

# Keysight Technologies

## Infiniium UXR-Series Oscilloscopes

Up to 110 GHz of Real-Time High-Definition Bandwidth

The Infiniium UXR is the first series of real-time oscilloscopes to offer ultra-high-performance acquisition with 10 bits of high-definition resolution. With four channels of simultaneous 110 GHz of bandwidth, each concurrently sampling at a staggering 256 GSa/s, Infiniium UXR delivers the world-leading performance, ultra-low noise and high signal fidelity necessary for engineers and scientists to truly see and understand even the fastest phenomena – enabling you to more quickly develop the next generation of technology and research.

### Key Features

**Models from 80 to 110 GHz of industry best real-time analog bandwidth**

**Up to 256 GSa/s sampling rate**

**2-channel and 4-channel models**

- Unrestricted full bandwidth per channel
- Unrestricted full sampling per channel

**10-bit Analog to Digital Converter (ADC)**

**Industry leading deep memory**

- Up to 2 Gpts per channel



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# Preliminary Data Sheet

# Infiniium UXR-Series Oscilloscopes

## Do what has never been done

The world's insatiable demand for better performance, shorter design cycles, faster systems and higher bandwidth has driven the need for a new class of ultra-performance oscilloscopes with real-time bandwidths exceeding 80 GHz, extremely low noise floors, 10-bit high-definition vertical resolution, femtoseconds of jitter, deep memory and hardware accelerated processing. That's the promise of Keysight Technologies Infiniium UXR-Series oscilloscopes. They are undeniably the fastest, lowest noise, most powerful oscilloscopes in the world, and have the features and performance necessary to enable and accelerate the next generation of electronic research and design.

## Featuring

- 110 GHz of real-time oscilloscope bandwidth
- High-definition 10-bit analog-to-digital converter (ADC)
- Full bandwidth and channel upgradability
- The industry's lowest noise and jitter measurement floor
- The industry's highest ENOB at bandwidths up to 110 GHz



Keysight Infiniium UXR



Available in 2 and 4-channel models

Preliminary Data Sheet

Model Number	Maximum Bandwidth	Channels at Max Bandwidth	Sample Rate	Memory Depth per Channel		Input Connector Type
				Standard	Maximum	
UXR1104A	110 GHz	4 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm
UXR1102A	110 GHz	2 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm
UXR1004A	100 GHz	4 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm
UXR1002A	100 GHz	2 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm
UXR0804A	80 GHz	4 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm
UXR0802A	80 GHz	2 channels	256 GSa/s	200 Mpts	2 Gpts	1 mm

# Introducing the Infiniium UXR-Series Oscilloscopes – with models up to 110 GHz

*Delivering ultimate performance so you can do what has never been done*

110 GHz of fully sampled real-time analog bandwidth – simultaneously on up to four channels per scope

Unrestricted 256 GSa/s per channel sample rate – with a real-time resolution of 3.09 ps per sample

High-definition 10-bit analog-to-digital converter (ADC) for unrivaled vertical resolution

Ruggedized 1 mm analog input connectors with a new AutoProbe III interface

Up to 2 Gpts per channel of deep memory capable of capturing at a blazing 10 Tb/s



Up to 100x faster performance for some measurements – enabled by a powerful new measurement acceleration ASIC and memory controller capable of 5 trillion integer operations per second (IOPS)

Keysight Indium Phosphide ASIC technology enables the lowest noise and highest signal integrity through full bandwidth time-interleaved sampling (TIS)



16 GB RAM with 3.0 GHz quad core processor and hardware acceleration enable fast processing

See your signal more clearly with a large 15.4-inch capacitive touch screen display

Ability to measure rise times as fast as 2.8 ps combined with the industry's lowest noise and less than 30 fs<sub>rms</sub> of intrinsic jitter enables even the most demanding multi-channel applications like:

Coherent optical modulation  
100G/400G/600G/1T+  
Datacom system debug  
Gen 5 technologies  
PCIe debug and compliance  
USB 3.x and DDR5  
PAM4 and NRZ  
Research and defense

The Infiniium UXR-Series is a fully modular platform offering upgradability from two to four channels and multiple bandwidth upgrade options up to 110 GHz. You can invest with confidence today knowing your oscilloscope will grow to meet the needs of even your most demanding future projects.

# Configure your ultra-high-performance real-time oscilloscope solution today

## With Infiniium UXR you can do what has never been done

Get the most out of your oscilloscope investment by choosing options and software to speed your most common tasks. Use option numbers when ordering at time of purchase. Use model numbers to add to an existing scope.

### 1. Choose your Infiniium UXR Real-Time Oscilloscope

UXR-Series Oscilloscope	Description
UXR1104A	Infiniium UXR, 110 GHz, 256 GSa/s, 4-Ch, 1mm input, 200 V <sub>AC</sub> min power input
UXR1102A	Infiniium UXR, 110 GHz, 256 GSa/s, 2-Ch, 1mm input, 110 V <sub>AC</sub> min power input
UXR1004A	Infiniium UXR, 100 GHz, 256 GSa/s, 4-Ch, 1mm input, 200 V <sub>AC</sub> min power input
UXR1002A	Infiniium UXR, 100 GHz, 256 GSa/s, 2-Ch, 1mm input, 110 V <sub>AC</sub> min power input
UXR0804A	Infiniium UXR, 80 GHz, 256 GSa/s, 4-Ch, 1mm input, 200 V <sub>AC</sub> min power input
UXR0802A	Infiniium UXR, 80 GHz, 256 GSa/s, 2-Ch, 1mm input, 110 V <sub>AC</sub> min power input

All models come standard with:

- 200 Mpts of hybrid memory cube deep memory
- A removable 1TB SSD hard drive
- Country-specific power cord, front cover, mini keyboard, optical mouse, 1 mm ruggedized female to 1 mm female adapter (one per channel), 2 mm thick dual-ended 6 mm / 7 mm wrench, 4-in-lb 6 mm open-end torque wrench, Special Double-ended 14 mm open-end 4 and 10-in-lb torque wrench for 1 mm ruggedized connectors, and ESD mat with wrist and heel straps.

### 2. Choose your Optional Memory Upgrade

Memory per scope channel	Options (for new UXR oscilloscopes)
1 Gpt per channel HMC memory	UXR0000-01G
2 Gpts per channel HMC memory	UXR0000-02G

### 3. Upgrade your Existing UXR Oscilloscope Hardware

Memory upgrade model numbers	Description
N2130A-01G	Memory upgrade from 200 Mpts to 1 Gpts per channel
N2130A-02G	Memory upgrade from 1 Gpt to 2 Gpts per channel

Channel upgrade model numbers	Description
N2129BU-034	Upgrade from 2 channels to 4 channels – for 80 GHz Infiniium UXR
N2129BU-035	Upgrade from 2 channels to 4 channels – for 100 GHz Infiniium UXR
N2129BU-036	Upgrade from 2 channels to 4 channels – for 110 GHz Infiniium UXR

#### 4. Upgrade your Existing UXR Oscilloscope Bandwidth

Bandwidth upgrade model numbers	Description
N2129BU-012	Bandwidth upgrade – 2-Channel Infiniium UXR - 80 GHz to 100 GHz
N2129BU-013	Bandwidth upgrade – 2-Channel Infiniium UXR - 100 GHz to 110 GHz
N2129BU-018	Bandwidth upgrade – 4-Channel Infiniium UXR - 80 GHz to 100 GHz
N2129BU-019	Bandwidth upgrade – 4-Channel Infiniium UXR - 100 GHz to 110 GHz

#### 5. Choose your UXR Optional Oscilloscope Accessories

Model numbers	Description
N2131A-01T	Additional removable SSD for Infiniium UXR Real-Time Oscilloscope - 1TB
N2125A	Infiniium UXR Real-Time Oscilloscope Calibration Module, 1.00 mm, 80 GHz and higher
N2156A	Rack mount kit for Infiniium UXR Real-Time Oscilloscopes
1181BZ	Testmobile System Cart
Y1900B	1 mm F Ruggedized to 1 mm F connector saver
Y1900C	1 mm F Ruggedized to 1 mm M connector saver
Y1901B	1 mm F Ruggedized to 1.85 mm F connector saver
Y1903B	1 mm F Ruggedized to 2.92 mm F connector saver
11904D	2.92 mm M to 2.4 mm (3.5 mm compatible) F adapter (for use with Y1903B)

#### 6. Choose your Infiniium Probes and Probe Accessories

For more information about Infiniium Oscilloscope Probes and Accessories – Data Sheet, view the Keysight publication number 5968-7141EN.

For more information about InfiniiumMax III/III+ Probing System – Data Sheet, view the Keysight publication number 5990-5653EN.

#### 7. Choose your Infiniium Software and Compliance Test Options

All UXR models come standard with:

- Serial data analysis (SDA) software to provide flexible clock recovery including 1st and 2nd-order PLL and constant algorithms. With a stable clock, you can look at real-time eyes of transition and non-transition bits. UXR-Series scopes with SDA software also provide a new unique view of bits preceding an eye
- User defined function

Infiniium UXR-Series oscilloscopes are compatible with the full suite of Infiniium software applications.

For more information about Infiniium software and options please visit:

<https://www.keysight.com/en/pc-1152185/oscilloscope-software>

## Keysight Infiniium UXR Series – Performance Characteristics

Vertical System Specifications	UXR0804A / UXR0802A	UXR1004A / UXR1002A	UXR1104A / UXR1102A
Analog input channels (Full bandwidth)	4 / 2	4 / 2	4 / 2
Analog input connector	1 mm ruggedized - with AutoProbe III jack		
Analog bandwidth (3 dB)			
Typical bandwidth	80 GHz	100 GHz	110 GHz
Warranted bandwidth*	80 GHz	100 GHz	110 GHz
Input impedance <sup>1</sup>	50 $\Omega$ , +/- 3%		
Input sensitivity <sup>2</sup>	1 mV/div to 500 mV/div		
Full scale hardware sensitivity	8 mV to 4 V		
Input coupling	DC		
Vertical resolution <sup>2,3</sup>	10 bits, $\geq$ 14 bits with averaging		
DC gain accuracy <sup>*,1,2,3</sup>	$\pm$ 2% of full scale ( $\pm$ 1% of full scale typical)		
Rise time/fall time			
10 to 90% <sup>4</sup>	5.5 ps	4.4 ps	4.0 ps
20 to 80% <sup>5</sup>	3.9 ps	3.1 ps	2.8 ps
Effective number of bits (ENOB) typical <sup>6</sup>	5.2	5.0	4.5
Channel to channel isolation (any two channels with equal V/div settings)	60 dB		
Offset range	<b>Vertical sensitivity</b>	<b>Available offset</b>	
	1 mV/div to 59 mV/div	$\pm$ 0.40 V	
	60 mV/div to 128 mV/div	$\pm$ 0.86 V	
	129 mV/div to 278 mV/div	$\pm$ 1.85 V	
	279 mV/div to 500 mV/div	$\pm$ 4.00 V	
Offset accuracy*	$\pm$ 2% of channel offset + 1% of full scale		
Offset accuracy (typical)	$\pm$ 1% of channel offset + 1% of full scale		
Dynamic range	$\pm$ 4 divisions from center screen		
DC voltage measurement accuracy*			
Dual Cursor:	$\pm$ [(DC gain accuracy) + (resolution)]		
Single Cursor:	$\pm$ [(DC gain accuracy) + (offset accuracy) + (resolution/2)]		

\* Denotes warranted specifications, all others are typical. Specifications are valid after 30-minute warm up period and  $\pm$  5°C from oscilloscope firmware calibration temperature

<sup>1</sup> Input impedance is valid when V/div scaling is adjusted to show all waveform vertical values within scope display

<sup>2</sup> Full scale is defined as 8 vertical divisions. Magnification is used below 10 mV/div. Below 10 mV/div, full scale is defined as 10 mV/div. The major scale settings are 1 mV/div, 2 mV/div, 5 mV/div, 10 mV/div, 20 mV/div, 50 mV/div, 100 mV/div, 200 mV/div, 500 mV/div and 1V/div (if available)

<sup>3</sup> Vertical resolution for 10 bits = 0.1% of full scale, for 14 bits = 0.006% of full scale

<sup>4</sup> Calculation based on  $T_r = 0.44/BW$

<sup>5</sup> Calculation based on  $T_r = 0.31/BW$

<sup>6</sup> The average value from DC to full bandwidth of model



## Keysight Infiniium UXR Series – Performance Characteristics (continued)

RMS Noise Floor Specifications (scope only) Vertical setting (mVrms)		UXR0804A / UXR0802A	UXR1004A / UXR1002A	UXR1104A / UXR1102A
1 mV/div		< 1 mv (rms)	< 1 mv (rms)	< 1 mv (rms)

Horizontal System: Oscilloscope channels		UXR0804A / UXR0802A	UXR1004A / UXR1002A	UXR1104A / UXR1102A
Main timebase range	1 ps/div to 20 s/div real-time			
Main timebase delay range	200 s to -200 s real-time			
Reference position	Continuously adjustable across horizontal display range			
Time scale accuracy <sup>1,2</sup>	± (15 ppb initial + 100 ppb/year aging)			
	<b>Acquired Time Range or Delta-time Interval</b>	<b>Internal Reference</b>	<b>External Reference</b>	
Intrinsic jitter <sup>3</sup> (Sample Clock Jitter)	<100 us (10 us/div)	30 fs rms	30 fs rms	
	1 ms 100 us/div)	40 fs rms	40 fs rms	
	10 ms (1 ms/div)	60 fs rms	60 fs rms	
	100 ms (10 ms/div)	80 fs rms	70 fs rms	
Inter-channel intrinsic jitter <sup>4</sup>	< 30 fs rms			
Jitter measurement floor <sup>5</sup>				
Time interval error	$\sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$			
Period jitter	$\sqrt{2} \cdot \sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$			
Cycle-cycle / N-cycle jitter	$\sqrt{3} \cdot \sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$			
Inter-channel jitter <sup>6</sup> Inter-scope jitter <sup>6</sup>	$\sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2 + \left(\frac{\text{Inter channel}}{\text{Intrinsic Jitter}}\right)^2}$			

<sup>1</sup> Denotes warranted specification, all others are typical. Specifications are valid after a 30-minute warm-up period and ± 5 °C from calibration temperature.

<sup>2</sup> initial = immediately after factory or user calibration.

<sup>3</sup> External timebase reference values measured using a Wenzel 501-04608A 10 MHz reference. Intrinsic jitter value depends on acquisition time range for TIE formula and depends on delta-time between edges for all two-edge formulas.

<sup>4</sup> intra-chan = both edges on the same channel, inter-chan = two edges on different channels of the same scope frame, inter-scope = two edges on different scope frames. TIE(Edge1) = time-interval error measurement floor of first edge, TIE(Edge2) = time-interval error measurement floor of second edge.

<sup>5</sup> Sample rate at maximum. Noise 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) · 2 · π · f, slew rate of fast step ≈ (10-90% rise time).

<sup>6</sup> Scope channels and signal interconnect de-skewed prior to measurement.

## Keysight Infiniium UXR Series - Performance Characteristics (continued)

Horizontal System: Oscilloscope channels (Continued)	UXR0804A / UXR0802A	UXR1004A / UXR1002A	UXR1104A / UXR1102A
Jitter measurement floor <sup>1,2</sup> (sec rms)			
Time interval error	$\sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$		
Period jitter	$\sqrt{2} \cdot \sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$		
Cycle-cycle / N-cycle jitter	$\sqrt{3} \cdot \sqrt{\left(\frac{\text{Noise Floor}}{\text{Slew Rate}}\right)^2 + (\text{Intrinsic Jitter})^2}$		
Inter-channel jitter <sup>2</sup> (sec rms) Inter-scope jitter <sup>2</sup> (sec rms)	$\sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2 + \left(\frac{\text{Inter channel}}{\text{Intrinsic Jitter}}\right)^2}$		
Delta-time measurement accuracy <sup>2,3,4,5</sup>			
Intra-channel no averaging	$\pm \left[ 5 \cdot \sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2} + \left( \left( \frac{\text{Time Scale}}{\text{Accuracy}} \right) \cdot \left( \frac{\text{Delta}}{\text{Time}} \right) \right) \right]$		
Intra-channel 256 averages	$\pm \left[ \frac{5}{16} \cdot \sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2} + \left( \left( \frac{\text{Time Scale}}{\text{Accuracy}} \right) \cdot \left( \frac{\text{Delta}}{\text{Time}} \right) \right) \right]$		
Inter-channel no averaging	$\pm \left[ 5 \cdot \sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2 + \left(\frac{\text{Inter channel}}{\text{Intrinsic Jitter}}\right)^2} + \left( \left( \frac{\text{Time Scale}}{\text{Accuracy}} \right) \cdot \left( \frac{\text{Delta}}{\text{Time}} \right) + \left( \frac{\text{Inter channel}}{\text{Skew Drift}} \right) \right) \right]$		
Inter-channel 256 averages	$\pm \left[ \frac{5}{16} \cdot \sqrt{\left(\frac{\text{Time Interval}}{\text{Error (Edge1)}}\right)^2 + \left(\frac{\text{Time Interval}}{\text{Error (Edge2)}}\right)^2 + \left(\frac{\text{Inter channel}}{\text{Intrinsic Jitter}}\right)^2} + \left( \left( \frac{\text{Time Scale}}{\text{Accuracy}} \right) \cdot \left( \frac{\text{Delta}}{\text{Time}} \right) + \left( \frac{\text{Inter channel}}{\text{Skew Drift}} \right) \right) \right]$		

<sup>1</sup> Specifications are typical and valid after a 30-minute warm-up period and  $\pm 5^\circ\text{C}$  from calibration temperature.

<sup>2</sup> Scope channels and signal interconnect de-skewed prior to measurement.

<sup>3</sup> Sample rate at maximum. Noise 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)  $\cdot 2 \cdot \pi \cdot f$ , slew rate of fast step  $\approx$  (10-90% rise time).

<sup>4</sup> intra-chan = both edges on the same channel, inter-chan = two edges on different channels of the same scope frame, inter-scope = two edges on different scope frames. TIE(Edge1) = time-interval error measurement floor of first edge, TIE(Edge2) = time-interval error measurement floor of second edge.

<sup>5</sup> Reading is the displayed DTMA measurement value. Do not double the listed TSA value in DTMA formula.

## Keysight Infiniium UXR Series - Performance Characteristics (continued)

Acquisition System Specifications	UXR0804A / UXR0802A	UXR1004A / UXR1002A	UXR1104A / UXR1102A
Maximum real-time sample rate	256 GSa/s		
Sampling resolution	3.090625 ps/Sample		
Memory depth per channel			
200 Mpts	Standard	Standard	Standard
1 Gpt	Option 01G	Option 01G	Option 01G
2 Gpts	Option 02G	Option 02G	Option 02G
Real-time resolution at max sampling			
200 Mpts	780 us		
1 Gpt	3.9 ms		
2 Gpts	7.8 ms		

Display	
Display	15.4-inch color XGA TFT-LCD with capacitive touch screen
Intensity grayscale	256-level intensity-graded display
Resolution XGA	1024 pixels horizontally x 768 pixels vertically
Annotation	Up to 100 bookmarks can be inserted into the waveform window. Each can float or be tied to a specific waveform
Grids	Choose between 1-16 grids per waveform area, 10-bit vertical resolution
Waveform areas	Supports eight waveform areas plus chart mode for EZJIT, InfiniiSim, protocol, and PrecisionProbe
Waveform styles	Connected dots, dots, infinite persistence, color graded infinite persistence. Includes up to 256 levels of intensity-graded waveforms., variable persistence
Maximum update rate	> 400,000 waveforms per second (when in the segment memory mode)

Computer system and peripherals, I/O ports	
Operating system	Windows 10 64-bit
CPU	Intel i5-3550S quad-core CPU at 3.00 GHz
PC system memory	16 GB DDR3 RAM
Drives (SSD)	1-TB internal SSD removable hard drive
Peripherals	Logitech optical USB mouse, compact USB keyboard supplied. All Infiniium models support any Windows-compatible input device with a serial, PS/2 or USB interface
File types	
Waveforms	Compressed internal format (*.wfm (200 Mpts)), comma-separated values (*.csv (2 Gpts)), tab-separated values (*.tsv (2 Gpts)), public binary format (.bin (500 Mpts)), Y value files (*.txt (2 Gpts)), hierarchal data file (*.hf5 (2 Gpts)), composite data file (*.osc (2 Gpts))
Images	BMP, PNG, TIFF, GIF, JPEG or osc file format
I/O ports	RS-232 (serial), parallel, PS/2, USB 2.0 hi-speed (host), USB 2.0 hi-speed (device), VGA, DisplayPort, USB 3.0, dual-monitor video output, auxiliary output, trigger output, time base reference output

## Keysight Infiniium UXR Series - General Characteristics

General Characteristics	UXR0802A / UXR1002A / UXR1102A	UXR0804A / UXR1004A / UXR1104A
Temperature	Operating: 5 to + 40 °C up to 2,000 meters, de-rated between 2,000 and 3,000 meters by 1 °C for every 100 meters Non-operating: -20 to +70 °C	
Humidity	Operating: Up to 95% relative humidity (non-condensing) at +40 °C Non-operating: Up to 90% relative humidity at +65 °C	
Altitude	Operating: Up to 3,000 meters (9,842 feet); de-rate maximum temperature by 1 °C for every 100 meters above 2,000 meters Non-operating: Up to 4,600 meters (15,090 feet)	
Vibration	Operating random: 0.21 g (rms) Non-operating random: 2.0 g (rms) Swept sines: (0.50 g)	
Power	110 to 240 VAC at 50/60 Hz Maximum input power 1370 VA	200 VAC to 240 VAC at 50/60 Hz Maximum input power 2615 VA
Weight	36.15 kg (79.7 lbs)	42.05 kg (92.7 lbs)
Dimensions	Width: 435 mm with handles removed (17.126") 530 mm with handles (20.866") Depth: 513 mm main body (20.197") 560 mm including knobs and rear feet (22.047") Height: 311 mm (7U) with feet removed (12.244") The rackmount kit will take up 8U to allow for airflow and cabling 333 mm with feet (13.11") 1 mm Inputs: Connectors are 75 mm apart horizontally on the 4-channel frame and 150 mm apart on the 2-channel frame. Centers are 49 mm above the surface when resting flat (no tilt levers) and 90 mm above the surface when using the front tilt levers.	
Safety	CAN/CSA-C22.2 No. 61010-1-12 ANSI/UL Std. No. 61010-1:2012	

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## Definitions

### **Measured (meas)**

An attribute measured during development for purposes of communicating the expected performance. This data is not warranted and is measured at room temperature (approximately 23°C).

### **Nominal (nom)**

The mean or average characteristic performance, or the value of an attribute that is determined by design such as a connector type, physical dimension, or operating speed. This data is not warranted and is measured at room temperature (approximately 23°C).

### **Specification (spec)**

The warranted performance of a calibrated instrument that has been stored for a minimum of 2 hours within the operating temperature range of 5 – 40°C and after a 60-minute warm up period.

### **Typical (typ)**

The characteristic performance, which 80% or more of manufactured instruments will meet. This data is not warranted, does not include measurement uncertainty, and is valid only at room temperature (approximately 23°C).

# Preliminary Data Sheet

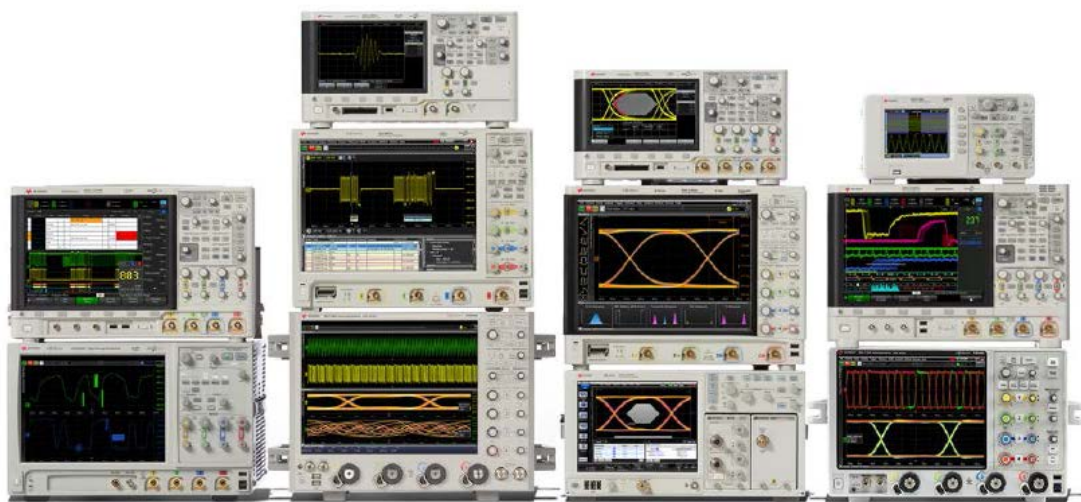
**Disclaimer:** This is a preliminary data sheet. Information, data and specifications contained herein are subject to change without notice. The product information and recommendations provided are based on data obtained by tests believed to be accurate, but the accuracy and completeness thereof is not guaranteed.

## Keysight Infiniium Oscilloscope Portfolio

Keysight's Infiniium oscilloscope lineup includes additional oscilloscopes with bandwidths from 500 MHz to 63 GHz. Use the following selection guide to determine which best matches your specific needs. All Infiniium real-time oscilloscopes feature the following:

- Industry's best signal integrity for each family series
- Industry's most advanced probing system
- Industry's most comprehensive software solution

Infiniium Series	S-Series	90000A	V-Series	Z-Series
Available bandwidths	500 MHz, 1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8GHz	2.5 GHz, 4 GHz, 6 GHz, 8 GHz, 12 GHz, 13 GHz	8 GHz, 13 GHz, 16 GHz, 20 GHz, 25 GHz, 33 GHz	20 GHz, 25 GHz, 33 GHz, 50 GHz, 63 GHz
Maximum upgradeable bandwidth	8 GHz	13 GHz	33 GHz	63 GHz
Maximum sample rate	20 GSa/s	40 GSa/s	80 GSa/s	160 GSa/s
Maximum memory (2-channel)	1 Gpts	1 Gpts	2 Gpts	2 Gpts
Standard memory (2-channel)	100 Mpts	40 Mpts	100 Mpts	100 Mpts
Standard memory (4-channel)	50 Mpts	20 Mpts	50 Mpts	50 Mpts
Channel inputs	50 $\Omega$ and 1 M $\Omega$	50 $\Omega$	50 $\Omega$	50 $\Omega$
Connector type	Precision BNC	Precision BNC	3.5 mm	3.5 mm (33 GHz input) 1.85 mm (> 33 GHz input)
Connector mate	BNC	BNC	SMA, 2.92 mm	SMA, 2.92 mm (33 GHz input), 2.4 mm (> 33 GHz input)
MSO models	Yes	No	Yes <sup>2</sup>	No
Hardware serial trigger option	No	No	Yes <sup>1,2</sup>	No
Supported InfiniiMax probe series	InfiniiMax II	InfiniiMax II InfiniiMax III+	InfiniiMax III/III+ InfiniiMax II with N5442A adapter	InfiniiMax III/III+ InfiniiMax II with N5442A adapter



<sup>1</sup> Trigger at a maximum 160-bit sequence or sixteen 8b/10b symbols. Works only on channel 1

<sup>2</sup> Either MSO or hardware serial trigger option can be added to the oscilloscope.



[www.axiestandard.org](http://www.axiestandard.org)

AdvancedTCA® Extensions for Instrumentation and Test (AXIe) is an open standard that extends the AdvancedTCA for general purpose and semiconductor test. The business that became Keysight was a founding member of the AXIe consortium. ATCA®, AdvancedTCA®, and the ATCA logo are registered US trademarks of the PCI Industrial Computer Manufacturers Group.



[www.lxistandard.org](http://www.lxistandard.org)

LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. The business that became Keysight was a founding member of the LXI consortium.



[www.pxisa.org](http://www.pxisa.org)

PCI eXtensions for Instrumentation (PXI) modular instrumentation delivers a rugged, PC-based high-performance measurement and automation system.

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