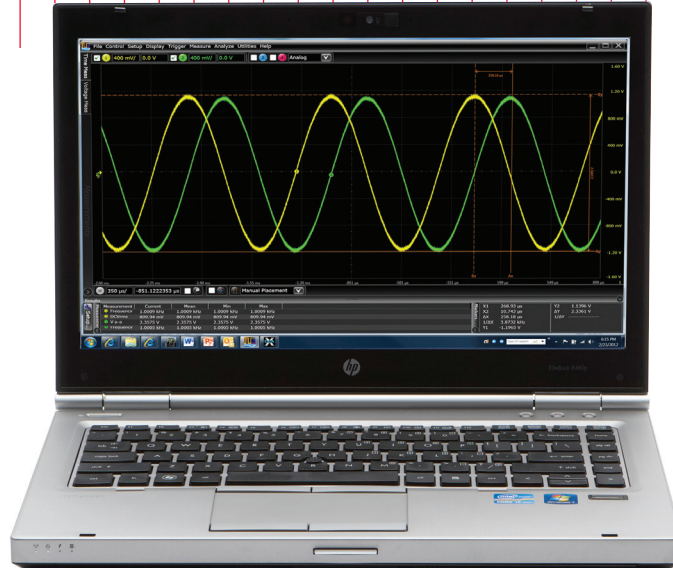


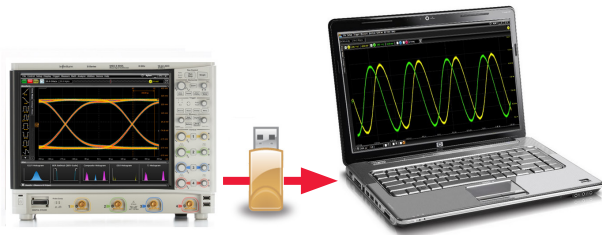
Keysight Technologies

N8900A Infiniium Offline Oscilloscope Analysis Software

Data Sheet



Infiniium Offline Oscilloscope Analysis Software

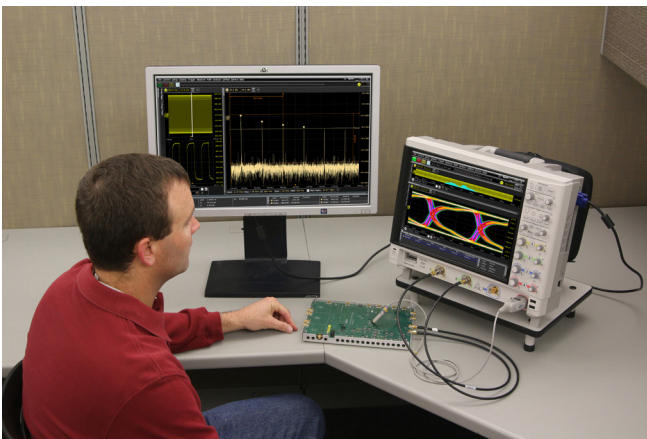


View, analyze, share, and document, where, and how you want.

Free 30-day trial

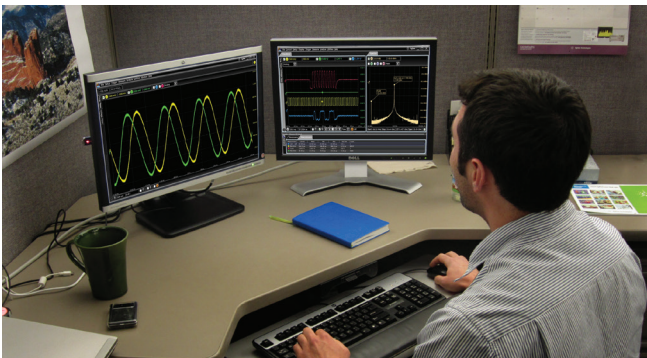
Download the N8900A software and use it free for 30 days. Import your scope waveforms, or use our demo wizard to quickly evaluate the application using previously captured signals.

www.keysight.com/find/N8900A-trial



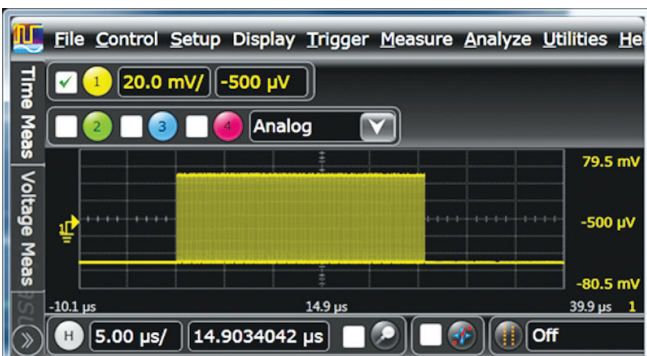
Expand scope measurement access

You depend upon your oscilloscope to capture an accurate picture of what's happening in your design. Ever wish you could do additional signal viewing, analysis and documentation tasks away from your scope and target system?



Get more insight from your limited test time

With the Keysight Technologies, Inc. Infiniium Offline oscilloscope analysis software, now you can. You can capture waveforms on your scope, save to a file, and recall the waveforms into Keysight's Infiniium Offline application. The application supports a variety of popular waveform formats from multiple oscilloscope vendors.



Runs like a scope

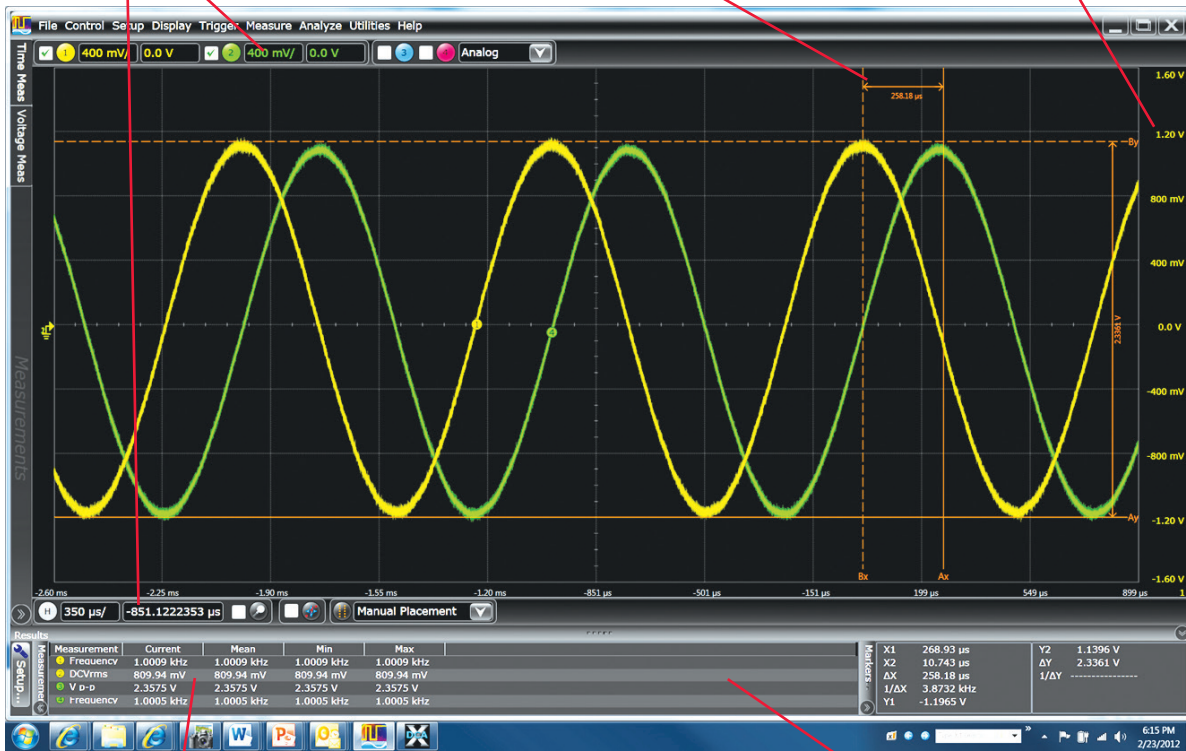
Now you can view, analyze, share, and document scope measurements anywhere your PC goes. Use familiar controls to quickly navigate and zoom in to any event of interest.

View and Analyze Away from Your Scope and Target System

Use the application to pan and zoom to areas of interest.

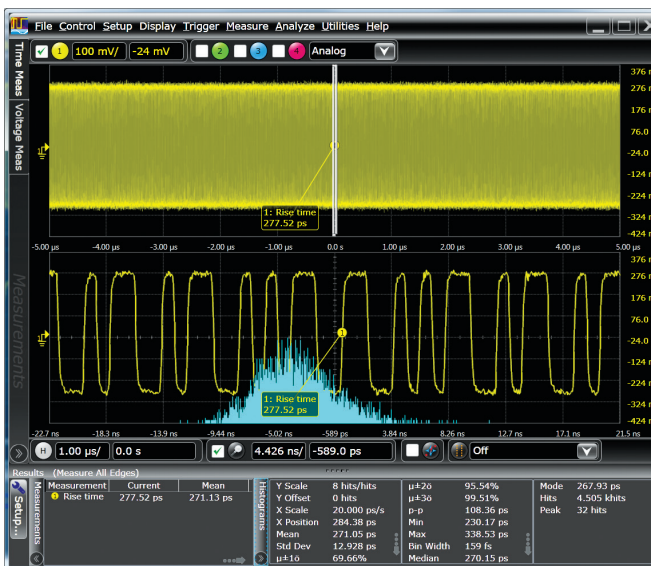
When moved, smart markers dynamically update delta values.

Quickly determine time and vertical values as they are prominently displayed.



Make quick and precise measurements using drag and drop, or by choosing from any of the 50 built-in automated measurements.

See up to 20 measurements simultaneously with user-selectable columns.



- The application allows you to be mobile.
- Use familiar scope controls to quickly navigate and zoom in to any event of interest.
- Access powerful viewing and analysis tools based on Keysight's Infiniium oscilloscopes.
- Use waveform math, filtering, and FFT spectral analysis and to get more insight. Need to see serial decode, analyze jitter, or view eye diagrams? Infiniium Offline helps you get insight in all of these areas.
- Multiple windows, sliders, and user-selectable sizing make for faster creation of custom views.

Share Comprehensive Scope Measurements More Easily



Infiniium Offline will help you share scope measurements more easily across your team, and if needed with customers and vendors. Share using common tools like a USB or network drive, email, and Web-based collaboration.

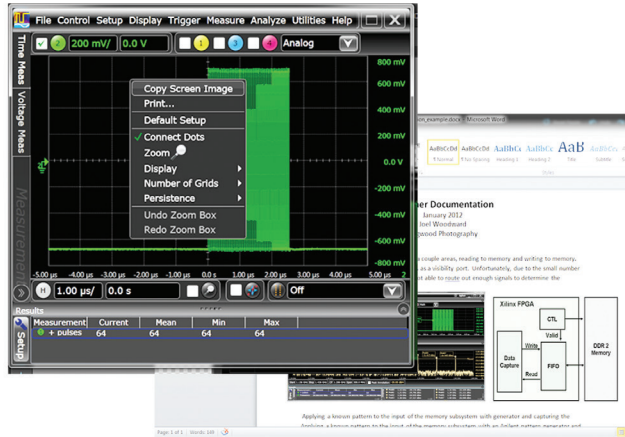


- Share entire waveform records instead of being limited exclusively to screen shots.
- Use bookmark annotations to share your personal insight more quickly and easily. Mouse-over bookmarks to reveal additional information.



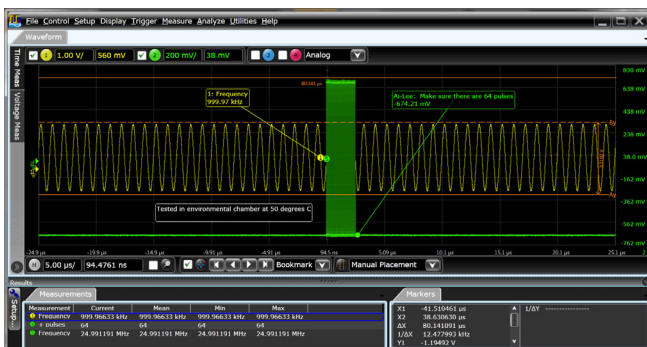
- Easily collaborate with others even if they have different tools. Infiniium Offline's transportable licenses allow you to share not only the measurement data, but also to loan out the application and analysis options so others can see exactly what you are seeing.

Create More Useful Documentation Faster



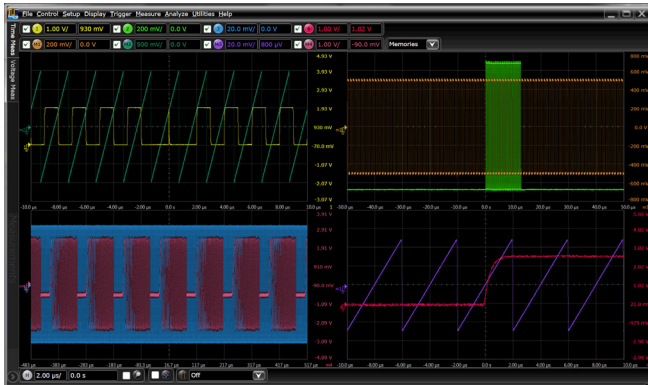
Infiniium Offline will help you create more useful documentation, faster. Here's how:

- Use right-click cut-and-paste to move screen images between applications, without ever having to save the image to a file.
- Quickly determine time and vertical values as they are prominently displayed.
- Size and populate measurements in the result window with just the information you need for your documentation.
- Add bookmarks and call outs to produce friendly and useful documentation.
- Save or open the entire measurement record in a mouse click in case there's a need to revisit later.
- Multiple windows and splitters allow you to document just what you want to see and how you want to see it.



Infiniium Offline: Standard Features

Infiniium Offline's standard feature set includes a large array of capabilities to help you view, analyze, share, and document better and faster.



Navigate

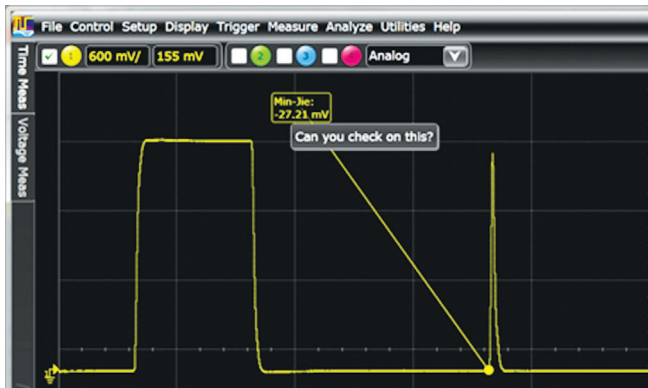
Pan and zoom to anywhere in the data record. Navigate in time, or between bookmarks.

View:

Up to 8 waveforms simultaneously, 1, 2, or 4 grids (stacked, side by side, custom layout, zoom)

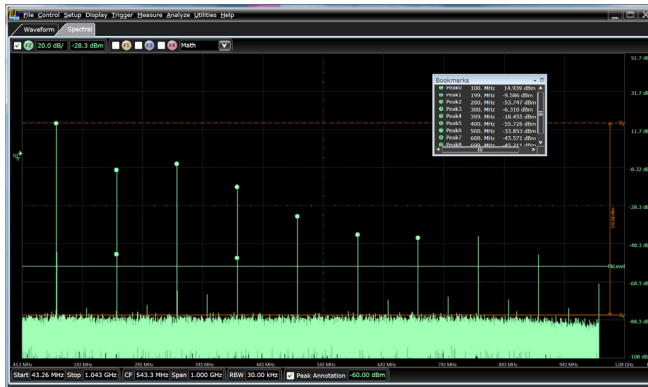
Controls

Horizontal (5ps/div to 20s/div)
Vertical (100uV/div to 1000 V/div)
Offset (+/- 1000V)



Measurements

Over 50 automated measurements
View up to 20 simultaneously
User-customizable result window (size, position, information) X & Y markers with dynamic delta values



Analyze

20 math operators including FFT and filters
Up to four independent/cascaded math functions
Measurement histogram
Mask test
Measurement limit testing

View windows:

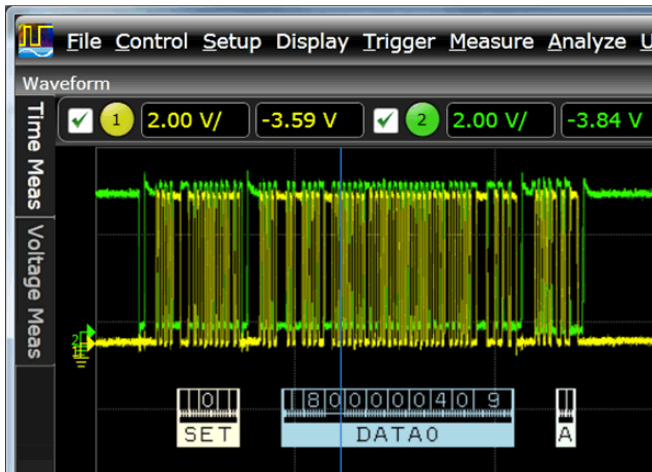
Analog, math, spectral, measurement results (simultaneous, tabbed, or undocked)



Documentation:

Right-click to copy
Up to 100 bookmarks
Annotated axis values
Markers with dynamic delta value updates when moved
User-definable views
One step save/load setup and all waveforms

Infiniium Offline: Serial Decode Upgrades



Need additional capability? Take advantage of the two protocol decode bundles (low speed and high speed). This can be included in initial Infiniium Offline purchase, or added at a later point in time.

Protocol decode

Quickly navigate between physical and protocol layers using time-correlated markers and serial decode views.

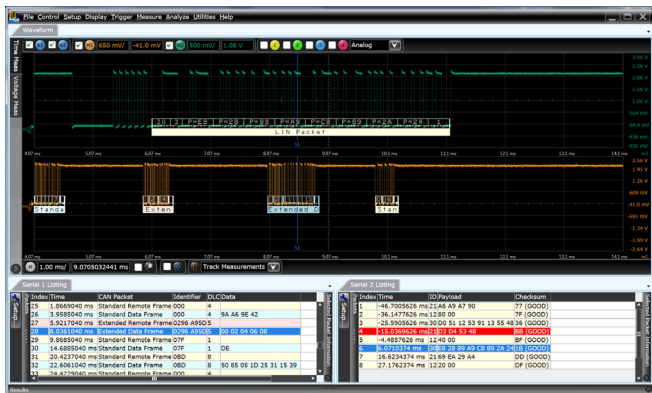
Low-speed serial decode (**N8900A-004**) includes CAN, LIN, I²C, JTAG, SPI, SVID, FlexRay, RS232, UART and USB 2.0.

High-speed serial decode (**N8900A-005**) includes decoding for SATA, DigRF, MIPI (D and M-Phy), 10G-KR, PCI Express Gen 1, 2 and 3, USB 2.0/3.0, 8b/10b and DDR 1/2/3.

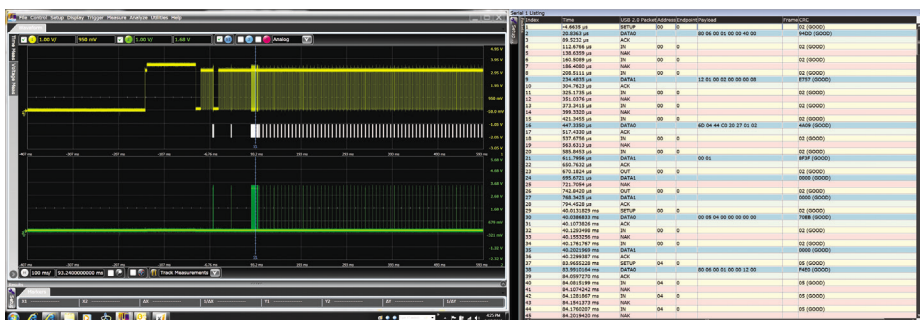
Serial 1 Listing

Index	Time	I2C Packet	Addr/R/W	Addr Ack/Data
24	-1.25178664 ms	Restart 7-bit Addr	22 Read	Ack 8F
25	-5.38664 μs	Start 7-bit Addr	21 Write	Ack 00
26	249.25336 μs	Restart 7-bit Addr	21 Read	Ack 00
27	480.49336 μs	Start 7-bit Addr	21 Write	Ack 01
28	732.91336 μs	Restart 7-bit Addr	21 Read	Ack 00
29	964.19336 μs	Start 7-bit Addr	22 Write	Ack 00
30	1.21671336 ms	Restart 7-bit Addr	22 Read	Ack 8C
31	2.46329336 ms	Start 7-bit Addr	21 Write	Ack 00
32	2.71777336 ms	Restart 7-bit Addr	21 Read	Ack FF
33	2.94909336 ms	Start 7-bit Addr	21 Write	Ack 01
34	3.20141336 ms	Restart 7-bit Addr	21 Read	Ack FF
35	3.43265336 ms	Start 7-bit Addr	22 Write	Ack 00
36	3.68511336 ms	Restart 7-bit Addr	22 Read	Ack 8F
37	4.93183336 ms	Start 7-bit Addr	21 Write	Ack 00
38	5.18633336 ms	Restart 7-bit Addr	21 Read	Ack 00
39	5.41759336 ms	Start 7-bit Addr	21 Write	Ack 01
40	5.66009336 ms	Restart 7-bit Addr	21 Read	Ack 00

See decode below signals in the waveform area, and create a serial decode listing window. Matching colorized packet enables quick navigation between time domain and listing windows. Size decode window as big or small as you want. Customize font size, and which columns you want shown.

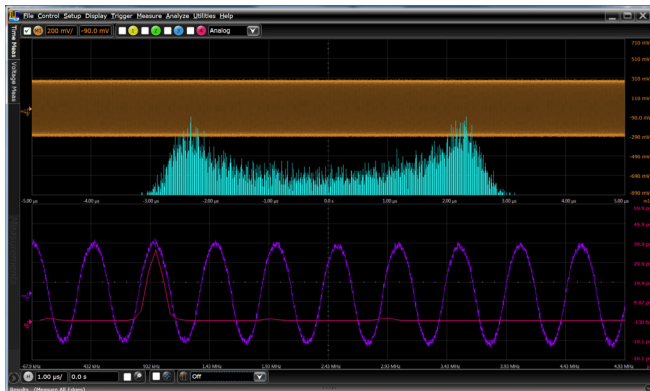


Infiniium Offline serial decode offers decode of up to four serial buses simultaneously. Additional listing windows show when decoding multiple buses, or choose to view time-aligned packet decode in the waveforms area.



The decode listing window can be displayed simultaneously with the waveform window, configured as an unique window tab, or undocked and moved to any location on your PC monitor including on extended or multi-displays.

Infiniium Offline: The DSA Package (N8900A-002)



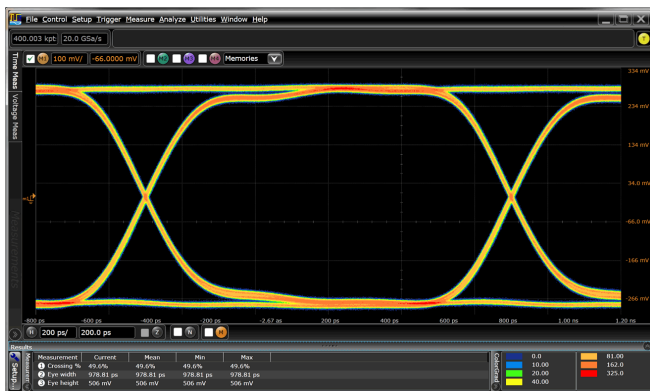
EZJIT

Characterize and evaluate most commonly needed jitter measurements including TIE, cycle-cycle, N-cycle, period using EZJIT. For any measurement, EZJIT's histogram enables showing a measurement distribution as well as the application provides measurement spectral and trending plots.



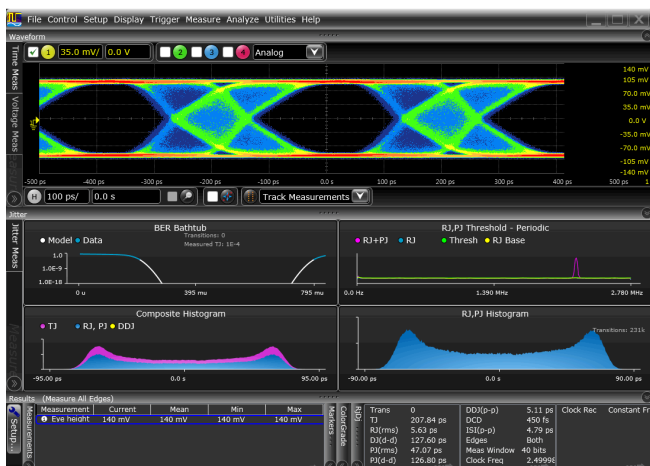
EZJIT Plus and EZJIT Complete

EZJIT Plus includes all the capability of EZJIT, plus the ability to separate Rj and Dj. On Infiniium Offline, jitter separation is displayed in it's own unique window, so you can simultaneously see jitter results and waveform information.



Serial data analysis

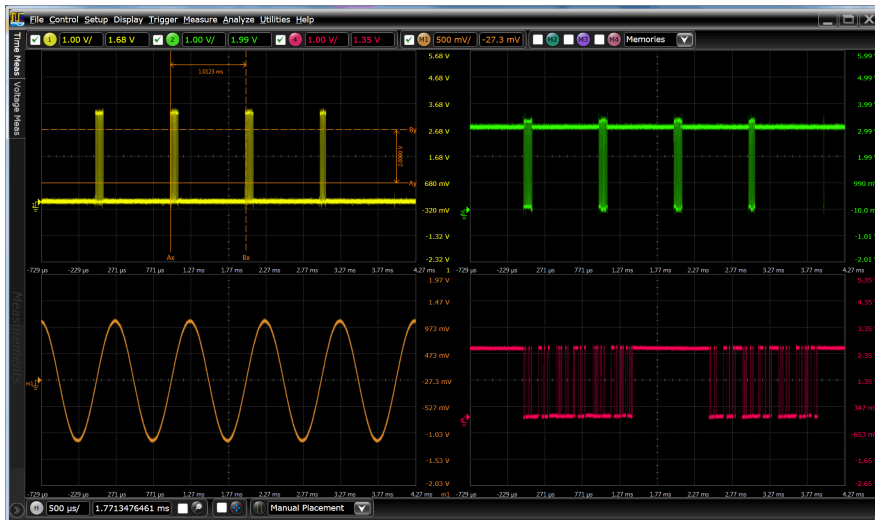
Quickly validate signal integrity for high-speed serial interfaces with embedded clocks. The application includes clock recovery and automated building of eye diagrams. 8B/10 protocol decode comes standard with the DSA option as well.



Infiniium Offline: Opening Saved Waveforms and Setup Files

InfiniiView file compatibility	Keysight Scopes		Other
	Infiniium	InfiniiVision	
	Composite file (all data and setup)		
.osc	✓		
Waveform data record(s) (open and save)			
.csv, tsv, txt	✓	✓	✓
.bin, h5	✓	✓	
.wfm	✓		
Oscilloscope setup file (open and save)			
.set	✓		

Infiniium Offline supports a number of popular file waveform and setup formats. As well, you can open .csv, .tsv, and .txt files produced by EDA tools or other test equipment.



Open up to 8 signals one by one, or use Keysight’s composite file to open/save everything in a single mouse click. Composite files include all setup settings, all analog and memory waveforms, and window positioning.

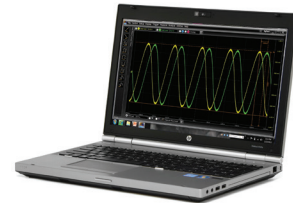
File size approximations				
# of saved scope channels	Scope memory setting	Saved File type	Resulting PC file size (Interpolation = Off)	Resulting PC file size (Interpolation = On)
1	100 Kpts	.osc	0.2 M	0.2 M
		.hd5	0.3 M	3.5 M
		.wfm	0.2 M	2 M
		.bin	0.4 M	6 M
		.csv	2.7 M	43 M

How big are waveform files? Depends on the number of channels, settings, and the file format. File sizes scale linearly with channels and memory depth.

PC requirements and Infiniium Offline characteristics

Host PC operating system and resources

- Recommended: Microsoft Win 7 64-bit, 4G RAM, 1G free hard drive space
- Required: Microsoft Win XP, 2G RAM, 1G hard drive space. When using Windows XP, many features that are available in the Windows 7 version are not available



Waveforms:

Open up to 8 waveforms simultaneously (four analog and four waveform memories). Application supports up to 16 vertical bits.

Supported file formats:

Infiniium .osc, .set, .bin, .h5, .wfm

InfiniiVision: .bin, .h5,

Other formats: csv, .tsv, .txt

View windows:

One timebase waveform, one spectral, measurement results (simultaneous, tabbed, or undocked), one for each decode, one for jitter.

Up to 8 waveforms simultaneously, 1, 2, or 4 grids (stacked, side by side, custom layout, zoom)

Controls

Horizontal (5ps/div to 20s/div)

Vertical (100uV/div to 1000 V/div)

Max Vertical offset: +/- 1000V)

FFT: 0 Hz to 1 THz, Start, stop, center, span, resolution BW, threshold for peak magnitude table

Documentation:

Right-click to copy

Up to 100 bookmarks

Annotated axis values

Markers with dynamic delta value update when moved

Application display resolution

User selectable, max of 1600 x 900

Save images:

Right-click copy to Windows buffer. File save images as .png, .jpg, .bmp .tif, user selection for setup information inclusion, time stamp appended to image saves

Measurements:

Result window user-customizable (size, position,) with up to 20 measurement results shown simultaneously.

- **X & Y markers** with dynamic delta values
- **Time:** rise time, fall time, +width, -width, delta time, edge-edge, +pulse count, -pulse count, period, frequency, duty cycle, burst width, burst period, burst interval, Tmin, Tmax, Tvolt, edge time, slew rate
- **Voltage:** Average, RMS, amplitude, base, top, overshoot, pre-shoot, crossing, V upper, V middle, V lower, pulse top, pulse base, pulse amplitude, area
- **Clock**¹: Time interval error (with EZJIT or EZJIT+ options), N period, period-period, +width - +width, -width -width, duty cycle – duty cycle
- **Data**¹: N-UI, UI-UI, data rate, clock recovery rate, DDPWS, de-emphasis
- **Mixed:** Area, slew rate
- **Frequency:** FFT magnitude, FFT phase, FFT delta frequency, FFT delta magnitude, magnitude peak table
- **Eye:** Eye height, eye width, eye jitter, eye crossing%, Q factor, duty cycle distortion

Analyze

- Measurement histogram, mask test, measurement limit testing
- Up to four independent/cascaded math functions
- **Simple math:** +, -, *, /, average, absolute value, magnify, max, min square, square root, Vs
- **Advanced math:** integrate, FFT magnitude, FFT phase, high-pass filter, low-pass filter, smooth: differential+, differential-
- **User-defined**²: import of .m Matlab file, Butterworth, FIR, LFE, RTEye, Sqrtsumofsquares,

¹ Requires DSA option

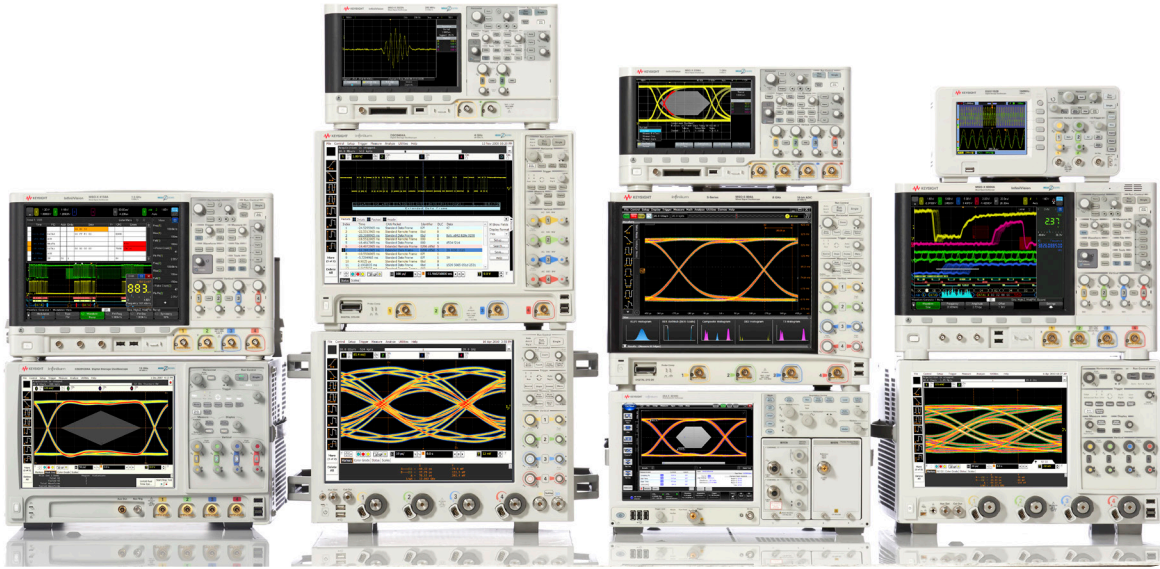
² Requires MATLAB

Infiniium Offline Ordering Information

Order N8900A-001 if your PC doesn't already have an Infiniium Offline baseline license. Add any desired options. The N8900A baseline license is transportable and can be moved from PC to PC. Upgrade options can be ordered as transportable or server-based licenses.

	Model number
Infiniium Offline software license	N8900A-001
DSA bundle (real-time eye and jitter analysis)	
EZJIT	N8900A-002
EZJIT Plus and EZJIT Complete	
SDA (Serial Data Analysis)	
Analysis bundle (deep analysis)	
Equalization	N8900A-003
InfiniiSim (functions only)	
User-defined function	
Low-speed protocol bundle	
CAN protocol decode	N8900A-004
FlexRay protocol decode	
I ² C protocol decode	
JTAG protocol decode	
LIN protocol decode	
MIPI RFFE protocol decode	
RS232/UART protocol decode	
SPI protocol decode	
SVID protocol decode	
USB 2.0 protocol decode	
High-speed protocol bundle	
DDR2 and LPDDR2 decode	N8900A-005
DDR3 and LPDDR3 decode	
DDR4 and LPDDR4 decode	
Ethernet 10GBASE-KR 64/66 protocol decode	
MIPI CSI-3 protocol decode	
MIPI DigRF v4 protocol decode	
MIPI D-PHY protocol decode	
MIPI LLI protocol decode	
MIPI RFFE protocol decode	
MIPI UniPro protocol decode	
PCI Express Gen1 protocol decode	
PCI Express Gen2 protocol decode	
PCI Express Gen3 protocol decode	
SATA/SAS protocol decode	
Universal Flash Storage (UFS) protocol decode	
USB 2.0 protocol decode	
USB 3.0 protocol decode	
USB 3.0 SuperSpeed Inter-Chip (SSIC) protocol decode	

Note: Each application can be ordered individually as a transportable license.



Keysight Oscilloscopes

Multiple form factors from 20 MHz to > 90 GHz | Industry leading specs | Powerful applications



myKeysight

www.keysight.com/find/mykeysight

A personalized view into the information most relevant to you.

www.keysight.com/go/quality

Keysight Technologies, Inc.

DEKRA Certified ISO 9001:2008

Quality Management System

Keysight Channel Partners

www.keysight.com/find/channelpartners

Get the best of both worlds: Keysight's measurement expertise and product breadth, combined with channel partner convenience.

www.keysight.com/find/N8900A



For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

Americas

Canada	(877) 894 4414
Brazil	55 11 3351 7010
Mexico	001 800 254 2440
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Other AP Countries	(65) 6375 8100

Europe & Middle East

Austria	0800 001122
Belgium	0800 58580
Finland	0800 523252
France	0805 980333
Germany	0800 6270999
Ireland	1800 832700
Israel	1 809 343051
Italy	800 599100
Luxembourg	+32 800 58580
Netherlands	0800 0233200
Russia	8800 5009286
Spain	0800 000154
Sweden	0200 882255
Switzerland	0800 805353
	Opt. 1 (DE)
	Opt. 2 (FR)
	Opt. 3 (IT)
United Kingdom	0800 0260637

For other unlisted countries:
www.keysight.com/find/contactus
 (BP-09-04-14)

