

Comparing Keysight Midrange Oscilloscopes

Engineers know to reach for their InfiniiVision X-Series oscilloscope for everyday, low bandwidth measurements. And select the UXR-Series for the highest bandwidth and lowest noise performance. But when looking for an oscilloscope somewhere in the middle, it can be tough to choose. Thankfully, that's a good problem to have – this is a space with tons of options and exciting new solutions to help you get your job done faster.



Description	Launch Year	Standard Warranty
Infiniium MXR-Series is designed to help you see more, do more, and save time. This is the world's first 8 channel oscilloscope over 2 GHz in bandwidth and a real-time spectrum analyzer. With technology leveraged from the world's fastest oscilloscope, the UXR-Series, this family is designed for customers who need the absolute best in performance. It also offers 8 instruments in 1, with tools like an AWG, DVM, and counter. It offers the most standard memory depth, sample rate, and max bandwidth across 4 or 8 channels in the Keysight "midrange" portfolio, as well as the most sample rate, bandwidth, and memory of any 8-channel oscilloscope on the market today.	2020	1 yr.
Infiniium EXR-Series is designed to be powerful, easy to own, and intuitive to use. It has all the same benefits of the MXR-Series but distilled to help better fit tighter budgets. With 20+ applications dedicated to power, protocol layer, and physical layer test, offline test, and always on speeds, the EXR-Series is a fantastic value with tons of flexibility – though a lower maximum bandwidth of 2.5 GHz, less standard memory, and no real-time spectrum analysis. Both this, and the MXR-Series above, combine the accuracy and analysis of Infiniium S-Series with the speed and integration of the InfiniiVision 6000 X-Series for the first time.	2020	3 yrs.
Infiniium S-Series , as the predecessor to the MXR/EXR families, was the standard for superior measurements. As the first high-bandwidth oscilloscope to use a 20 GSa/s, 10-bit ADC, the S-Series has been used as a benchmark for oscilloscope accuracy and performance for the better part of a decade. With 4 channels up to 4 GHz, or 2 channels up to 8 GHz, the S-Series is still a top pick for engineers who need that extra few GHz of bandwidth on two channels vs. the new MXR-Series, or are already one of thousands of satisfied users who have built their bench around this tool.	2014	3 yrs.
InfiniiVision 6000 X-Series is the industry's first Embedded OS class oscilloscope to break the 2 GHz barrier, and set the standard for price performance with high bandwidth, great visualization, and instrument integration. This area of performance is generally designated to the bulkier and more analysis-focused "Windows class" oscilloscopes (see above). But if you value high performance in the absolute lightest and smallest form factor, we have you covered. With models ranging from 1 to 6 GHz and 2 or 4 channels, some technology from the S-Series, and a host of power, physical layer, and protocol layer tests, there's a 6000 X-Series that can meet your every day needs in the lab.	2014	3 yrs.
Infiniium 9000-Series was the predecessor to the S-Series and is now discontinued. Combining the functions of oscilloscope, logic analyzer, and protocol analyzer into one portable package, this set the stage for the amazing leaps in technology and performance seen above. While you can no longer purchase a 9000-Series, look for trade-in programs and other ways to maximize the value of any 9000-Series oscilloscopes in your lab. For those who are working with code and automation, the Infiniium MXR-, EXR-, and S-Series families are backwards compatible with anything written for the 9000-Series, while offering more features and better performance.	2009	N/A (not for sale)

Spec/Criteria	InfiniiVision 6000 X-Series	Infiniium 9000-Series	Infiniium S-Series	Infiniium EXR-Series	Infiniium MXR-Series
Channel Count, Analog	2 or 4	4	4	✓ 4 or 8	✓ 4 or 8
Channel Upgrades	No	No	No	✓ Yes	✓ Yes
Bandwidths Available	1, 2.5, 4, 6 GHz	0.6, 1, 2.5, 4 GHz	✓ 0.5, 1, 2, 2.5, 4, 6, 8 GHz	0.5, 1, 2, 2.5 GHz	✓ 0.5, 1, 2, 2.5, 4, 6 GHz
Bandwidth Upgrades	✓ Yes (all license key)	Yes (<i>at service center</i>)	✓ Yes (all license key)	✓ Yes (all license key)	✓ Yes (all license key)
Max Bandwidth (2 ch)	6 GHz	4 GHz	✓ 8 GHz	2.5 GHz	6 GHz
Max Bandwidth (4 ch)	4 GHz	4 GHz	4 GHz	2.5 GHz	✓ 6 GHz
Max Bandwidth (8 ch)	-	-	-	2.5 GHz	✓ 6 GHz
Max Sample Rate (all ch)	10 GSa/s	10 GSa/s	10 GSa/s	✓ 16 GSa/s	✓ 16 GSa/s
Total Scope Sample Rate	40 GSa/s	40 GSa/s	40 GSa/s	✓ 128 GSa/s	✓ 128 GSa/s
Vertical Resolution (ADC bits)	8	8	✓ 10	✓ 10	✓ 10
Std. / Max Memory (all ch)	2 Mpts	100 / 500 Mpts	100 / 400 Mpts	100 / 400 Mpts	✓ 200 / 400 Mpts
Standard AWG	✓ Yes (Dual 20 MHz)	No	No	✓ Yes (Single, 50 MHz)	✓ Yes (Single, 50 MHz)
Standard Counter	✓ Yes, (Single, 10 digits)	No	No	✓ Yes (Triple, 10 digits)	✓ Yes (Triple, 10 digits)
Standard Digital Voltmeter	✓ Yes (Single, 4 digits)	No	No	✓ Yes (Single, 4 digits)	✓ Yes (Single, 4 digits)
Standard Fault Hunter	No	No	No	✓ Yes	✓ Yes
Standard Segmented Memory	✓ Yes	✓ Yes	✓ Yes	✓ Yes	✓ Yes
Standard History Mode	No	No	No	✓ Yes	✓ Yes
Waveform Update Rate	✓ > 200,000 wfm/s	< 1,000 wfm/s	< 1,000 wfm/s	✓ > 200,000 wfm/s	✓ > 200,000 wfm/s
Max Edge Trigger Frequency	3.5 GHz	4 GHz	3 GHz	✓ 2.5 GHz (full scope BW)	✓ 6 GHz (full scope BW)
Eye Diagram Plotting Speed	>15,000 UI/s	>15,000 UI/s	>15,000 UI/s	✓ >750,000 UI/s	✓ >750,000 UI/s
Noise (100 mV/div, 1 GHz)	3,150 μ V	2,430 μ V	960 μ V	✓ 821 μ V	✓ 821 μ V
ENOB (50mV/div)	<7.0	6.1 (1 GHz), 5.9 (4 GHz)	✓ 7.8 (1 GHz), 7.4 (2.5 GHz)	✓ 8.0 (1 GHz), 7.5 (2.5 GHz)	✓ 8.0 (1 GHz), 7.5 (2.5 GHz), 7.2 (4 GHz)
Timebase Accuracy	\pm 1,600 ppb	> \pm 1000 ppb	✓ \pm 12 ppb	✓ \pm 8 ppb	✓ \pm 8 ppb
Intrinsic Jitter (w/ ext. ref)	600 fs rms	>200 fs rms	✓ 145 fs rms	✓ 120 fs rms	✓ 120 fs rms
Waveform Averaging Speed	>100 wfm/s	>100 wfm/s	>100 wfm/s	✓ >12,000 wfm/s	✓ >12,000 wfm/s
RTSA / DDC	No	No	No	No	✓ Yes (320 MHz / 2 GHz)
FFT Speed (FFT/s)	< 1000	< 1000	< 1000	< 1000	✓ 400,000 (with RTSA)
Standard Warranty	✓ 3 years	Not Available	✓ 3 years	✓ 3 years	1 year
Screen Size/Resolution	12.1" / 800 x 600	15" / 1024 x 768 XGA	15" / 1024 x 768 XGA	✓ 15.6" / 1920 x 1080 Full HD	✓ 15.6" / 1920 x 1080 Full HD
Standard Storage (removable)	None	256 GB SSD	256 GB SSD	✓ 500 GB SSD, 1 TB optional	✓ 500 GB SSD, 1 TB optional
Operating System	Embedded	Windows 10	Windows 10	Windows 10	Windows 10
Power	200 W	375 W	380 W	4ch: 450 W; 8ch: 650 W	4ch: 450 W; 8ch: 650 W
Weight	6.8 kg	11.8 kg	12 kg	4ch: 13.7 kg; 8ch: 14.5 kg	4ch: 13.7 kg; 8ch: 14.5 kg
Dimensions (HxWxD)	29 cm x 43 cm x 15 cm	33 cm x 43 cm x 23 cm	33 cm x 43 cm x 23 cm	33 cm x 44 cm x 23 cm	33 cm x 44 cm x 23 cm