	EXR Series MXR Series	XR8 Series UXR Series
	Explore	Explore	Explore	Explore

Essential Benchtop Oscilloscopes

Enhanced capabilities in an entry-level oscilloscope

Keysight Essential oscilloscopes come in three classes. The XR1-class includes InfiniiVision 1000- and 2000-series, XR2 includes 3000-series, and XR3 includes HD3. Configure an Essential oscilloscope to meet your needs — where even the most affordable entry-level configuration integrates six instruments in one and provides auto-measurement capabilities. The XR3-class includes a 14-bit ADC with four times the resolution and half the noise floor of other general-purpose oscilloscopes. Keysight Essential oscilloscopes feature automated test software for mask testing, fast Fourier transform (FFT), and protocol triggering and decoding, plus histograms and Bode plots. Choose one of our popular configurations or configure one specific to your application.

> **Learn more about our Essential benchtop oscilloscopes**

6 instruments in 1

Keysight Essential oscilloscopes integrate an oscilloscope, wavegen, protocol analyzer, digital voltmeter, frequency counter, and frequency response analyzer in one instrument.

Serial bus analysis

Supports triggering and decoding on common serial buses like I^2C, UART / RS232, SPI, CAN, and LIN, ensuring accurate signal analysis and efficient troubleshooting across multiple protocols.

Automated measurement

Preprogrammed features you need to capture key parameters like frequency, amplitude, and rise time, without needing to manually configure measurements.

Compact and portable

Compact, lightweight Essential oscilloscopes enable you to take your testing with you and move your measurements to wherever you need.

Class	Included Brands	Range of Performance Specifications						
		Maximum Bandwidth	Analog Channels	Digital Channels	Max Sample Rate	Max Memory Depth	ADC Resolution	Display Size
XR1	InfiniiVision 1000- and 2000-series	70 MHz to 200 MHz	2 to 4	0 to 8	2 GSa/s	2 Mpts	8 bits	7 inch to 8.5 inch
XR2	InfiniiVision 3000-series	200 MHz to 1 GHz	2 to 4	0 to 16	5 GSa/s	4 Mpts	8 bits	8.5 inch
XR3	InfiniiVision HD3	200 MHz to 1 GHz (with bandwidth upgrades)	2 to 4	0 to 16	3.2 GSa/s	100 Mpts	14 bits	10.1 inch

View popular configurations

Advanced Benchtop Oscilloscopes
Real-time protocol analysis and higher bandwidth

Keysight Advanced oscilloscopes come in two classes. The XR4-class includes InfiniiVision 4000-series and XR5 includes the 6000-series. Advanced oscilloscopes offer the same core features and capabilities as our Essential grade, plus more. Discover enhanced features and performance such as hardware-based serial decoding, zone triggering, and seven instruments in one with the addition of mixed-signal oscilloscope (MSO) capability. Advanced oscilloscopes provide higher bandwidth, faster sample rates, segmented memory, and an enlarged touch screen display compared to our Essential grade. Advanced oscilloscopes are ideal for debugging designs that require jitter analysis, eye diagrams, and zone triggering. Choose one of our popular configurations or configure one specific to your application.

⊙ **Learn more about our Advanced benchtop oscilloscopes**

7 instruments in 1

Integrates an oscilloscope, wavegen, protocol analyzer, digital voltmeter, frequency counter, frequency response analyzer, and digital channels in one instrument.

Real-time protocol analysis

Capture and decode a wide variety of waveforms simultaneously, providing real-time insights and minimizing potential errors.

Triggering and memory

Gain deeper insights with enhanced triggering capabilities that reveal complex timing and signal behaviors and isolate key signal events with segmented memory.

Large touch screen

Navigate intuitively with a 12.1-inch touch screen using gestures like scrolling, pinch-to-zoom, and dragging.

Class	Included Brands	Range of Performance Specifications						
		Maximum Bandwidth	Analog Channels	Digital Channels	Max Sample Rate	Max Memory Depth	ADC Resolution	Display Size
XR4	InfiniiVision 4000-series	200 MHz to 1.5 GHz	2 to 4	0 to 16	5 GSa/s	4 Mpts	8 bits	12.1 inch
XR5	InfiniiVision 6000-series	1 GHz to 6 GHz (with bandwidth upgrades)	2 to 4	0 to 16	20 GSa/s	4 Mpts	8 bits	12.1 inch

View popular configurations

Expert Benchtop Oscilloscopes

Complex signal analysis with up to eight analog channels

Keysight XR6-class Expert oscilloscopes include Infiniium EXR and MXR. Expert oscilloscopes deliver up to eight analog channels. The MXR oscilloscopes provide eight instruments in one with the addition of a real-time spectrum analyzer, ideal for testing complex applications like 5G multiple-input / multiple-output (MIMO), radar, or satellite communications. As your needs evolve, you can upgrade your Expert oscilloscope remotely with a new license key, avoiding any downtime or the inconvenience of returning it to the factory. Choose one of our popular configurations or configure one specific to your application.

> **Learn more about our Expert benchtop oscilloscopes**

High-channel density

Analyze up to eight analog channels simultaneously, plus up to 16 additional digital channels.

Automated fault detection

Evaluate your signal's characteristics against user-definable criteria, quickly finding and saving errors for your review.

Powerful test applications

Select from a robust suite of powerful software for signal integrity, power integrity, protocol decode, RF, and compliance testing.

Field upgradeable

Upgrade the bandwidth, memory, and channels you need anytime with a simple license key.

Class	Included Brands	Range of Performance Specifications						
		Maximum Bandwidth	Analog Channels	Digital Channels	Max Sample Rate	Max Memory Depth	ADC Resolution	Display Size
XR6	Infiniium EXR and MXR	500 MHz to 6 GHz	4 to 8	16	16 GSa/s	1.6 Gpts	10 bits	15.6 inch

View popular configurations

Pro Benchtop Oscilloscopes
Highest-performance in a workbench oscilloscope

Keysight Pro oscilloscopes come in two classes. The XR8-class includes the XR8 oscilloscope, and the XR9-class includes the complete line of Infiniium UXR series configurations. Pro oscilloscopes are our highest-performance models, ideal for next-generation research and development, high-speed compliance testing, photonic device testing, and more. Conquer your most difficult measurement challenges with our highest bandwidth and low noise floor oscilloscopes. Choose one of our popular configurations or configure one specific to your application.

> **Learn more about our Pro benchtop oscilloscopes**

Ultra-wide bandwidth

Develop next-generation technologies with bandwidths up to 110 GHz, enabling precise signal capture and analysis for cutting-edge applications.

Fast sample rate

Capture and analyze high-speed signals with our highest sampling rate up to 256 GSa/s, providing detailed insights into transients, jitter, and noise.

High signal integrity

Display signals accurately with low noise and jitter, high ENOB, and up to 12-bit vertical resolution.

Compliance test software

Test compliance for research and development of next-generation standards like PCIe®, DDR, MIPI®, and more.

Class	Included Brands	Range of Performance Specifications						
		Maximum Bandwidth	**Analog Channels**	**Front End Connector Size**	**Max Sample Rate**	**Max Memory Depth**	**ADC Resolution**	**Display Size**
XR8	XR8	33 GHz	4	2.92 mm	128 GSa/s	4 Gpts	12 bits	15.6 inch
XR9	Infiniium UXR	10 GHz to 110 GHz	2 to 4	1 mm to 3.5 mm	256 GSa/s	2 Gpts	10 bits	15.4 inch

View popular configurations

Modular Oscilloscopes

Benchtop capabilities in a compact form factor

Keysight modular oscilloscopes provide you with the power of a benchtop oscilloscope in a compact, flexible form factor, helping you save valuable rack space. Get the same performance level as our Essential and Advanced oscilloscopes in a high-density PXIe module.

With three models ranging from 200 MHz to 1 GHz, select the modular oscilloscope that is right for your application.

See catalog

Bandwidth	**200 MHz to 1 GHz**
Analog channels	**2**
Maximum sample rate	**5 GSa/s**
Maximum memory depth	**4 Mpts**

Software and Accessories

Find compatible software and accessories for your oscilloscope

Explore the wide variety of compliance, debugging, and application-specific software on our oscilloscopes. Keysight oscilloscopes offer exceptional support for serial protocol triggering and decoding, automotive communications analysis, USB analysis, and power supply characterization. Our higher-performance models support signal integrity analysis, including jitter, vertical, and phase noise analysis, PAM modulation analysis, de-embedding, and enhanced power integrity analysis. You can also use our vector signal analysis software suite to analyze over 75 standard wireless signals and modulation types. Our compliance software suites help you validate and ensure compliance with the latest standards like USB, PCIe, DDR, Ethernet, HDMI, and MIPI. Pair your software with the probes, cables, and calibration kits needed to make the right measurements for your application.

Power your oscilloscope with a wide range of specialty software:

- signal analysis
- jitter analysis
- phase noise
- compliance packages
- protocol analysis
- high-speed serial bus
- premium bundles

Explore software

Get more functionality out of your oscilloscope by pairing it with the right accessories, including:

- active probes
- passive probes
- differential probes
- Hi-Z probes
- power rail probes
- temperature probes
- termination adapters

Explore accessories

Keysight Support Services

Explore the services that are right for you

Keysight Support Services can reduce your learning curve, enhance your uptime, ensure the accuracy of your testing equipment, and provide the expertise you require, precisely when and where you need it.

Maximize your instrument uptime, quickly optimize your test measurements, and get the answers you need at our fastest available times. KeysightCare curated support plans bundle critical services with prioritized response and turnaround times. **High-performance instruments include one year of KeysightCare Assured.**

Explore support services

Calibration
Ensure your test system performs to specification and meets local and global standards.

Repair
Restore equipment to original functionality and specifications with trained technicians.

KeysightCare
Innovate at speed with curated support plans and prioritized response and turnaround times.

Education
Make measurements quickly with eLearning and in-house, instructor-led training.

Keysight Support
Get 24x7 access to service requests, case management help, and technical articles.

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