Infiniium MXR B-Series

Design Without Compromise

Introduction

Minimize the risk of launching products susceptible to bugs and failures with an oscilloscope that displays the truest, granular details. Built from the same high-performance standard set by the MXR A, the MXR B-Series boasts newer, hardware-accelerated technology that speeds up test time. In addition to faster hardware, the MXR B-Series includes standard features like Keysight's state-of-the-art InfiniiScan Event Identification Software, a built-in, 50 MHz arbitrary waveform generator, and a 50 MHz frequency response analyzer. The automated analysis tools, extra-low, front-end noise, and uncompromised performance of the MXR B-Series enable you to test faster, shorten time to market, and design without compromise using an oscilloscope that delivers dependable results.



KEYSIGHT

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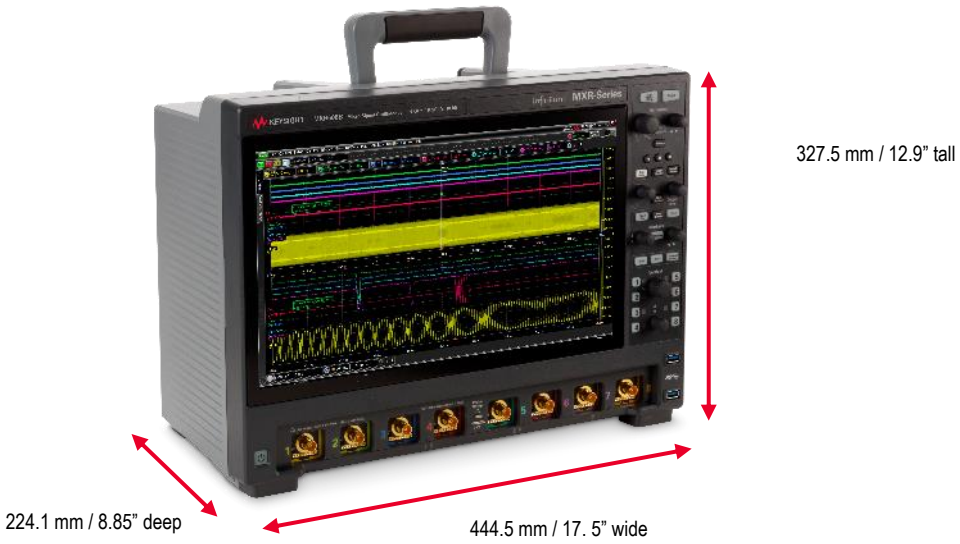
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About the Infiniium MXR B-Series

Welcome to the Infiniium MXR B-Series. With twelve models ranging in performance from 500 MHz to 6 GHz, 4 or 8 analog channels, and dozens of hardware and software options, the Infiniium MXR B-Series is designed to meet your needs today. With a fully upgradeable platform, it will be ready for your measurement needs tomorrow.



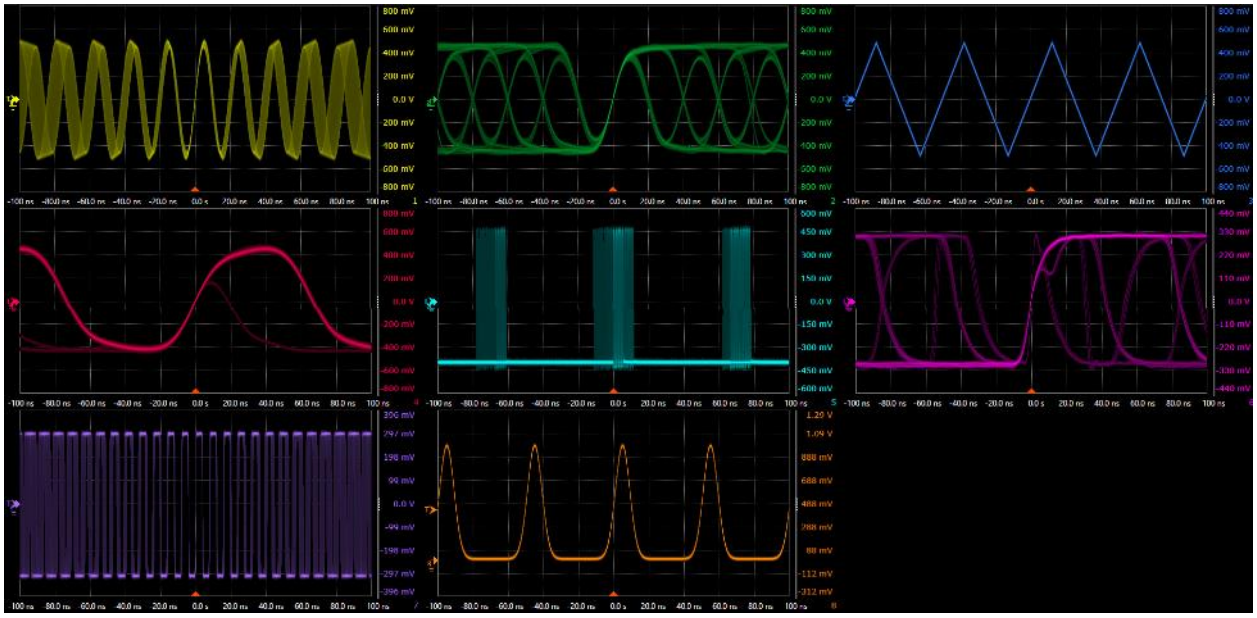
Infiniium MXR B-Series specifications

Analog channels	4 or 8, *upgradeable*
Bandwidth	500 MHz to 6 GHz, *upgradeable*
Sample rate	16 GSa/s
Memory	200 Mpts, *upgradeable* to 400 Mpts or 1.6 Gpts flexible memory [1]
Resolution	10 bits, up to 16 with high resolution
ENOB	As high as 9.0
Timebase accuracy	8 parts per billion
Intrinsic Jitter	As low as 118 fs
Noise (1 mV/div)	As low as 43 µV
Digital logic channels	16, dedicated input, *upgradeable*
Integrated tools	8-in-1
Eye diagram speed	> 750,000 UI/s
Screen display	15.6” touch, full HD, dual screen support

1. See data sheet spec tables to learn more about the 1.6 Gpts combined flexible memory option.

Model numbers	4 channels	8 channels
500 MHz	MXR054B	MXR058B
1 GHz	MXR104B	MXR108B
2 GHz	MXR204B	MXR208B
2.5 GHz	MXR254B	MXR258B
4 GHz	MXR404B	MXR408B
6 GHz	MXR604B	MXR608B

Integrated tools	Option
16 digital channels	MXR2MSO
50 MHz waveform generator	Standard
50 MHz frequency response analyzer	Standard
RTSA, DDC	MXR2RTSA
4-digit DVM, 10-digit counters	Standard
Protocol analysis	Over 50 supported protocols, see page 16



See More in the Time Domain with Eight Analog Channels

The Infiniium MXR B-Series is the only oscilloscope to offer 6 GHz bandwidth and 16 GSa/s sample rate on all eight channels. Combined with 200 Mpts of standard memory per channel, flexible, three-stage triggering, over 50 standard measurements, a massive library of application-specific analysis packages, and hardware-accelerated testing, the Infiniium MXR B-Series lets you see more of your signal than ever before.

See More with World-Class Signal Integrity

Each model incorporates a 10-bit ADC with a sample rate of 16 GSa/s available on all channels simultaneously. A high-resolution ADC's usefulness is dependent on the low-noise front end that supports the additional quantization levels. Our low-noise front end includes custom ICs, like the 130 nm BiCMOS IC that incorporates user-selectable analog filters and bandwidth upgrades via a software license. This gives you:

- 4 times more vertical resolution than 8-bit oscilloscopes
- Up to 16 bits with high-res mode
- As low as 43 µV of noise, 9.0 bits system ENOB with hardware filtering



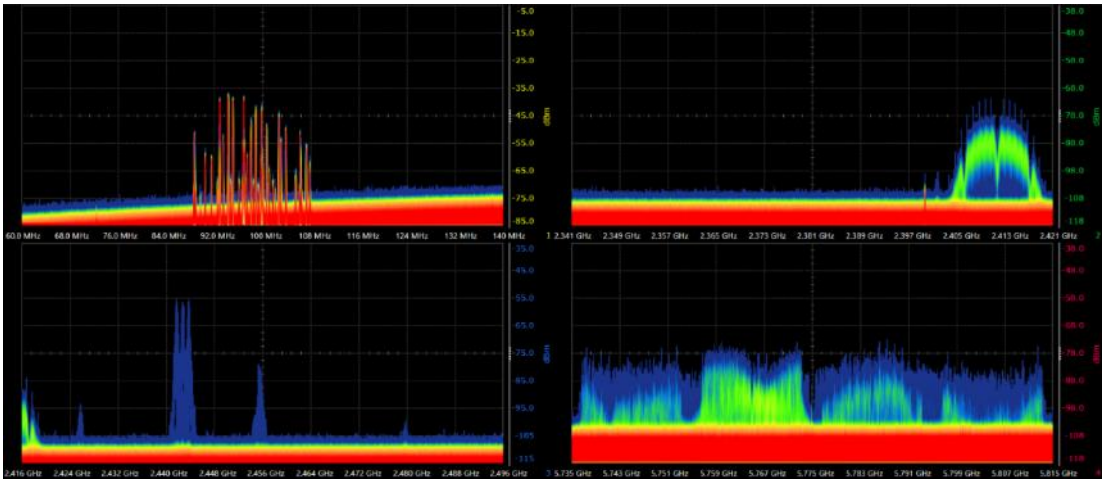


See More Information with History Mode and Segmented Memory

The Infiniium MXR B-Series comes standard with two useful tools that allow you to look forward and backward in time. With history mode, simply stop the oscilloscope at any time to review up to 1,024 previous trigger events. With segmented memory, you can capture > 100,000 events post-trigger for analysis, with no limit between events. If your design has an elusive event that only seems to happen when you're not around, these tools can help you arm the oscilloscope to look for it, then let you review what gets captured at your leisure. And with a full HD screen of 1920x1080 pixels, and support for a second, independent external monitor, that data can be organized and displayed however is best for you.

See More in the Frequency Domain with Real-Time Spectrum Analysis

Perform powerful RF analysis with up to 8 phase-coherent channels, all at once. Digitally down-convert data on all 8 channels simultaneously with an analysis bandwidth up to 2 GHz. The RTSA view in the Infiniium MXR B-Series provides spans from 40 MHz to 320 MHz. In this image, we're viewing (clockwise) local US radio stations (~100 MHz), 2.4 GHz WLAN channel 1, 5 GHz WLAN channel 157, and Bluetooth all at once. And since the data is a fully upgradeable platform from the analog channel inputs, they are phase coherent by definition, with only a standard calibration required to ensure accuracy. With a maximum frequency range of 6 GHz, the Infiniium MXR B-Series easily supports applications from ZigBee to 5G FR1.



Do More with 8-in-1 Instrument Integration

The Infiniium MXR B-Series is more than just an oscilloscope — it's 8 instruments in 1. Keysight Technologies, Inc. pioneered multiple-instrument integration with the release of the mixed signal oscilloscope (MSO) in 1996. The InfiniiVision 2000/3000/4000X-Series took the concept to the next level by integrating five instruments in one in 2011. The Infiniium MXR B-Series integrates eight instruments in one to establish a new integration standard with a real-time spectrum analyzer on an oscilloscope.

- Oscilloscope
- Logic analysis
- Real-time spectrum analysis
- Serial protocol analysis
- Waveform generator
- Frequency response analyzer
- Digital voltmeter
- Triple counters with totalizer



Product sizes to scale



Pictured below: a 10 MHz sine wave with frequency modulation generated from the built-in AWG, the scope measuring two signal frequencies with counters, and a third signal's DC voltage with the DVM. Channels do not need to be enabled for the counter and DVM to operate.

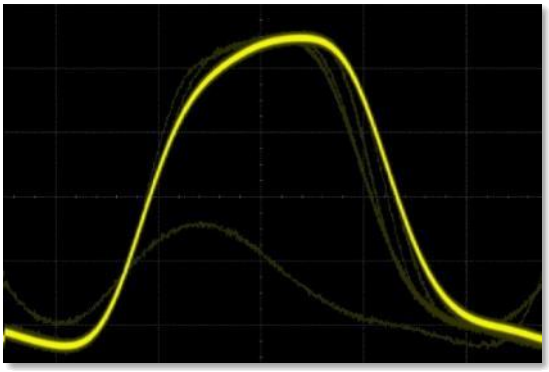


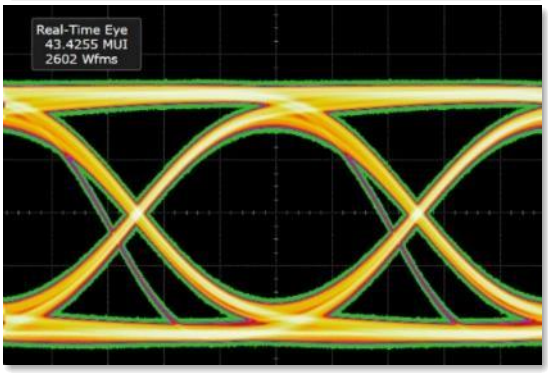
Save Time with Groundbreaking ASIC Technology

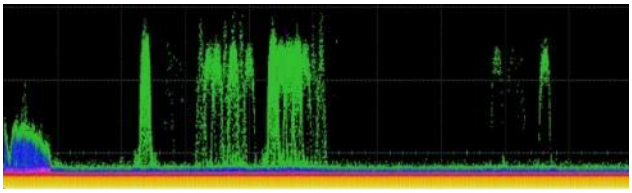
The Infiniium MXR B-Series leverages a 100M+ gate CMOS ASIC from our UXR B-Series oscilloscope, and acts as an “oscilloscope on a chip”. With many core oscilloscope features done in hardware, the performance of some features improved by 100x or more over previous generations, including:

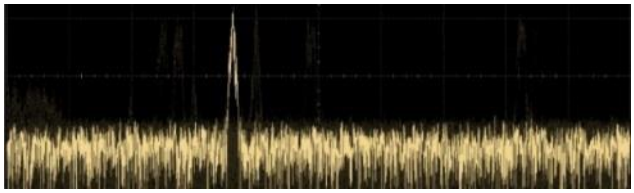
- Triggering and plotting: 200x faster
- Eye diagrams: 50x faster
- FFT plotting: 400x faster
- Waveform averaging: 120x faster
- And more!

In these images to the right, the fast trigger rate of >200,000 waveforms per second means seeing the runt on screen is instantaneous, even though it occurs only on 0.02% of pulses. Fast triggering lets you see rare events more readily, reducing test time by avoiding the usual tricks like infinite persistence to capture rare events. Eye diagrams are plotted at speeds over 750,000 UI per second, meaning six-sigma can be achieved in mere seconds. And below, RTSA’s speed of 200,000 FFT plots per second mean that even this bursty Bluetooth data is captured easily, while nearly invisible with usual FFT (~1,000 plots per second).









Save Time with the Fault Hunter Application

Fault Hunter is an innovative, expert system for inspecting digital systems. It automatically evaluates your signal's characteristics against user-definable criteria, quickly finding and saving errors for your review. It's flexible, and you can define the test duration from 60 seconds up to 48 hours. Set up your device under test on a Friday afternoon, and return Monday morning with a full test report to review, with billions of tests complete.

Completely Upgradeable

Today's project requires 4 channels of 1 GHz analysis bandwidth. What if your next project needs 8 channels, 6 GHz of analysis bandwidth, a waveform generator, and compliance testing? No problem with the Infiniium MXR B-Series, which is fully upgradeable – no exceptions.

The Infiniium MXR B-Series can be upgraded from 4 to 8 analog channels. Along with this, you can upgrade bandwidth, memory, integrated equipment, applications, and more after purchase, with just a license key. No matter how your needs change, the Infiniium MXR B-Series protects your investment by growing with your lab's needs of tomorrow.

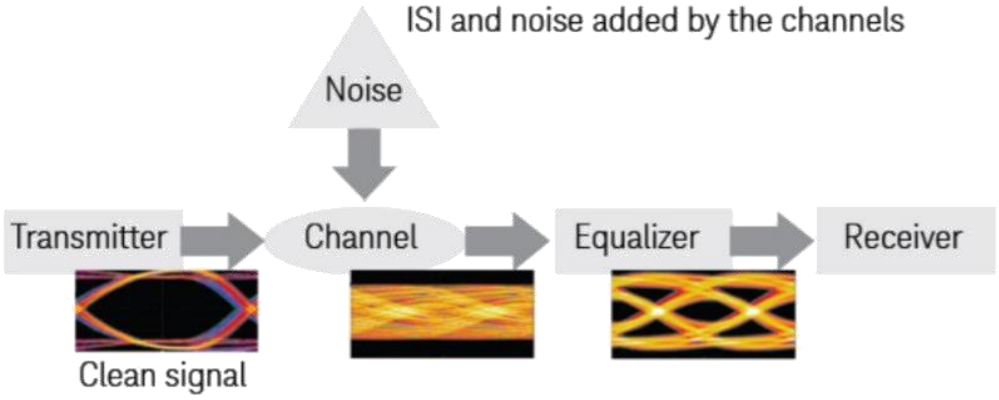


Post-purchase upgrades	Model
Add analog bandwidth, up to 6 GHz	MXR2BW
Add analog channels, 4 to 8	MXRB8CH
Add memory, 400 Mpts/ch or 1.6 Gpts/ch flexible memory	MXR2MEM
Add RTSA and DDC	MXR2RTSA
Add RF Frequency Extension, 6 GHz	MXR2FRE
Add MSO, 16 channels	MXR2MSO

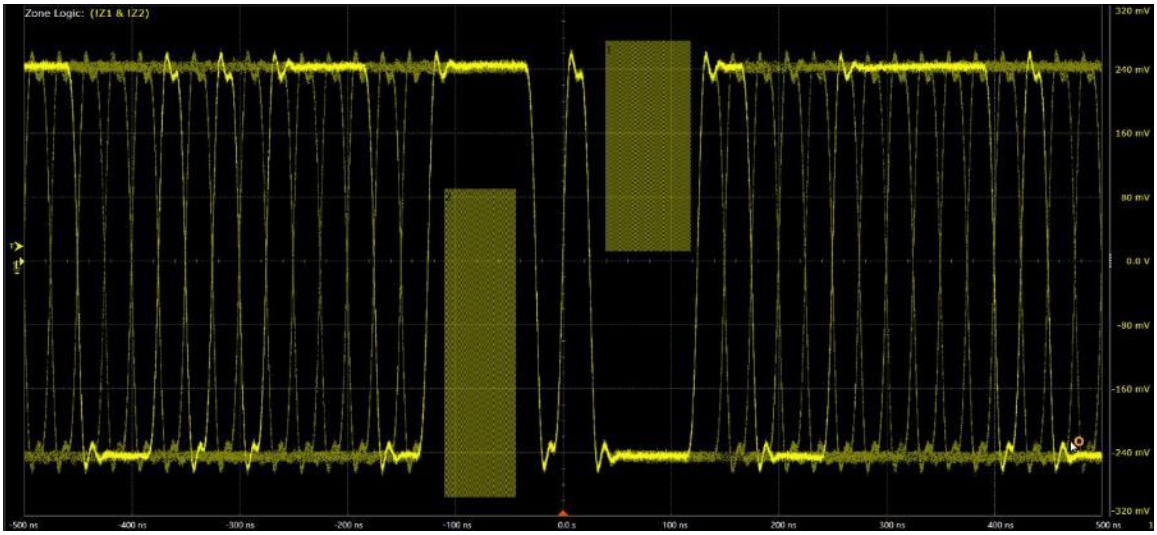


Comprehensive Testing Applications — Signal Integrity Testing

As data rates go up, the signal deteriorates from the transmitter to the receiver due to ISI, noise, and other factors. A high data rate coupled with a lossy channel will cause an open eye at a transmitter to be closed at the receiver. As eyes get more and more closed, it ultimately leads to significant data corruption and errors. Being able to analyze and find the root cause of these problems can help you develop a more robust design, leading to a shorter time to market and lower failure rates in the field. The Infiniium MXR B-Series offers applications of various levels of depth to help you get the answers you need to improve your design.



InfiniiScan advanced and zone triggering – standard



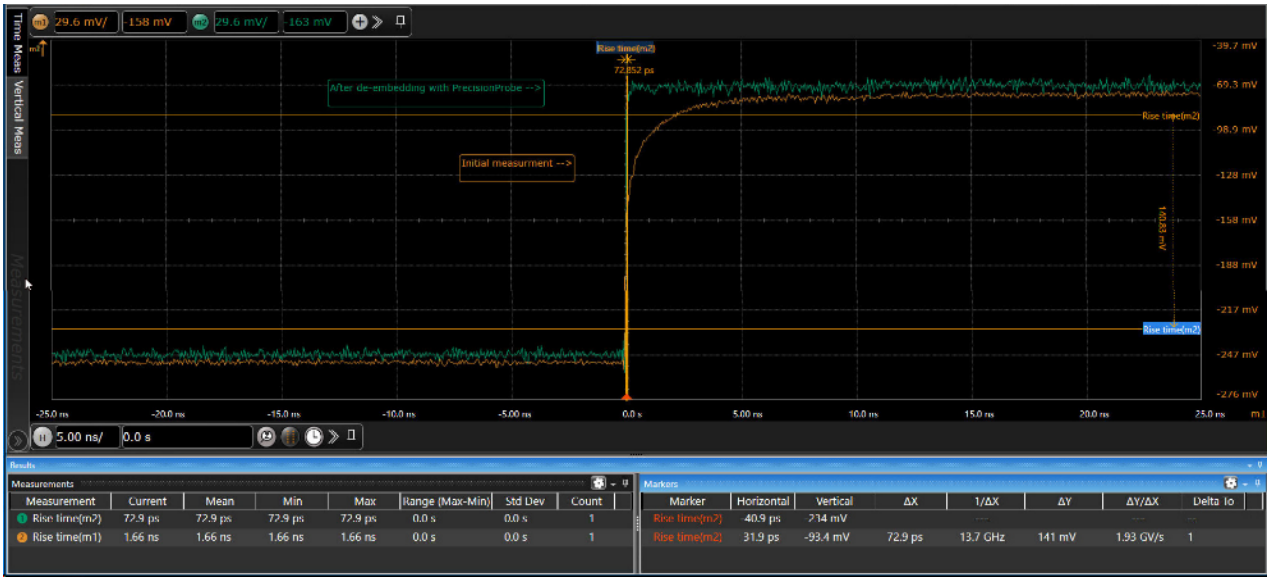
This package allows you to create a three-stage trigger to identify signal integrity issues that hardware triggering is unable to find in your electronic designs. This innovative software scans through thousands of acquired waveforms per second to help you isolate signal anomalies, saving you precious troubleshooting time. Trigger by drawing on-screen regions for a signal to hit or miss or based on measured parameters.

Vertical, timing, and phase noise analysis – D9010JITA



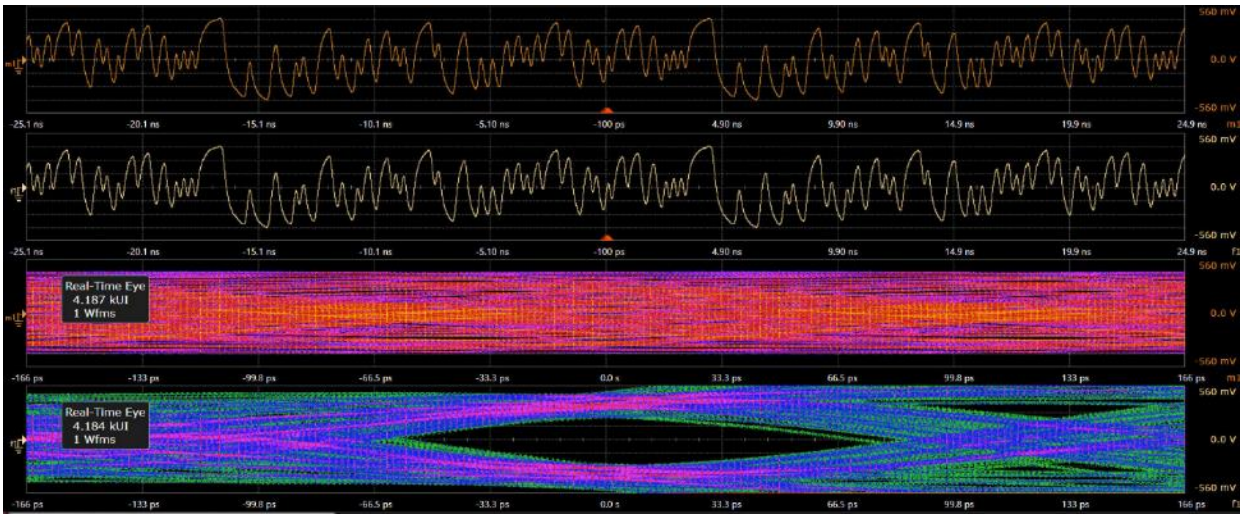
This package offers advanced statistical analysis of high-speed digital interfaces in the vertical (voltage) and horizontal (time) domains, as well as phase noise analysis. The result: the industry's most complete jitter and noise analysis software for real-time oscilloscopes.

De-embedding – D9010DMBA



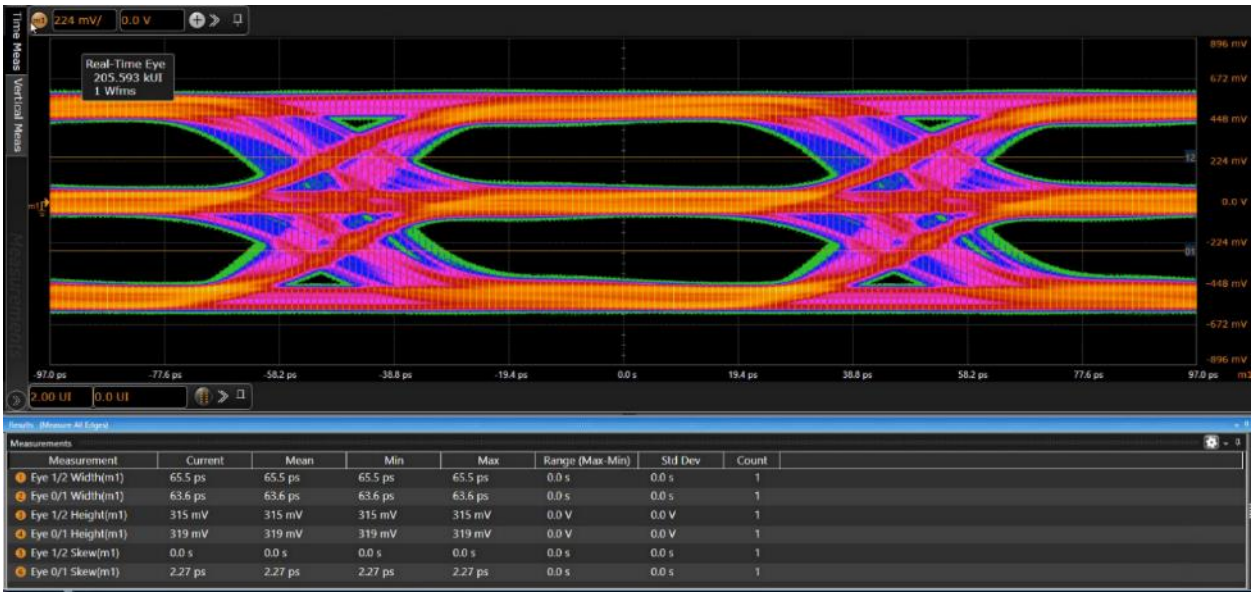
This package includes PrecisionProbe and InfiniiSim Basic, two tools designed to de-embed the effect of cables and fixtures from measurements. PrecisionProbe allows you to characterize the response of a probe, cable, or fixture; InfiniiSim lets you model them out of a measurement.

Equalization and crosstalk – D9010ASIA



This package is intended for anyone working in high-speed digital applications where eyes are closed. Equalization, InfiniiSim, and Crosstalk/Power Integrity packages enable deep analysis as to why an eye is closed, what it will take to open it, and simulating the results.

PAMn analysis – D9011PAMA



This package quickly sets up clock recovery and measurements for a PAM-encoded signal. The software is also able to accurately set the individual threshold levels of your PAM signal and render each eye. It also includes BER/SER measurements and statistics.

Comprehensive Testing Applications — Power Supply, Rail, and PMIC Testing

The increased functionality, higher density, and higher-frequency operation of many modern electronic products have driven the need for lower supply voltages. It is common in many designs today to have 3.3, 1.8, 1.5, and even 1.1 V DC supplies—each of them having tighter tolerances than in previous product generations.

Power supply-induced jitter (PSIJ) can be one of the largest sources of clock and data jitter in digital systems. Similarly, noise on DC supplies is often caused by switching currents from the transitions of the clock and data in these systems. Wouldn't you like a relatively easy method of determining how much of your systems' data jitter is PSIJ and/or how much of the noise on the DC supplies is coming from specific clocks, data lines, or other toggling sources? We've got the tools for that in the Infiniium MXR B-Series.

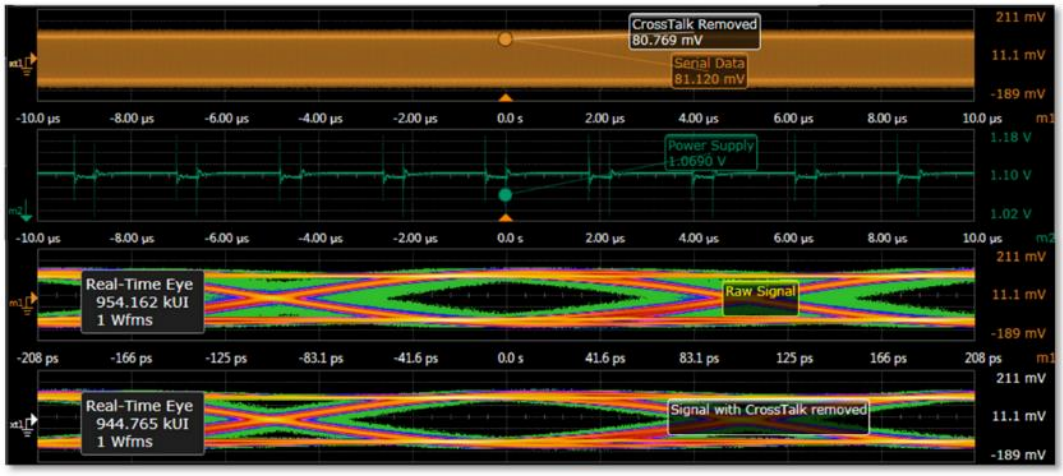
Switch mode supplies — D9010PWRA



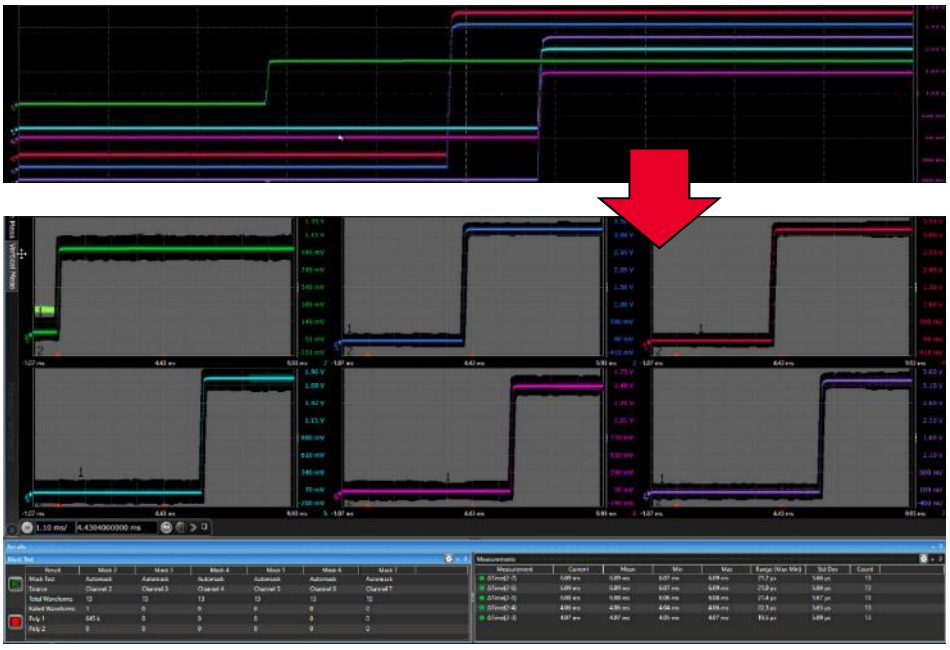
This application enables a broad range of automated power supply characterization measurements from input analysis, switching device characterization, and output analysis. It also includes critical frequency response measurements such as power supply rejection ratio (PSRR) and control loop response. Additionally, users can create Bode plots from DC to 50 MHz, both magnitude and phase, with D9010PWRA. See the data sheet for more.

Power rail and PMIC integrity — D9010POWA

This application is a tool for analyzing power supply-induced jitter or switching current loads on a DC supply and can analyze adverse interactions and their effects without the need for simulation or complex modeling. Together with the N7020A or N7024A Power Rail Probe, you have an even more powerful means of measuring and analyzing power integrity. And with standard mask testing on every channel, automatic delta time measurements, and a flexible user interface, PMIC analysis is simpler than ever.

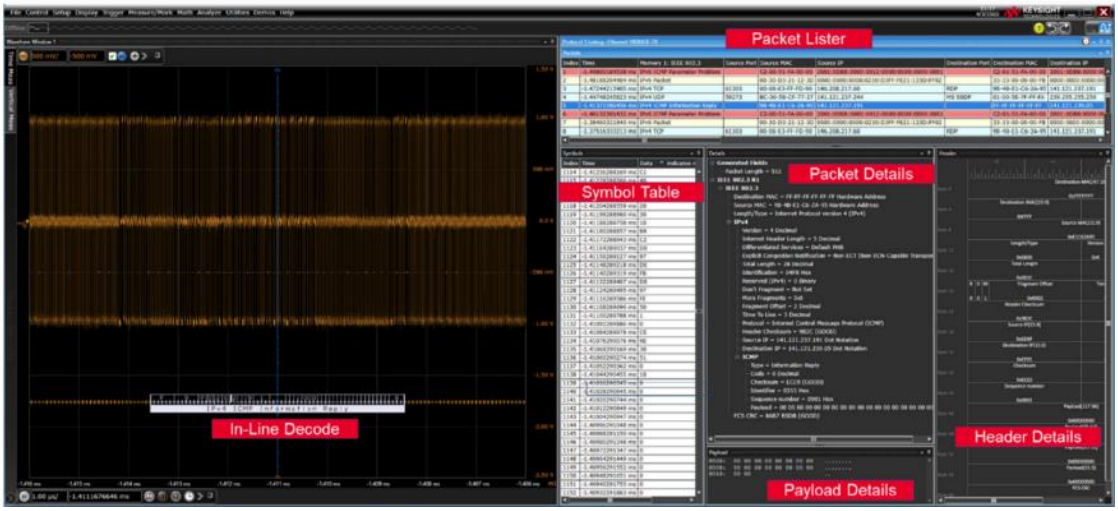


By simulating a power supply with less noise, we can realize much wider eye diagrams, leading to a more robust transfer of data.



With waveforms separated into grids and independent mask tests possible on every channel, you can continuously test these six power rails over thousands of startup cycles.

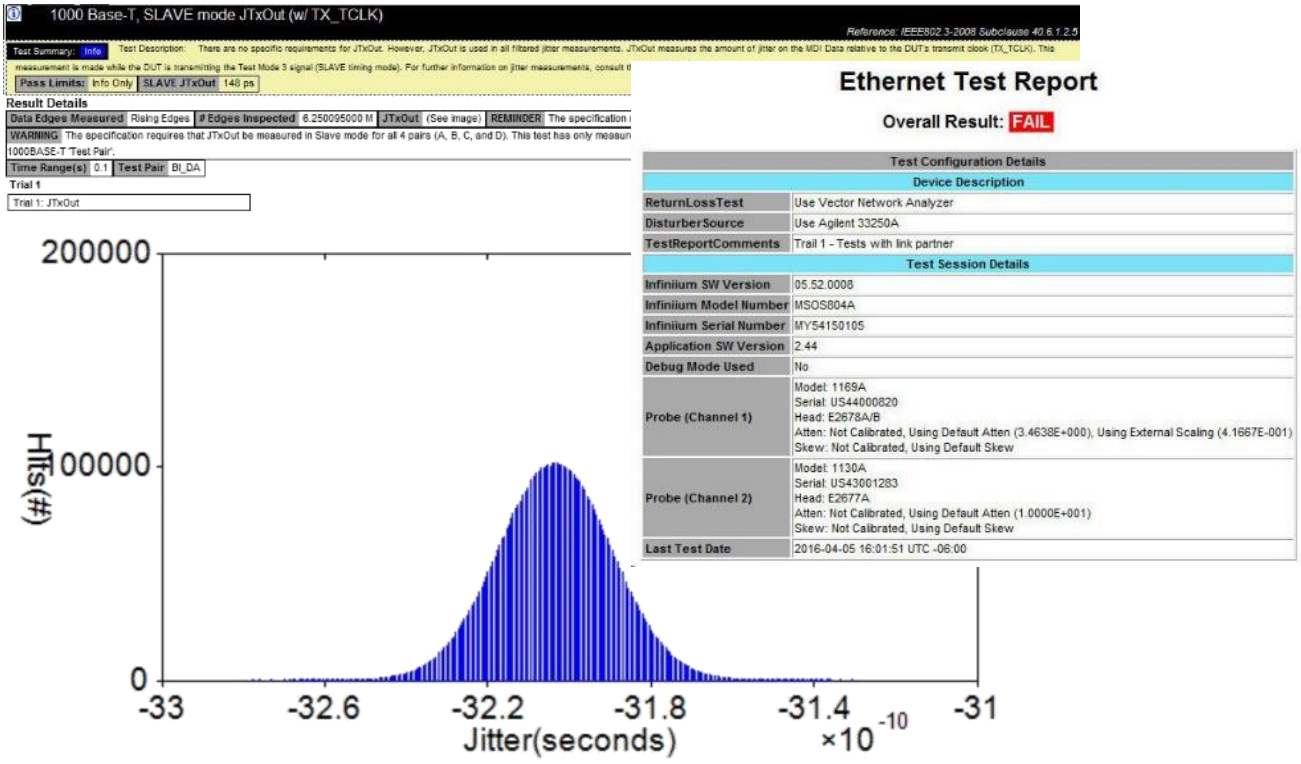
Comprehensive Testing Applications — Industry-Specific Protocol Testing



Our protocol trigger and decode packages make it easy to debug and test digital designs. Get access to a rich set of integrated protocol-level triggers specific to each serial bus. When serial triggering is selected, the application enables special real-time triggering hardware inside the scope. Hardware-based triggering ensures that the scope never misses a trigger event when armed. This hardware takes signals acquired using either scope or digital channels and reconstructs protocol frames. It then inspects these protocol frames against specified protocol-level trigger conditions and triggers when the condition is met.

Package	Description	Model
Low-Speed Serial	I2C, SPI, Quad SPI, eSPI, Quad eSPI, RS232, UART, JTAG, I2S, SVID, Manchester	D9010LSSP
Embedded	USB 2.0, 10/100 Mb/s Ethernet, USB-PD, eUSB2, USB HSIC, PCIe Gen 1 (decode), DisplayPort 2.1 AUX Channel	D9010EMBP
Low-Speed Automotive	CAN, LIN, CAN FD, CAN XL, SENT, FlexRay	D9010AUTP
MIPI Low Speed	RFFE, I3C, SPMI	D9010MPLP
MIPI C-PHY, D-PHY	C-PHY/D-PHY based CSI & DSI (Up to 2.5 Gbps)	D9010MCDP
MIPI M-PHY	CSI 3, DigRFv4, LLI, UniPro, UFS, SSIC (Up to Gear 1 Speed)	D9010MPMP
Military	ARINC 429, MIL-STD 1553, SpaceWire	D9010MILP
High-Speed Automotive	100BASE-T1 Automotive Ethernet	D9020AUTP
USB	USB 2.0, eUSB2, USB4 LS (decode), DisplayPort 2.1 AUX Channel	D9010USBP
Infiniium Basic Bundle	Includes D9010LSSP, D9010EMBP, D9010MPLP, D9010MILP, D9010AUTP	D9011BDLP

Comprehensive Testing Applications — Compliance Testing



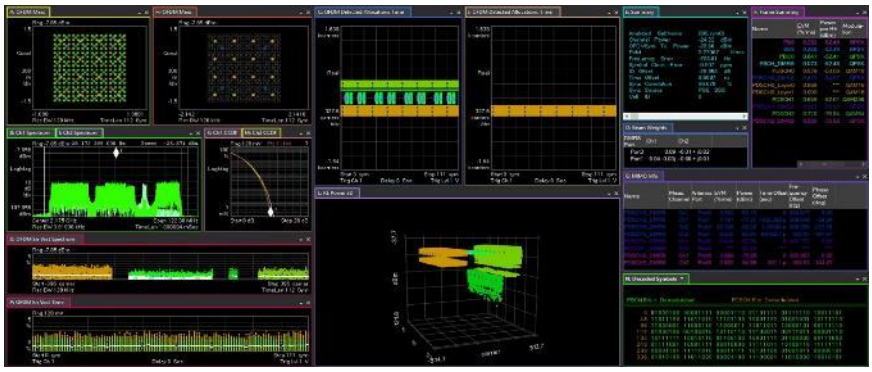
Compliance test applications on the Infiniium MXR B-Series provide a fast and effortless way to validate that your designs meet industry standards. They save you time and money by automating the task of performing compliance measurements based on the latest requirements. These test applications offer a user-friendly setup wizard and a comprehensive report that includes margin analysis. Contact Keysight if you are looking for a compliance test solution, so we can help you pick the right tools for the job.

Standard	Description	Rec'd BW	Software model
USB 2.0	USB 2.0 Transmitter	2 GHz	D9010USBC
Ethernet	10M/100M/1GBASE-T and Energy-Efficient Ethernet	1 GHz	D9010ETHC
Ethernet	10G, MG Base-T, N-Base-T	4 GHz	D9010EBZC
Automotive Ethernet	5GBASE-T1	6 GHz	AE6910T
	2.5BASE-T1	4 GHz	
	1000BASE-T1	2.5 GHz	
	100BASE-T1	1 GHz	
	10BASE-T1S	500 MHz	
C-PHY	MIPI C-PHY, up to 1.5 Gbps	6 GHz	D9010CPHC
D-PHY	MIPI D-PHY, up to 1.5 Gbps (up to CTS v1.2)	6 GHz	D9020DPHC
JEDEC	DDR3 and LPDDR3 Compliance Test Software	6 GHz	D9030DDRC

Comprehensive Testing Applications — RF Testing

With digital down-conversion (DDC) on every channel, the Infiniium MXR B-Series provides you with much more flexibility and affordability for RF testing, as well as never before seen test performance. Digitally down-converted data can be displayed and measured on screen, visualized in a Real-Time Spectrum Analyzer (RTSA) mode, or exported to PathWave Vector Signal Analysis (89600 VSA) for further measurements. All models come standard with 40 MHz of analysis bandwidth for DDC and RTSA on one center frequency, with options for 160 or 320 MHz of analysis on 4 or 8 different center frequencies.

And with our Frequency Extension option, the frequency range for DDC and RTSA is not limited to the bandwidth of your oscilloscope. For example, if your measurement needs in the time domain only call for 2 GHz of analog bandwidth, but you wish to analyze wireless data up to 6 GHz, you can purchase a 2 GHz Infiniium MXR B-Series and still get 6 GHz analysis with DDC and RTSA. See specifications for details.



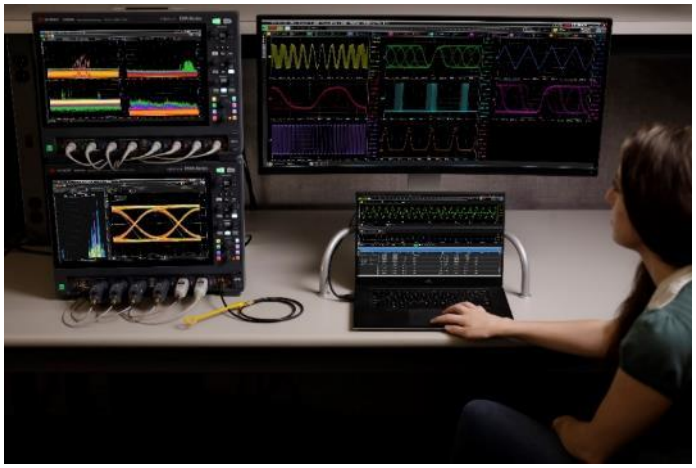


Configuration	Frequency range	Analysis bandwidth	Center frequency control
Standard Performance	0 Hz to Oscilloscope Bandwidth	40 MHz	All channels are locked together
+ RTSA/DDC Option	0 Hz to Oscilloscope Bandwidth	RTSA: 160/320 MHz DDC: 2 GHz	Independent per channel
+ RTSA/DDC Option + Frequency Extension Option	0 Hz to 6 GHz	RTSA: 160/320 MHz DDC: 2 GHz	Independent per channel

Comprehensive Testing Applications — MultiScope

With software 11.10 or greater, you can combine multiple MXR B-Series oscilloscopes using a cabling system to perform up to 40 channel tests. This gives you the ability to have individual 4 or 8 channel oscilloscopes when needed and combine oscilloscopes on the fly when higher channel density measurements are required. All channels from each oscilloscope can be viewed and analyzed on a “leader” oscilloscope or managed from your PC using Infiniium Offline.

MultiScope is a standard feature of the MXR B-Series oscilloscope and of Infiniium Offline – the only requirement to combine two oscilloscopes is the cabling kit. Specifications for frame-to-frame jitter, setup instructions, and ordering information can be found in the MultiScope Brochure and User’s Guide. Simply search for “MultiScope” on our website or look in the technical documentation on your oscilloscope model’s product page.



Comprehensive Testing Applications — Infiniium Offline

You depend on your oscilloscope to capture an accurate picture of what’s happening in your design. But in today’s environment, you may find yourself in a variety of situations where access to an oscilloscope is limited. you may be sharing the instrument with others in the lab, have limited site access, or are trying to collaborate with a colleague remotely. Infiniium Offline can solve all of these problems, and more.

Infiniium Offline (D9010BSEO) is a copy of the same powerful software provided on your Infiniium MXR-Series oscilloscope, just without the oscilloscope hardware. If you wish to control an oscilloscope remotely from the comfort of your desk or home office, the hosted mode can connect and control a single MXR B-Series, or many MXR B-Series with the MultiScope application outlined above. When access to the oscilloscope is limited, you can capture waveforms on your scope, save to a file, and recall the waveforms into Infiniium Offline from any PC. In addition, the application supports a variety of popular waveform formats from multiple oscilloscope vendors. Now you can view, analyze, share, and document scope measurements anywhere your PC goes. Find model numbers in the configuration guide at the end of this document.

Explore the Keysight Real-Time Oscilloscope Portfolio

Keysight engineers have been creating reliable, insightful products for more than 80 years. We are continually looking for new ways to help you shape the future with innovative products and test solutions. From high performance to extreme value, and bandwidths ranging from 50 MHz to more than 110 GHz, we have the oscilloscope solutions to meet your evolving needs. Below is a small sample of our portfolio; check our website for the latest information.



Products	1000 X	3000 G	EXR	MXR B	UXR B
Analog channels	2 or 4	2 or 4	4 or 8, upgradeable	4 or 8, upgradeable	1, 2 or 4, upgradeable
Max Bandwidth (all channels)	200 MHz	1 GHz	6 GHz	6 GHz	110 GHz
Max Sample rate (all channels)	1 GSa/s	2.5 GSa/s	16 GSa/s	16 GSa/s	256 GSa/s
Max memory (all channels)	1 Mpts	2 Mpts	400 Mpts	400 Mpts	2 Gpts
Resolution	8 bits	8 bits	10 bits	10 bits	10 bits
Timebase accuracy	50 ppm	1.6 ppm	8 ppb	8 ppb	25 ppb
Intrinsic Jitter	–	–	118 fs	118 fs	25 fs
Lowest noise (1 mV/div)	–	113 µV	43 µV	43 µV	150 µV
Max ENOB	–	–	9	9	6.8
Logic Analysis	–	16 ch	16 ch	16 ch	–
Hardware plotting	Yes	Yes	Yes	Yes	Yes
Screen display	7” WVGA	8.5” WVGA	15.6” Full HD	15.6” Full HD	15.4” XGA
DDC/RTSA	No	No	No	Yes – 40 MHz standard	Yes – 160 MHz standard

Performance Characteristics

Analog channel specifications

		MXR05xB	MXR10xB	MXR20xB	MXR25xB	MXR40xB	MXR60xB
Bandwidth (-3 db)	50 Ω [1]	500 MHz	1 GHz	2 GHz	2.5 GHz	4 GHz	6 GHz
	1 MΩ	500 MHz	500 MHz	500 MHz	500 MHz	500 MHz	500 MHz
Typical rise/fall time [4]	10/90%	860 ps	430 ps	215 ps	172 ps	107.5 ps	71.7 ps
	20/80%	620 ps	310 ps	155 ps	124 ps	77.5 ps	51.7 ps
Input channels		4 or 8 channels analog, 16 channels digital (optional)					
Sample rate, real-time		16 GSa/s, all analog channels [1]					
Sample resolution		62.5 ps (divide by interpolation factor, if enabled)					
Vertical resolution [3]		10 bits, up to 16 bits with high-resolution mode					
Real-time update rate		> 200,000 waveforms/sec					
Memory depth [1]	Standard	200 Mpts/channel, all channels					
	Optional	400 Mpts/channel, all channels (400 Mpts/ch option) 1.6 Gpts shared between channels 1-4, 5-8 (1.6 Gpts Combined Flexible Memory option) [6]					
Input impedance	50 Ω [1]	± 3.5% (typically ± 1% at 25 °C)					
	1 MΩ	± 1% (14 pF typical)					
Input sensitivity [3]	50 Ω [1]	1 mV/div to 1 V/div					
	1 MΩ	1 mV/div to 5 V/div					
Input coupling	50 Ω [1]	DC					
	1 MΩ	DC, AC (> 11 Hz)					
Bandwidth limit filters	Analog	20 MHz, 200 MHz					
	Digital [5]	14.7 MHz up to scope bandwidth, increments of one decimal point. Filter options: Brick Wall, 4th Order Bessel, or Bandpass					
Max input voltage	50 Ω	± 5 V_{MAX} [1]					
	1 MΩ	30 V_{RMS} or ± 40 V_{MAX} (DC + V_{PEAK})					
	Notes	Probing technology allows for testing of higher voltages; the included N2873A 10:1 probe supports 300 V_{RMS} or ± 400 V_{MAX} (DC + V_{PEAK}). No transient overvoltage allowed in either the 50 Ω or 1 MΩ path, with or without probes.					
Offset range	50 Ω [1]	≤ 55 mV/div: ± 0.8 V ≤ 120 mV/div: ± 1.6 V ≤ 260 mV/div: ± 3.2 V > 260 mV/div: ± 4 V					
	1 MΩ	< 10 mV/div: ± 5 V ≤ 200 mV/div: ± 20 V > 200 mV/div: ± 40 V					
Offset accuracy [1, 3]		< 2 V: ± 0.1 div ± 2 mV ± 1%; >2 V: ± 0.1 div ± 2 mV ± 1.5%					
Dynamic range		± 4 divisions from center screen					
DC gain accuracy [1, 2, 3]		± 2% full scale (±1% typical)					
DC voltage measurement accuracy [2]		Dual cursor: ± [(DC gain accuracy) + (resolution)] Single cursor: ± [(DC gain accuracy) + (offset accuracy) + (resolution/2)]					
Channel-channel isolation		Adjacent Channels: ≤ -60 dB (DC to 2 GHz), ≤ -50 dB (2 to 6 GHz) Non-Adjacent Channels: ≤ -85 dB (DC to 2 GHz), ≤ -65 dB (2 to 6 GHz)					

1. Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ± 5 °C from firmware calibration temperature. Input impedance is valid when V/div scaling is adjusted to show all waveform vertical values within the oscilloscope display.
2. Full scale is defined as 8 vertical divisions. Magnification is used below 2 mV/div, full-scale is defined as 16 mV. Testing is at maximum sample rate.
3. 50 Ω input: The major scale settings are 5 mV, 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, and 1 V per division. 1 MΩ input: The major scale settings are 5 mV, 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V, 2 V, and 5 V per division. For a 10:1 probe, vertical scaling is multiplied by 10.
4. 10/90 calculation based on Tr = 0.43/BW. 20/80 calculation based on Tr = 0.31/BW.
5. You may adjust bandwidth limits up to the bandwidth of the scope when using Brick Wall filter. When using 4th Order Bessel, maximum bandwidth limit is roughly 2/3 the bandwidth of oscilloscope. Bandpass is designed for use in our Phase Noise Analysis application and not designed for general purpose use. Contact Keysight if more information is needed.
6. Combined flexible memory shares 1.6 Gpts of memory between channels 1 through 4. This means you can have 1 channel with 1.6 Gpts, two channels with 800 Mpts, or three channels with 533 Mpts memory (on top of 400 Mpts on all channels). Double those channel counts for 8 channel models, as the same logic applies to channels 5-8.

High-resolution mode (standard)

Bits of resolution	Sample rate	Bandwidth [1]
10	Up to 16 GSa/s	Up to 6 GHz
11	6.4 GSa/s	2.4 GHz
12	3.2 GSa/s	1.2 GHz
13	1.6 GSa/s	600 MHz
14	800 MSa/s	300 MHz
15	400 MSa/s	165 MHz
16	200 MSa/s	82.5 MHz
16	100 MSa/s	41.3 MHz
16	50 MSa/s	20.6 MHz

1. Up to bandwidth specified or oscilloscope model bandwidth, whichever is lower.

RMS noise floor ($V_{RMS\ AC}$) on 50 Ω inputs

Vertical setting	20 MHz [1]	200 MHz [1]	500 MHz [1]	1 GHz [1]	2 GHz [1]	2.5 GHz	4 GHz	6 GHz
1, 2 mV/div	43 µV	59 µV	63 µV	73 µV	91 µV	100 µV	132 µV	193 µV
5 mV/div	40 µV	61 µV	70 µV	81 µV	102 µV	112 µV	149 µV	216 µV
10 mV/div	46 µV	69 µV	81 µV	99 µV	131 µV	144 µV	189 µV	251 µV
20 mV/div	59 µV	99 µV	122 µV	156 µV	209 µV	233 µV	297 µV	401 µV
50 mV/div	210 µV	278 µV	328 µV	401 µV	520 µV	569 µV	719 µV	971 µV
100 mV/div	452 µV	582 µV	681 µV	821 µV	1.06 mV	1.17 mV	1.46 mV	2.03 mV
1 V/div	2.95 mV	4.10 mV	5.07 mV	6.33 mV	8.4 mV	9.31 mV	11.91 mV	16.26 mV

1. High-resolution is used for bandwidths 2 GHz and below. Keysight recommends this to maximize signal to noise ratio and still meet the system bandwidth requirements you need for your measurement.

ENOB on 50 Ω inputs, 50 mV/div

20 MHz	200 MHz	250 MHz	350 MHz	500 MHz	1 GHz	2 GHz	2.5 GHz	3 GHz	4 GHz	5 GHz	6 GHz
9.0	8.5	8.4	8.3	8.2	8.0	7.6	7.5	7.4	7.2	7.1	6.8

High resolution on the Infiniium MXR B-Series works like no other oscilloscope before it. Instead of setting high-resolution bits automatically with no user control, you select ADC bits or a system bandwidth, and let the scope optimize around that. This means the resolution of your data isn't changing without your explicit request. ADC resolution and bandwidth limit filters work in tandem to produce the best measurement results possible.

All Infiniium MXR B-Series scopes come from the factory calibrated to 6 GHz, and leverage brickwall filters to achieve each model bandwidth. Thus, the noise and ENOB data above is applicable from 20 MHz up to the bandwidth of your oscilloscope model when using the built-in global bandwidth limit feature.

Analog channel specifications (horizontal)

Acquisition modes	Sample Mode	Sequential sampling with up to 32-point sin(x)/x interpolation	
	Averaging	2 to 1,048,575 averages, up to 12,000 avg/sec (HW accelerated)	
	Peak detect	Oversamples at 16 GSa/s, saving min and max voltages, to detect glitches or aliasing	
	Segmented	Up to 78,953 future acquisitions	
	History mode	Up to 1,024 previous acquisitions	
	Roll mode	Scrolls waveform across the display, right to left	
Timebase range	Roll mode	50 ms/div to 1000 s /div	
	Other modes	5 ps/div to 200 s/div	
	Zoom window	1 ps/div to current main time scale setting	
Horizontal position range		0 s to ± 200 s, continuously adjustable	
Horizontal position resolution	Main window	40 fs (granularity of horizontal position of waveform on screen)	
	Zoom window	8 fs	
De-skew range		± 1 ms, in steps of 100 fs	
Time scale accuracy [1, 7]		± (8 ppb initial + 75 ppb/year aging)	
Intra-channel intrinsic jitter [3, 5]		4 channel models	8 channel models
	100 ns/div	118 fs_{RMS}	150 fs_{RMS}
	1 µs/div	130 fs_{RMS} [9]	156 fs_{RMS}
	10 µs/div	140 fs_{RMS} [9]	172 fs_{RMS} [10]
	100 µs/div	145 fs_{RMS} [9]	175 fs_{RMS} [10]
	1 ms/div	155 fs_{RMS} [9]	181 fs_{RMS} [10]
Inter-channel intrinsic jitter [3]		100 fs_{RMS}	
Inter-channel skew drift [3, 6]		< 500 fs_{MAX}	
Intra-channel jitter measurement floor [2, 3]	Time interval error	$\sqrt{\left(\frac{\text{noise floor}}{\text{slew rate}}\right)^2 + (\text{intrinsic jitter})^2}$	
	Periodic	$\sqrt{2} \times \sqrt{\left(\frac{\text{noise floor}}{\text{slew rate}}\right)^2 + (\text{intrinsic jitter})^2}$	
	Cycle-cycle / N-cycle	$\sqrt{3} \times \sqrt{\left(\frac{\text{noise floor}}{\text{slew rate}}\right)^2 + (\text{intrinsic jitter})^2}$	
Inter-channel jitter measurement floor [2, 3, 4]		$\sqrt{\left(\begin{matrix}\text{Time interval}\\ \text{error (edge 1)}\end{matrix}\right)^2 + \left(\begin{matrix}\text{Time interval}\\ \text{error (edge 2)}\end{matrix}\right)^2 + \left(\begin{matrix}\text{inter} - \text{channel}\\ \text{intrinsic jitter}\end{matrix}\right)^2}$	
Delta time measurement accuracy [2, 3, 4, 8]	Intra-channel	$\pm\left[\frac{5}{n} \times \sqrt{\left[\begin{matrix}\text{Time interval}\\ \text{error (edge 1)}\end{matrix}\right]^2 + \left[\begin{matrix}\text{Time interval}\\ \text{error (edge 2)}\end{matrix}\right]^2} + \left(\left(\begin{matrix}\text{Time scale}\\ \text{accuracy}\end{matrix}\right) \times \left(\begin{matrix}\text{Delta}\\ \text{time}\end{matrix}\right)\right)\right]$	
	Inter-channel	$\pm\left[\frac{5}{n} \times \sqrt{\left[\begin{matrix}\text{Time interval}\\ \text{error (edge 1)}\end{matrix}\right]^2 + \left[\begin{matrix}\text{Time interval}\\ \text{error (edge 2)}\end{matrix}\right]^2 + \left[\begin{matrix}\text{Interchannel}\\ \text{intrinsic jitter}\end{matrix}\right]^2} + \left(\left(\begin{matrix}\text{Time scale}\\ \text{accuracy}\end{matrix}\right) \times \left(\begin{matrix}\text{Delta}\\ \text{time}\end{matrix}\right)\right) + \left(\begin{matrix}\text{Intechannel}\\ \text{skew drift}\end{matrix}\right)\right]$	

1. Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ± 5 °C from firmware calibration temperature.
2. Sample rate at maximum. Noise floor and slew rate determined at fixed-voltage measurement threshold, near middle of signal. Displayed signal not vertically clipped. Slew rate of sine wave = (peak signal amplitude) x 2πf; slew rate of fast edge = 0.8 * amplitude / (risetime 10-90%).
3. Intra-channel = both edges on the same channel, Inter-channel = two edges on different channels.
4. Scope channels and signal interconnect de-skewed prior to measurement.
5. External timebase reference values measured using a Wenzel 501-04608A 10 MHz reference. Intrinsic jitter value depends on acquisition time range for Time Interval Error formula and depends on delta-time between edges for all two-edge formulas.
6. Skew between channels caused by ± 5 degrees C temperature change.
7. Initial = immediately after factory or user calibration.
8. Reading is the displayed Delta Time Measurement Accuracy measurement value. Do not double the listed Time Scale Accuracy value in Delta Time Measurement Accuracy formula. 'n' represents the square root of the number of averages taken, e.g. n=1 is no averaging, n=16 is 256 averages. Averaging allows for more accurate delta time measurement accuracy.
9. 120 fs_{RMS} possible with external reference.
10. 161 fs_{RMS} possible with external reference.

Analog channel triggering

Trigger sources	Edge Trigger on all analog channels, aux-in, power supply line
	Other Trigger operations as outlined below
Max edge trigger frequency (50 Ω)	6 GHz
Trigger level range	± 4 divisions from center screen (auxiliary: ± 5 V, max input 5 VPP)
Trigger sensitivity	Analog channels: see next table
	Aux trigger input: 200 mVPP, DC to 3 GHz
Trigger hold off range	25 ns to 10 s, fixed or random
Trigger coupling	DC, AC, LF reject (50 kHz HPF), HF reject (50 kHz LPF)
Sweep modes	Auto, triggered, single
Trigger jitter	4 channel models: 523 fsRMS
	8 channel models: 531 fsRMS
Minimum trigger re-arm time	< 5 µs

Trigger edge sensitivity, analog channels

Bandwidth (HW or SW limit)		20 MHz	200 MHz	1 GHz	2.5 GHz	> 2.5 GHz
1 MΩ path	< 5 mV/div	< 0.7 div	< 1.0 div	< 1.4 div to BW limit (500 MHz)		
	≥ 5 mV/div	< 0.3 div	< 0.5 div	< 0.8 div to BW limit (500 MHz)		
50 Ω path	< 5 mV/div	< 0.15 div	< 0.2 div	< 0.3 div	< 0.45 div	< 0.6 div
	≥ 5 mV/div	0 div	0 div	< 0.1 div	< 0.1 div	< 0.6 div

Digital channel specifications (optional)

Analog bandwidth	300 MHz
Maximum sample rate	8 GSa/s, all channels
Maximum memory depth	At 8 GSa/s: 250 Mpts/ch
	Under 8 GSa/s: 125 Mpts/ch
Minimum detectable glitch	2 ns
Max input voltage	± 40 VPEAK
Input dynamic range	± 10 V about threshold
Minimum input voltage swing	500 mVPP
Input impedance	100 kΩ ± 2% (~8 pF) at probe tip
Resolution	1 bit
Channel to channel skew	200 ps (typical)
Threshold selections	TTL, CMOS (5.0 V, 3.3 V, 2.5 V), ECL, PECL, User-defined (± 8 V in 10 mV increments)
Threshold accuracy	± (100 mV + 3% of threshold setting)

Available triggers (standard, unless otherwise noted)

Trigger type	Channels available on	Description
Edge	Channels 1-8, digital, line, aux	Triggers on a specified slope (rising, falling or alternating between rising and falling) and voltage level on any channel or auxiliary trigger.
Edge transition	Channels 1-4	Triggers on rising or falling edges that cross two voltage levels in > or < the amount of time specified. Edge transition setting from 75 ps to 10 s
Edge then edge (time)	Channels 1-4, digital	The trigger is qualified by an edge. After a specified time-delay between 1.5 ns to 20 s, a rising or falling edge on any one selected input will generate the trigger
Edge then edge (event)	Channels 1-4, digital	The trigger is qualified by an edge. After a specified delay between 1 to 65,000,000,000 rising or falling edges, another rising or falling edge on any one selected input will generate the trigger
Pulse width	Channels 1-4, digital	Triggers on a pulse that is wider or narrower than the other pulses in your waveform by specifying a pulse width and a polarity. Pulse width range settings 75 ps to 20 s. Trigger point can be configured for “end of pulse” or “time out”
Glitch	Channels 1-8, digital	Triggers on glitches narrower than the other pulses in your waveform by specifying a width less than your narrowest pulse and a polarity. Glitch range settings: < 75 ps to < 10 s
Runt	Channels 1-4	Triggers on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again. Can be time qualified with a range of 75 ps to 10 s
Timeout	Channels 1-4, digital	Triggers the oscilloscope when the waveform has been at a higher voltage than the voltage specified by the Level control for too long (High Too Long), when the waveform has been at a lower voltage than the Level voltage for too long (Low Too Long), or when the waveform has taken too long to pass through the Level voltage (Unchanged Too Long). Timeout settings from 75 ps to 20 s.
Pattern/State	Channels 1-4, digital	Identifies a trigger condition by looking for a specified pattern or a pattern and an edge (state) across the input channels
Setup / hold	Channels 1-4	Triggers on violations of setup time, hold time, or both setup and hold time. Setup times from 75 ps to 20 s and hold times from 75 ps to 100 ns.
Window	Channels 1-4	Specifies a voltage range and then trigger when the waveform either exits this range, enters this range, stays outside the range for too long or too short, or stays inside the range for too long or too short. Range setting from 75 ps to 20 s.
Protocol	Bus dependent	Trigger on certain packets or patterns in protocol-based data. Requires a protocol trigger/decode option, for example D9010LSSP
Generic Protocol	Channels 1-8	Software triggers on NRZ or 8b/10b-encoded data up to 6 Gbps, up to 80-bit pattern. Support multiple clock data recovery methods including constant frequency, 1st-order PLL, 2nd-order PLL, explicit clock, explicit 1st-order PLL, explicit 2nd-order PLL, Fibre Channel, FlexRay receiver, FlexRay transmitter
Burst	Channels 1-4	Triggers on the Nth edge of a burst that occurs after an idle time from 1.5 ns to 20 s.
Nth Edge	Channels 1-8	Triggers on the Nth edge
OR’d Edges	Channels 1-4	Identifies a trigger condition by looking for selected edges on up to four channels
InfiniiScan Zone	Channels 1-8	Qualified trigger across up to 8 user-drawn zones. For each zone, user specifies “must intersect” or “must not intersect.” Zones can be drawn on analog channels and combined using Boolean logic.
Measurement limit	Channels 1-8, digital, line, aux	Software triggers on the results of the measurement values. For example, when the “time interval error (TIE)” is measured, InfiniiScan can trigger on a specific TIE value.
Non-monotonic edge	Channels 1-8	Software triggers on the non-monotonic edge. The non-monotonic edge is specified by setting a hysteresis value.

Serial Data Analysis (standard)

Real-Time Eye displays	> 750,000 Unit Intervals per second Unfolding of eye diagram BER eye contours (contact Keysight) Recovered clock display
Clock recovery methods	1st or 2nd order PLL, explicit clock, Golden PLL (for PCI Express)
Automation	One-click quick setup Complete setup wizard Custom mask templates, mask editor

Fault Hunter (standard)

Auto Setup	30 second statistical measurement analysis of incoming signal
Result information	Test failure automatically saved in memory. Fault condition can be copied to trigger for further testing.
Test results	Automatic identification of common digital signal errors: Positive glitch, negative glitch, slow rising edge, slow falling edge, positive runt, negative runt

Measurements (standard, unless otherwise noted)

Maximum at once	20 in either main, zoom, or gated region (up to 16 gates)
Maximum rate	> 300,000 measurements/second (any number of measurements on, “measure all edges” enabled)
Voltage (analog)	Amplitude, average, base, crossing point, maximum, minimum, overshoot and preshoot (as a percentage or voltage), VPP contrast, peak to peak, pulse (amplitude, base, top), RMS, top, thresholds (lower, middle, upper), voltage @ time
Time (analog)	Rise time, fall time, period, frequency, pulse width (+/-), duty cycle, TMIN, TMAX, crossing point time, delta time, pulse count, bursts (width, period, interval), s/h time
Time (digital)	Period, frequency, pulse width (+/-), duty cycle, delta time
Mixed (analog)	Area, slew rate, charge. Requires N282xA probe
Frequency domain	FFT frequency and magnitude, channel power, power spectral density, occupied bandwidth
Level qualification	Make timing measurements only when other input signal level conditions are true. Any channels not involved in a measurement can be used to qualify all timing measurements.
Eye diagrams	Eye height, eye width, eye jitter, crossing percentage, Q factor, duty-cycle distortion
	> 750,000 UI/second (for eye diagrams, with hardware acceleration enabled)
Statistic modes	Mean, standard deviation, minimum, maximum, count

Math (standard, unless otherwise noted)

Sources		Any analog or digital channel, waveform memory, or other math functions
Maximum at once		16
Functions	Math	Add, subtract, multiply, divide, FFT (magnitude and phase), absolute value, average, common mode, delay, differentiate, integrate, invert, max, min, square, square root
	Filters	High pass filter, low pass filter, smoothing
	Visualizations	Amplitude demodulation, bus chart, envelope, gating, histogram, pattern average, measurement log, measurement trend, magnify / duplicate, XY mode (Z-Qualified)
	MATLAB	Preinstalled scripts: Butterworth, FIR, LFE, RTEye, and SqrtSumOfSquare User Defined: The input source data is passed to a MATLAB script you create. The processed data is passed back to Infiniium to be displayed as a function. Requires a MATLAB license
FFT	Range	DC to Nyquist frequency
	Horizontal Scale	Linear, logarithmic
	Vertical Units	dBm, dBmV, dBuV, V_{RMS}, Watts
	Controls	Start and stop frequency, span and center frequency, resolution bandwidth
	Peak detect	Automatically find and annotate up to 25 peaks of a user-defined level
	Windows	Flattop, rectangular, Hanning, Blackman Harris, Hamming
Histograms	Sources	Any waveform or measurement below
	Orientation	Horizontal (timing and jitter) or vertical (noise and amplitude)
	Measurements	Peak-to-peak, min, max, mean, median, mode, standard deviation, mean ±1σ/2σ/3σ, total hits, peak (area of most hits), bin width, FWHM (histogram width at half maximum)

Digital Voltmeter (standard, specifications are typical)

Functions	AC_{RMS}, DC, DC_{RMS}
Resolution	4 digits
Measuring rate	100/sec
Auto Range	Automatic adjustment of vertical amplification to maximize the dynamic range of measurements
Range Meter	Graphical display of most recent measurement, plus extrema over the previous 3 seconds

Counter / Totalizer (standard, specifications are typical)

Available counters	Counter A and B: general purpose (Channels 1-4)
	Counter C: trigger qualified (trigger channel)
Measurements	Frequency, period, totalize, ratio (ratio of A/B, mathematical)
Resolution	General purpose: 5 to 10 digits
	Trigger qualified: 5 to 8 digits
Accuracy	± (8 ppb initial ± 75 ppb/year aging)
Uncertainty	± 0.1 digits
Minimum pulse width	75 ps (for signals with < 10 ns transition time)
Maximum frequency	General purpose: 6 GHz
	Trigger qualified: 1/(trigger hold off time)
Totalizer	Counter size: 64 bits
	Edge: Rise or fall

Waveform Generator (standard, specifications are typical)

Output	Connector	BNC, rear panel
	Voltage range, 50 Ω	1 mV_{PP} [1] to 5 V_{PP} [2]
	Voltage range, 1 MΩ	2 mV_{PP} [1] to 10 V_{PP} [2]
	Presets	TTL, CMOS (5 V), CMOS (3.3 V), CMOS (2.5 V), ECL
	Vertical resolution	100 µV
	Vertical accuracy	2% (< 1 kHz)
	Frequency resolution [3]	12.5 mHz
	Frequency accuracy [4]	Square/pulse: 1 ppm (f ≥ 8 kHz), [f/25000] ppm (f < 8 kHz)
		Other waveforms: 1 ppm (f ≥ 5 kHz), 3 ppm (f < 5 kHz)
	Modes	Normal, single shot (all but square, pulse, noise, DC)
	Waveforms	DC, sine, square, pulse, triangle/ramp, noise, sinc, exponential rise/fall, cardiac, Gaussian pulse, PRBS, arbitrary
	Protection	Overload automatically disables output
	Isolation	Not available, main output BNC is grounded
DC offset	Range	± (8 V_{DC} – Peak AC) into 1 MΩ
		± (4 V_{DC} – Peak AC) into 50 Ω
	Resolution	100 µV or 3 digits, whichever is higher
	Accuracy	Waveform modes: ± 1.5% of offset setting ± 1% of amplitude ± 1 mV
		DC mode: ± 1.5% of offset setting ± 3 mV
Sine	Frequency range	12.5 mHz to 50 MHz
	Amplitude flatness	± 0.5 dB (≤ 20 MHz), ± 1 dB (> 20 MHz)
	Harmonic distortion	Harmonic distortion: -40 dBc [5]
	SFDR	Spurious (non-harmonic): -40 dBc [6]
	THD	1% [7]
	SNR	40 dB [8]
Square / pulse	Frequency range	Frequency range: 0.0125 Hz to 20 MHz
	Duty cycle	Duty cycle: 20 to 80%, resolution of 1% or 1 ns [9], whichever is larger
	Pulse width	Pulse width: 10 ns minimum, 1 ns resolution [9]
	Rise/fall time	Rise/fall time: 9 ns (10 to 90%)
	Overshoot	Overshoot: < 10%
	Asymmetry (at 50% DC)	± 1% ± 5 ns
	Jitter (TIE RMS)	100 ps [10]
Triangle (ramp)	Frequency range	12.5 mHz to 200 kHz
	Linearity	1%
	Symmetry	0 to 100%, 1% resolution
Noise	Bandwidth	40 MHz
Sine Cardinal (Sinc)	Frequency range	12.5 mHz to 1.0 MHz
Exponential Rise/Fall	Frequency range	12.5 mHz to 10.0 MHz
Cardiac	Frequency range	12.5 mHz to 200.0 kHz
Gaussian Pulse	Frequency range	12.5 mHz to 5.0 MHz
PRBS	Pattern length	2^7, 2^15, 2^23, 2^31
	Bit rate	100 bps to 40 Mbps (speeds of 200 MHz divided by an integer value)
	Encoding	NRZ
Arbitrary	Waveform Length	1 to 122,070 points
	Repetition Rate	12.5 mHz to 12 MHz
	Sample Rate	200 MSa/s
	Filter Bandwidth	40 MHz
	Editor	On-screen editor; import/export of data to and from channels/memories, import/export data to and from a file (.csv)

Waveform Generator (standard, specifications are typical)

Modulation	Types	AM, FM, FSK	
	Carriers	Sine, ramp, sine cardinal, exponential rise, exponential fall, and cardiac	
	Source	Internal (no external modulation capability)	
	AM	Profile	Sine, square, ramp
		Frequency	1 Hz to 20 kHz
		Depth	0% to 100%
	FM	Profile	Sine, square, ramp
		Frequency	1 Hz to 20 kHz
		Minimum carrier	10 Hz
		Deviation	1 Hz to carrier frequency or (2e12 / carrier frequency), whichever is smaller
	FSK	Modulation	50% duty cycle square wave
		FSK rate	1 Hz to 20 kHz
		Hop frequency	2 x FSK rate to 10 MHz

1. 10 mV_{PP} (1 MΩ) / 5 mV_{PP} (50 Ω) minimum if | DC + Peak AC | ≥ 400 mV.
2. 8 V_{PP} (1 MΩ) / 4 V_{PP} (50 Ω) maximum for Gaussian waveshape.
3. Resolution is Freq/25000 Hz for square and pulse waveforms < 8 kHz.
4. Include (add) external reference clock frequency error, if applicable.
5. For amplitude ≤ 1 V_{PP} at 50 MHz, ≤2 V_{PP} at 40 MHz, ≤ 5 V_{PP} at ≤ 30 MHz, into 50 Ω load.
6. For amplitude ≥ 5 mV_{PP} into 50 Ω load.
7. For amplitude ≤ 1 V_{PP} at 50 MHz, ≤ 2 V_{PP} at 40 MHz, ≤ 5 V_{PP} at ≤ 30 MHz, into 50 Ω load.
8. ≥ 35 mV_{PP}, 0 V offset, into 50 Ω.
9. 5 nS if frequency is < 8 kHz.
10. Amplitude ≥ 20 mV_{PP} into 50 Ω load.

Front end and RF performance

Sensitivity / noise density [1]		-160 dBm/Hz
Noise figure [1]		14 dB
SNR / dynamic range [2]		108 dB
Absolute amplitude accuracy		± 1 dB (0 to 6 GHz)
Deviation from linear phase		± 7 degrees (0 to 6 GHz)
Phase noise at 1 GHz	10 kHz offset	-124.7 dBc/Hz
	100 kHz offset	-126.7 dBc/Hz
EVM [3]		-47 dB (0.47%)
SFDR [4]		71 dB
Harmonic distortion [4]	2nd order	-65 dBc
	3rd order	-47 dBc
Two-tone TOI Point		+21.5 dBm
Input match (0 to 6 GHz)		-14 dB, 1.5 VSWR

1. Tested at 1 mV/div, -38 dBm, 1.0001 GHz CF, 500 kHz span, 3 kHz RBW.
2. Tested with 0 dBm 1 GHz input carrier, 0dBm scope input range. 1 GHz CF, 100 MHz span, 1 kHz RBW, measured +20 MHz from center.
3. Tested with 802.121 2.4 GHz carrier, 20 MHz wide, 64 QAM.
4. Tested with 1 GHz, 0 dBm signal at input, FFT with 3 GHz CF, 5 GHz span, 100 kHz RBW.

Real Time Spectrum Analysis and Digital Down Conversion (optional)

	RTSA	DDC
Standard Performance	All Infiniium MXR B-Series come with a standard 40 MHz RTSA and DDC analysis bandwidth, with a frequency range up to the oscilloscope bandwidth, and all channels tied to the same center frequency. The specifications below apply to the paid options that unlock full RTSA and DDC performance (see configuration guide).	
Frequency Range	0 Hz to oscilloscope bandwidth	
	0 Hz to 6 GHz with Frequency Extension (below)	
Analysis Bandwidth	40, 80, 160, or 320 MHz. RTSA total Span is 320 MHz for channels 1-4 and channels 5-8. Examples: 320 MHz span on channels 1, 5; 160 MHz span on channels 1, 2, 5, 6; 80 MHz span on channels 1 through 8	40 MHz, 80 MHz, 160 MHz, 320 MHz, 640 MHz, 1.28 GHz, 2.16 GHz (all channels)
Per-channel control	All channels use the same span, but can each be at different center frequencies. No data is stored; visualization only	All channels use the same span (up to 2 GHz), but can each be at different center frequencies. Each channel stores IQ data for analysis via Keysight VSA (89600) or MATLAB (N6171A)
Performance Data	Typical passband magnitude flatness: ± 0.25 dB from 160 MHz to max Frequency Range	Typical out-of-band rejection: > 50 dB
Minimum signal duration with 100% amplitude accuracy	15 µs	N/A
Minimum detectable signal duration	10 ns	N/A
Available views	Spectral density (color graded)	Histogram
Supported triggers	Frequency mask trigger: must intersect, must not intersect, up to 8 zones (AND logic)	All oscilloscope time domain triggers, external trigger
Window types	Rectangular, Hanning, Hamming, Blackman-Harris, Flattop	
Number of markers	200	
Supported marker types	Frequency, amplitude	

	Span	FFT/s (RTSA)	POI (RTSA)	FFT/s (DDC)
FFT Rate, 100% POI	40 MHz	25,000	122 µs	2,000
	80 MHz	50,000	62 µs	4,000
	160 MHz	100,000	30 µs	8,000
	320 MHz	200,000	15 µs	14,000
	640 MHz	N/A	N/A	23,000
	1.28 GHz	N/A	N/A	30,000
	2.16 GHz	N/A	N/A	35,000

			Window Type				
Resolution Bandwidth	Span	Sample Rate	Rectangle	Hamming	Hanning	Blackman	Flattop
	40 MHz	50 MSa/s	12.2 KHz	16.7 KHz	18.3 KHz	24.5 KHz	46.6 KHz
	80 MHz	100 MSa/s	24.4 KHz	33.4 KHz	36.6 KHz	48.9 KHz	93.2KHz
	160 MHz	200 MSa/s	48.8 KHz	66.8 KHz	73.2 KHz	97.8 KHz	186 KHz
	320 MHz	400 MSa/s	97.6 KHz	133 KHz	146 KHz	195 KHz	373 KHz
	640 MHz	800 MSa/s	195 KHz	267 KHz	293 KHz	392 KHz	746 KHz
	1.28 GHz	1.6 GSa/s	390 KHz	534 KHz	586 KHz	783 KHz	1.59 MHz
	2.16 GHz	3.2 GSa/s	781KHz	1.07 MHz	1.17 MHz	1.56 MHz	2.98 MHz

Frequency Extension (optional)

Enables a frequency range of DC to 6 GHz for RTSA and DDC options, regardless of oscilloscope bandwidth. If this option is enabled by itself (i.e. without the 160 MHz or 320 MHz RTSA option), the user gets the standard performance of the RTSA and DDC features listed above, but with an adjustable maximum frequency of 6 GHz.

Display

Size / Resolution	15.6” capacitive multi-touch, Full HD (1920x1080)
Annotations	Up to 100, floating or anchored
Grids and Windows	Up to 16 grids on up to 8 waveform windows
Waveform modes	Connected samples (sin(x)/x interpolated or lines), dots only
Persistence modes	Infinite, variable, color graded
Intensity gradation	100 intensity levels

Computer system

Operating system	Windows 10
CPU	Intel Core i7-9700E, 2.6 GHz
System memory	32 GB
Hard drives	500 GB removeable SSD, upgradeable to 1 TB SSD, additional of either are available
Peripherals	Optical USB mouse and full-size keyboard provided
LXI compliance	Class C

I/O

LAN	RJ-45 connector, supports 10/100/1000Base-T. Enables Web-enabled remote control, email on trigger, data/file transfers and network printing (supports up to 80 MB/s data offloading)
USB	6x USB 3.0 host ports (2x front panel, 4x side panel), 1x USB 3.0 device port (side panel, supports up to 200 MB/s data offloading)
Audio	Microphone, line in, line out[1]
Display out	DisplayPort and VGA (supports up to two simultaneous displays)
Trigger out	TTL levels, high impedance load
Auxiliary out	Configurable: DC level, probe compensation, trigger out, or a demo signal
Timebase reference output	Amplitude into 50 Ω: 1.65 ± 0.05 Vpp (8.3 ± 0.3 dBm) sine wave (internal or external timebase reference selected)
	Frequency: 10 MHz ± (8 ppb initial + 75 ppb/year aging) when internal timebase reference is selected; external reference frequency when external timebase reference is selected
Timebase reference input	Amplitude into 50 Ω: 356 mVPP (-5 dBm) to 5 VPP (+18 dBm) sine, 285 mVPP to 4 VPP square
	Frequency: 10 MHz ± 5 ppm

1. Ferrites should be used on the headphone cables to reduce possible electromagnetic interference.

Supported file types

Infiniium setup files	.set	Infiniium settings only
	.osc	settings and waveform data
Waveform files, compressed	.wfm	binary, Infiniium format
	.bin	binary, approx. 5x smaller than larger XY formats
	.h5	open source, Infiniium or InfiniiVision format
	.mat	MATLAB
Waveform files, raw data	.csv	XY values, comma-separated
	.tsv	XY values, tab-separated
	.txt	Y values
Image files	.png	24-bit color
	.jpg	24-bit color
	.bmp	24-bit color
	.gif	8-bit color
	.tif	8-bit color
	All images may be saved or printed with waveforms only, inverted backgrounds, with setup info, and/or in a compressed format.	

Environmental, safety and dimensions

Temperature	Operating	+5 to +40 °C
	Non-operating	-40 to +70 °C
Humidity	Operating	≤ 80% relative humidity (non-condensing) at +40 °C
	Non-operating	≤ 90% relative humidity (non-condensing) up to +70 °C
Altitude	Operating	Up to 3,000 m (9,842 ft)
	Non-operating	Up to 15,300 m (50,196 ft)
Power	100 to 120 V @ 50/60/400 Hz	
	100 to 240 V @ 50/60 Hz	
	Max power dissipated	4 channel models: 450 Watts
		8 channel models: 650 Watts
Acoustic Noise	Operator position (0.5 m height at 0.25 m away)	4 channel models: 45.5 dB
		8 channel models: 49.9 dB
	Bystander position (1 m height at 1 m away)	4 channel models: 39.4 dB
		8 channel models: 42.9 dB
Weight	Frame	4 channel models: 13.75 kg (30.3 lbs.)
		8 channel models: 14.50 kg (32.0 lbs.)
	Shipping	4 channel models: 20.95 kg (46.2 lbs.)
		8 channel models: 21.90 kg (48.3 lbs.)
		Package: 7.2 kg (15.9 lbs.)
Dimensions	Height	327 mm (12.9 in) with feet retracted
	Width	443 mm (17.5 in)
	Depth	223 mm (8.8 in) including knobs and rear feet
Safety	IEC 61010-1:2017	
	IEC 61010-2-030:2017	
	UL 61010-1:2012 (3rd edition)	
	UL 61010-2-030:2018	
	CAN/CSA-22.2 No. 61010-1-12	
	CAN/CSA-22.2 No. 61010-2-030-17	
EM standards	CISPR 11/EN 55011	
	IEC 61000-4-2/EN 61000-4-2	
	IEC 61000-4-3/EN 61000-4-3	
	IEC 61000-4-4/EN 61000-4-4	
	IEC61326-1:2012/EN61326-1:2013	

Ordering Guide and Upgrade Information

Ordering your MXR B-Series oscilloscope couldn't be easier. Contact your Keysight representative or authorized partner for more information, or to place an order: www.keysight.com/find/contactus



Standard accessories

Description	Part	Quantity
Passive Probe, 10:1, 500 MHz	N2873A	4 or 8
50 Ω Calibration Cable, 1 meter	54609-61609	1
Accessory Pouch	54925-62301	1
Protective Front Cover	54925-44101	1
Local Power Cord	Varies by region	1
Full-Size Keyboard	0960-3245	1
Optical Scroll Wheel Mouse	0960-3246	1
1-Year Factory Calibration Certificate	-	1
Safety Leaflets, if Applicable	-	1
Probe Selection Guide	-	1

Main model configuration

This page is intended for configuring a new unit. For post-purchase upgrades, see the last page.

Channel bandwidth	4 channels	8 channels
500 MHz	MXR054B	MXR058B
1 GHz	MXR104B	MXR108B
2 GHz	MXR204B	MXR208B
2.5 GHz	MXR254B	MXR258B
4 GHz	MXR404B	MXR408B
6 GHz	MXR604B	MXR608B

Integrated instruments	Model
4-digit digital voltmeter, 10-digit counters	Standard
Arbitrary waveform generator, 50 MHz	Standard
Frequency response analyzer, 50 MHz	Standard
Logic analysis, 16 channels (includes N2756A probe)	MXR000-MSO
RTSA (160 MHz) and DDC (2 GHz)	MXR000-160
RTSA (320 MHz) and DDC (2 GHz)	MXR000-320
Phase noise analyzer	Part of D9010JITA
Protocol analyzer	Various, see next pages

Performance upgrades	Model
Memory Upgrade, 400 Mpts/ch	MXR000-400
Memory Upgrade, 1.6 Gpts Combined Flexible Memory	MXR000-GIG
Upgrade to 1 TB Removable SSD	MXR001-01T
Frequency Extension; extend RTSA/DDC frequency range to 6 GHz	MXR000-FRE
ISO 17025 Calibration (Not Accredited)	MXR001-1A7
ISO 17025 Calibration (Accredited)	MXR001-AMG

Additional equipment	Model
Rackmount Kit, 8U	MXR2RACK
Additional Removable SSDs, 500 GB or 1 TB	MXRBSSD
Hard Shell Transit Case, Sold by CaseCruzer	3F2002-1910C[1]
BNC(m) to SMA(f) Adapters, DC-10 GHz	54855-67604[2]
GPIB Adapter, Sold by ICS Electronics	4865B [3]

1. Parts available from third party vendors listed in description, not sold by Keysight. Contact sales@casecruzer.com to order.
2. Precision adapter designed to extend the oscilloscope mating plane to SMA connector. The measured insertion loss of this adaptor and the front panel connector is around -.05db at 13GHz. This loss is included in the performance specification of the oscilloscope.
3. Parts available from third party vendor listed in description, not sold by Keysight.

Add-on software

Infiniium MXR B-Series supports many advanced measurement, analysis, and decode software applications. Choose the add-on software that best fits your needs and unlocks the full potential of your hardware.

Signal integrity	Description	Model
EZJit Complete	Timing jitter, vertical noise, and phase noise analysis	D9010JITA
De-Embedding	Modeling and simulating out cables, probes, and fixtures	D9010DMBA
Advanced Signal Integrity	Open closed eye diagrams	D9010ASIA

Power	Description	Model
Power Integrity, Rails, PMICs	Power Integrity Analysis (PSIJ, SSN, victim/aggressor, etc.)	D9010POWA
Switch Mode Supplies	Power supply analysis (Input, Switching, Output, PSRR)	D9010PWRA

Additional packages	Description	Model
PAMn Application	PAMn measurements	D9011PAMA
User Defined Application	Remote measurement automation and test reports	D9010UDAA

Protocol	Description	Model
Low-Speed Serial	I^2C, SPI, Quad SPI, eSPI, RS232, UART, JTAG, I^2S, SVID, Manchester	D9010LSSP
Embedded	USB 2.0, 10/100 Mb/s Ethernet, USB-PD, eUSB2, USB HSIC, PCIe Gen 1 (decode), DisplayPort 2.1 AUX Channel, MDIO	D9010EMBP
Low-Speed Automotive	CAN, LIN, CAN FD, CAN XL, SENT, FlexRay	D9010AUTP
MIPI Low Speed	RFFE, I^3C, SPMI	D9010MPLP
MIPI C-PHY / D-PHY	C-PHY/D-PHY based CSI & DSI (Up to 2.5 Gbps)	D9010MCDP
MIPI M-PHY	CSI 3, DigRFv4, LLI, UniPro, UFS, SSIC (Up to Gear 1 Speed)	D9010MPMP
Military	ARINC 429, MIL-STD 1553, SpaceWire	D9010MILP
High-Speed Automotive	100BASE-T1 Automotive Ethernet	D9020AUTP
USB	USB 2.0, eUSB2, HSIC, USB 3.x, USB4 LS, DisplayPort AUX	D9010USBP
Basic Protocol Bundle	Includes D9010LSSP, D9010EMBP, D9010MPLP, D9010MILP, D9010AUTP	D9011BDLP

Save money when you bundle software with D9010SWBD

The Keysight D9010SWBD software bundle for Infiniium oscilloscopes enables you to customize bundles for MXR B and UXR B-Series oscilloscopes. The more software applications you add to your order, the more you save:

- Pick two software applications for 20% off.
- Pick three software applications for 30% off.
- Pick four or more software applications for 40% off.

Each license comes with KeysightCare software support, which provides technical support with guaranteed response time, proactive software updates, and enhancements. Visit the D9010SWBD web page to learn more.

Probes and accessories

The Infiniium MXR B-Series oscilloscopes include both 1 MΩ and 50 Ω paths. This expands their flexibility by making them compatible with a wider range of probes than high-performance oscilloscopes that only support a 50 Ω path. All models ship standard with one N2873A 500 MHz passive probe per channel, and support a wide range of about 100 compatible current and voltage probes.

Additionally, legacy probes from Tektronix may be used on the MXR B-Series with the proper adapter, listed below. See the data sheet for a list of compatible probes.



The table below highlights probes commonly used with the Infiniium MXR- Series. Read The Infiniium Oscilloscope Probes and Accessories Guide for additional information or visit the Probe Resource Center at prc.keysight.com.

Category	Models	Description
Passive	N287xA	2.5 mm probe tip diameter for fine pitch component probing, easily replaceable spring-loaded or solid probe tip, 10-25 pF input C (high-Z, 10:1) covers a wide range of scope input, 7 probes and 4 accessory kits available, N2873A shipped with Infiniium MXR series
Hi-Z+ Passive	PP000xA	Passive probes that, with the help of an adapter, can achieve best-in-class bandwidth, voltage, and loading specifications, up to 1 GHz or 1.2 kV.
Differential Active	DP001xA	Four active differential probes can achieve best-in-class bandwidth, voltage, and loading specifications up to 1.7 GHz and achieve ±42 V range.
Digital	N2756A	Ships with MXR000-MSO or MXR2MSO options. 16 flying leads with grabbers, ground leads, and other accessories.
Single-ended Active	N279xA	Up to 2 GHz, low cost, high impedance input (1 MΩ at DC), wide dynamic/offset range, headlight, -40 to +85 C of extreme temp range for chamber testing (N2797A)
Differential low voltage	DP001xA	Bandwidth models range from 250 MHz to 1.7 GHz with a wide input dynamic range and a probe offset range of up to ±60 VDC.
Differential low voltage	N275xA	Up to 6 GHz, 200 kΩ input, InfiniiMode for Diff, SE, CM probing, built-in multifunction scope control, headlight
Differential low voltage	113xB	InfiniiMax Gen I Probes that provide up to 7 GHz bandwidth for differential, solder-in, browser, and SMA connections
Differential high voltage	DP0001A	400 MHz, 2 kV input, high CMRR > 80 dB at DC, UL safety certified
Differential high voltage	DP003xA	Five models with bandwidth options of 70 MHz, 100 MHz, and 200 MHz and voltage ranges up to 7000 V
Current	N7026A	150 MHz, 30 ARMS, 1 mV/div sensitivity clamp-on, AutoProbe interface
High sensitivity current	N2820A/21A	3 MHz, measurable down to 100 µA AC/DC, provides a wide dynamic range, ideal for capturing low-level current flow
Power rail	N7020A/24A	2 GHz or 6 GHz, low noise for power rail noise measurement, high offset voltage, 50 kΩ loading at DC
Adapter	N2744A	Adapter for using legacy Tektronix TekProbe oscilloscopes. See the data sheet for compatible models.

Post-purchase upgrades

Hardware options	Model
Add logic analysis, 16 channels (includes N2756A probe)	MXR2MSO
Add memory, 400 Mpts/ch or 1.6 Gpts combined flexible memory	MXR2MEM
Rackmount Kit, 8U	MXR2RACK
Additional Removable SSD, 500 GB or 1 TB	MXRBSSD
RTSA (160 MHz or 320 MHz) and DDC (2 GHz)	MXR2RTSA
Frequency Extension; extend RTSA and DDC frequency range to 6 GHz	MXR2FRE

Analog channel upgrades (from 4 channels, to 8 channels)	
For 500 MHz models:	MXRB8CH-001
For 1 GHz models:	MXRB8CH-002
For 2 GHz models:	MXRB8CH-003
For 2.5 GHz models:	MXRB8CH-004
For 4 GHz models:	MXRB8CH-005
For 6 GHz models:	MXRB8CH-006

Channel upgrades require a return to Keysight service center. Model and serial number are kept. Cost of upgrade does not include shipping.

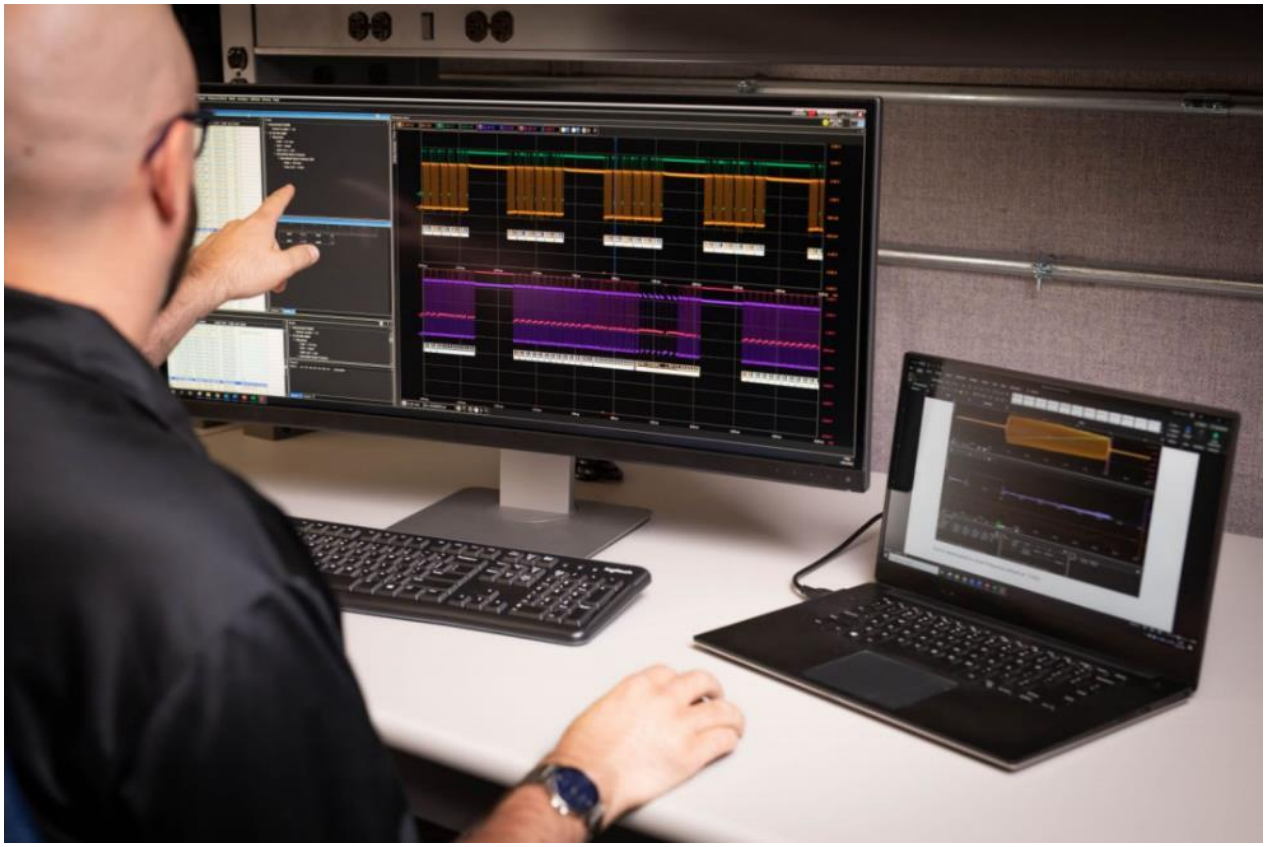
Upgrade path		4 channels	8 channels
From 500 MHz…	…to 1 GHz	MXR2BW-001	MXR2BW-016
	…to 2 GHz	MXR2BW-002	MXR2BW-017
	…to 2.5 GHz	MXR2BW-003	MXR2BW-018
	…to 4 GHz	MXR2BW-004	MXR2BW-019
	…to 6 GHz	MXR2BW-005	MXR2BW-020
From 1 GHz…	…to 2 GHz	MXR2BW-006	MXR2BW-021
	…to 2.5 GHz	MXR2BW-007	MXR2BW-022
	…to 4 GHz	MXR2BW-008	MXR2BW-023
	…to 6 GHz	MXR2BW-009	MXR2BW-024
From 2 GHz…	…to 2.5 GHz	MXR2BW-010	MXR2BW-025
	…to 4 GHz	MXR2BW-011	MXR2BW-026
	…to 6 GHz	MXR2BW-012	MXR2BW-027
From 2.5 GHz…	…to 4 GHz	MXR2BW-013	MXR2BW-028
	…to 6 GHz	MXR2BW-014	MXR2BW-029
From 4 GHz…	…to 6 GHz	MXR2BW-015	MXR2BW-030

Every model is calibrated to 6 GHz from the factory, so bandwidth upgrades require no further calibration outside of the standard recommended interval.

Offline testing

View and analyze test results at your desk! Save an oscilloscope file, then view and analyze on your PC using the full Infiniium user interface without needing additional access to your scope. Infiniium Offline uses the exact same code as your Infiniium MXR B-Series.

Use waveform math, filtering, FFT, protocol decoding, jitter analysis, eye diagrams and more to get more insight. Infiniium offline is a truly powerful software tool to help you get your job done faster while freeing up precious hardware resources. See the Infiniium Offline data sheet to learn more.



Description	Details	Option
Infiniium Offline	Required as baseline software. Prerequisite to all other options.	D9010BSEO
EZJit Complete	Timing jitter, vertical noise, and phase noise analysis.	D9010JITO
Advanced Signal Integrity	Equalization, InfiniiSim, PAM-N analysis, and crosstalk	D9010ASIO
Low-Speed Protocol Package	I^2C, SPI, RS232/UART, JTAG, CAN, CAN-FD, LIN, FlexRay, SVID, USB 2.0, USB-PD, MIPI RFFE, eSPI, I2S, Ethernet 10/100BaseT, SpaceWire, SPMI, 100BASE-T1, Manchester, ARINC429, MIL-STD1553, MDIO	D9010LSPO
High-Speed Protocol Package	DDR2/3/4, LPDDR2/3/4, Ethernet 10GBASE-KR 64/66, Ethernet 100Base KR/CR, MIPI [CSI-3, DigRF v4, D-PHY, LLI, RFFE, UniPro], PCIe Gen 1/2/3, SATA/SAS, UFS, USB 2.0, USB 3.0, USB 3.0 SSIC, USB 3.1, C-PHY	D9010HSPO

Compliance software

Keysight offers various compliance software applications for the Infiniium MXR B-Series. Choose your license term, license type, and KeysightCare software support subscription that best fits your needs and budget.

All Infiniium MXR B-Series models come standard with:

- Serial data analysis (SDA) software to provide flexible clock recovery including 1st, 2nd, and 3rd-order PLL and constant algorithms. With a stable clock, you can look at real-time eyes of transition and non-transition bits. MXR B-Series oscilloscopes with SDA software also provide a unique view of bits preceding an eye.
- User-defined function
- Fast Fourier Transform (FFT) for frequency domain (spectrum) analysis. Use the FFT to compute both magnitude and phase and take advantage of several useful features to assist in spectral analysis. The FFT can control span and resolution bandwidth.
- 40 MHz of RTSA and DDC analysis bandwidth, with a frequency range up to the oscilloscope bandwidth.

Standard	Description	Rec'd BW	Software model
USB 2.0	USB 2.0 Transmitter	2 GHz	D9010USBC
Ethernet	10M/100M/1GBASE-T and Energy-Efficient Ethernet	1 GHz	D9010ETHC
Ethernet	10G, MG Base-T, N-Base-T	4 GHz	D9010EBZC
Automotive Ethernet	5GBASE-T1	6 GHz	AE6910T
	2.5BASE-T1	4 GHz	
	1000BASE-T1	2.5 GHz	
	100BASE-T1	1 GHz	
	10BASE-T1S	500 MHz	
C-PHY	MIPI C-PHY, up to 1.5 Gbps	6 GHz	D9010CPHC
D-PHY	MIPI D-PHY, up to 1.5 Gbps (up to CTS v1.2)	6 GHz	D9020DPHC
JEDEC	DDR3 and LPDDR3 Compliance Test Software	6 GHz	D9030DDRC

Compliance software licensing and KeysightCare software support subscriptions

Each of the Infiniium measurement, analysis, decoding, triggering, and compliance software options are offered as various software licensing options. Choose your license term, type, and support contract for each software product.

Select your software license:

1. Choose your software product (for example D9010USBC).
2. Choose your license term: perpetual or subscription.
   - **Perpetual** – Perpetual licenses can be used indefinitely.
   - **Subscription** – Subscription licenses can only be used through the term of the license (6, 12, 24, or 36-months license options available).
3. Choose your license type: node-locked, transportable, USB portable, or floating.
   - **Node-locked** – License can be used on one specified instrument/computer.
   - **Transportable** – License can be used on one instrument/computer at a time but may be transferred to another using Keysight Software Manager (Internet connection required).
   - **USB Portable** – License can be used on one instrument/computer at a time but may be transferred to another using a certified USB dongle (available for additional purchase with Keysight part number E8900-D10).
   - **Floating (single site)** – Networked instruments/computers can access a license from a server one at a time. Multiple licenses can be purchased for concurrent usage.
4. Choose your support subscription duration.
   - Perpetual licenses are sold with a **12 (default), 24, 36, or 60-month software support subscription**. Support subscriptions can be renewed for a fee after that.
   - Subscription licenses include a **software support subscription through the term of the license**.

Good, Better, and Best Value Bundles

The Keysight Infiniium MXR B-Series oscilloscope enables you to See More, Do More, and Save Time like no other oscilloscope in its class – with a full set of features and capabilities right out of the box. However, to unlock even more functionality, the Infiniium MXR B-Series also has a wide variety of additional options, software, and probing.

Knowing what to order for your specific application can be daunting, so we have taken the hard part out of ordering by pre-packaging commonly used features into convenient bundles. Now, it's as easy as choosing your oscilloscope model and the bundle that best suits your needs, taking advantage of immediate savings in the process.

To take advantage of each value bundle, simply select your Infiniium MXR B-Series oscilloscope model and then purchase one of the following additional Good, Better, or Best Value Bundles. The following options and software are included in each bundle and only available for new oscilloscope purchases:

		Good Bundle MXRxxx-010	Better Bundle MXRxxx-020	Best Bundle MXRxxx-030
MXR1xx/2xx/4xx/6xxB	MXR oscilloscopes, ≥1 GHz	✔	✔	✔
MXR000-MSO	16 digital channels	✔	✔	✔
D9010LSSP	Low-speed protocol bundle	✔	✔	✔
MXR000-400	400 Mpts/ch memory upgrade		✔	
MXR000-GIG	1.6 Gpts combined flexible memory			✔
MXR001-01T	1 TB removable SSD			✔
MXR000-160	RTSA (160 MHz) and DDC (2 GHz)			✔
	Savings	20%	25%	30%



An example of the hardware upgrades and software available in the Good, Better, Best Value Bundles.

Confidently Covered by Keysight Services

Prevent delays caused by technical questions, or system downtimes due to instrument maintenance and repairs with Keysight Services. Keysight Services are here to support your test needs with expert technical support, instrument repair and calibration, software support, training, alternative acquisition program options, and more.

A KeysightCare agreement provides dedicated, proactive support through a single point of contact for instruments, software, and solutions. KeysightCare covers an extensive group of instruments, application software, and solutions and ensures optimal uptime, faster response, faster access to experts, and faster resolution.

Keysight Services

Offering	Benefits
KeysightCare 	KeysightCare provides elevated support for Keysight instruments and software, with access to technical support experts who respond within a specified time and ensure committed repair and calibration turnaround times (TAT). KeysightCare offers multiple service agreement tiers, including KeysightCare Assured, Enhanced, and Application Software Support. See the KeysightCare data sheet for details.
KeysightCare Assured	KeysightCare Assured goes beyond basic warranty with repair services that include committed TAT and unlimited access to technical experts.
KeysightCare Enhanced	KeysightCare Enhanced includes all the benefits of KeysightCare Assured plus Keysight's accurate and reliable Calibration Services, accelerated, and committed TAT, and technical response.
Keysight Support Portal & Knowledge Center	All KeysightCare tiers include access to the Keysight Support Portal where you can manage support and service resources related to your assets such as service requests, and status, or browse the Knowledge Center.
Education Services	Build confidence and gain new skills to make accurate measurements, with flexible Education Services developed by Keysight experts. Including Start-up Assistance.
Alternative product acquisition	
KeysightAccess	Reduce budget challenges with a leased-based subscription service, that offers low monthly payments, enabling you to get the instruments, software, and technical support you want for your test needs.

Recommended Services

Maximize your test system up-time by securing technical support, repair, and calibration services with committed response and turnaround times. 1-year KeysightCare Assured is included in every new instrument purchase Obtain multi-year KeysightCare upfront to eliminate the need for lengthy and tedious paperwork and yearly requests for maintenance budget. Plus, you benefit from secured service for 2, 3, or 5 years.

Service	Function
KeysightCare Enhanced*	**Includes Tech Support, Warranty and Calibration**
R-55B-001-1	KeysightCare Enhanced – Upgrade 1 year
R-55B-001-2	KeysightCare Enhanced – Extend to 2 years
R-55B-001-3	KeysightCare Enhanced – Extend to 3 years (Recommended)
R-55B-001-5	KeysightCare Enhanced – Extend to 5 years (Recommended)
KeysightCare Assured*	**Includes Tech Support and Warranty**
R-55A-001-2	KeysightCare Assured – Extend to 2 years
R-55A-001-3	KeysightCare Assured – Extend to 3 years
R-55A-001-5	KeysightCare Assured – Extend to 5 years
Start-Up Assistance	
PS-S40-01	Included – instrument fundamentals and operations starter
PS-S40-04	Recommended – instrument fundamentals and operations starter
PS-S40-02	Optional, technology & measurement science standard learning

*** Available in select countries. For details, please view the datasheet. R-55B-001-2/3/5 must be ordered with R-55B-001-1.**

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.

KEYSIGHT

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