Infiniium Offline Analysis Software

D9010BSEO, D9010JITO, D9010ASIO, D9010LSPO, and D9010HSPO

Introduction

View, analyze, share, and document your data where and how you want with D9010BSEO software and accompanying options. This datasheet represents D9010BSEO, D9010JITO, D9010ASIO, D9010LSPO, and D9010HSPO.
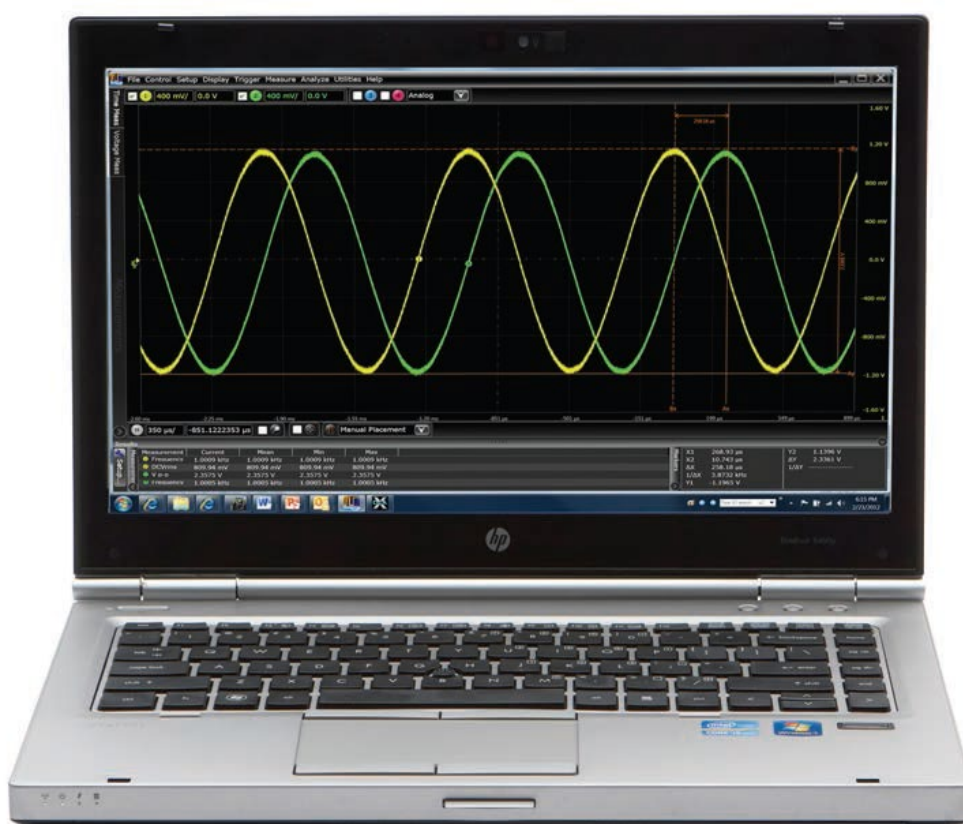

KEYSIGHT

Table of Contents

Product Overview

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? Want to spend less time in the lab in front of your oscilloscope?

Expand your scope measurement access

With the Keysight Technologies, Inc. D9010BSEO Infiniium Offline oscilloscope analysis software, now you can. Infiniium Offline is a copy of the same powerful software provided on all new Keysight Infiniium oscilloscopes. You can capture waveforms on your scope, save to a file, and recall the waveforms into Keysight's Infiniium Offline application. In addition, the application supports a variety of popular waveform formats from multiple oscilloscope vendors. With Infiniium Offline, do your analysis and documentation from the comfort of your desk or home office.

How it works with Infiniium Oscilloscopes

When paired with your Infiniium oscilloscope, the flow couldn't be easier. When you've captured your data and set up your measurements, simply go to File > Save > Composite file. You can then step away from the lab to work from your PC with Infiniium Offline. Load that saved file into Infiniium Offline in the same way, under File > Open > Composite. You can then pick up right where you left off!

Import data from any source

Infiniium offline can also accept most open-source data formats, such as .csv and .txt files, to display waveforms into our Infiniium user interface for more powerful measurements, analysis, and documentation. It can also accept the very portable .h5 or .bin format from our InfiniiVision oscilloscopes.

Measure, analyze, annotate, and collaborate

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

View and Analyze Away from Your Oscilloscope and Target System

Infiniium Offline allows you to be mobile. Use Infiniium's familiar scope controls and user interface to quickly navigate and zoom into any event of interest. Access powerful viewing and analysis tools based on Keysight's oscilloscope platform. Use waveform math, filtering, FFT spectral analysis, and much more to get insight in your design. Need to see serial decodes, analyze jitter, or view eye diagrams? Infiniium offline can help you in all those areas. Multiple windows, sliders, and user-selectable sizing makes it easy and fast to create custom views of your signals.

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.
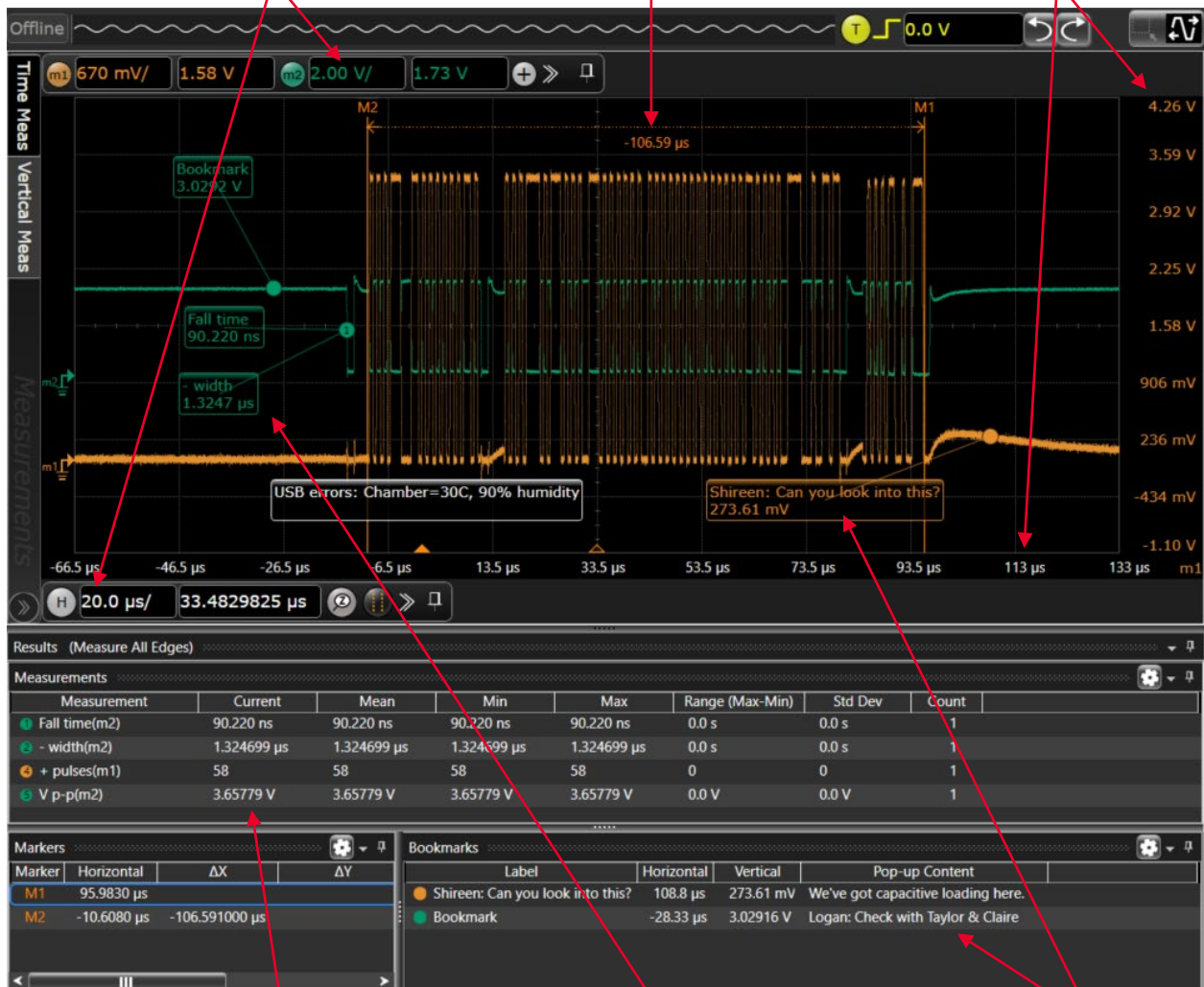
Select from over 50 automatic drag and drop measurements.

Measurement callouts show pointed measurements made on specific areas of the waveform.

Bookmarks can be used to call out specific areas of interest on the waveform.

Easily Share Comprehensive Scope Measurements

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.

- Save and share measurement reports as PDFs or MHTML format files.

- 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.
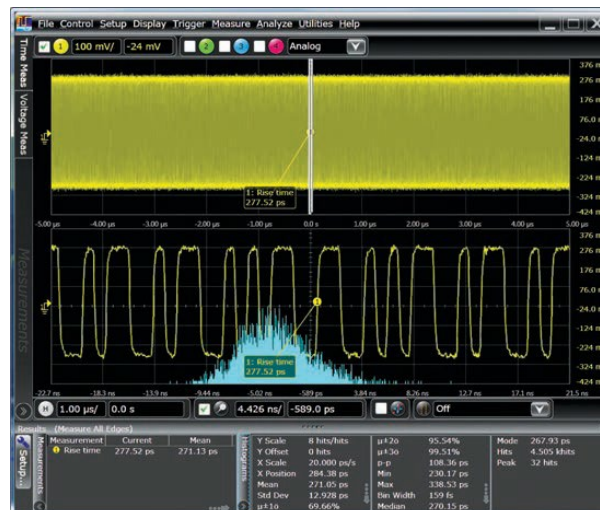
Create Useful Documentation Faster

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.

- Save information about the oscilloscope, waveform screen captures, and measurement result in one organized report file (PDF or MHTML) to archive and keep proof of test results.

Standard Features

All features, measurements, math functions, and analysis functions are identical to that found in any Infiniium oscilloscope. Please reference the datasheet of any Infiniium oscilloscope.

Feature	Description
Navigate	Pan and zoom anywhere in the data record Navigate in time Navigate between bookmarks
View	Up to 8 waveforms simultaneously 1, 2, or 4 grids at once: stacked, side by side, or custom layout
Controls	Horizontal: 5 ps/div to 200 s/div Vertical: 100 uV/div to 1000 V/div Offset: $\pm$1000 V
Measurements	Over 50 measurements available View up to 20 simultaneously User-customizable results window X, Y markers with delta values on screen
Analyze	20 math operators, including FFT and filters View up to 16 math functions simultaneously Measurement histograms Mask testing Limit testing
Window Views	Analog channels Digital channels Measurement results Spectral analysis
Documentation	Right click to copy images Up to 100 bookmarks Annotated axis values Markers with delta values User-definable views One step to save or load all waveforms at once
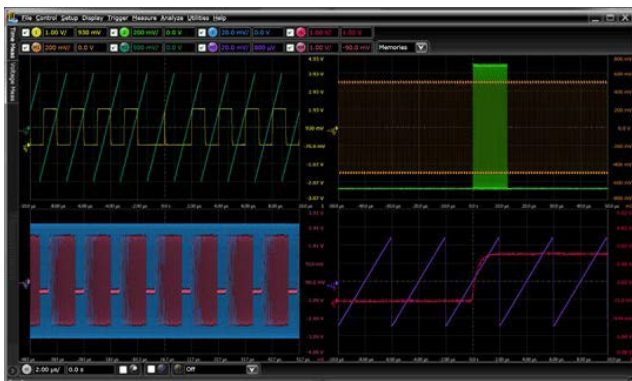
User defined function

The User Defined Function software provides new analysis capabilities beyond the traditional math/analysis features of the oscilloscope. Now you have the freedom to develop your own math functions or filters using MATLAB® and its Signal Processing Toolbox. (User must purchase MATLAB from The MathWorks separately).

MultiScope

MultiScope capability allows you to achieve 40 channels of acquisition in a single time base. MultiScope can be used to connect any combination of Keysight Infiniium S-Series, MXR-Series, EXR-Series, V-Series, Z-Series and UXR-Series oscilloscopes. Control them from a "leader oscilloscope," or control them from a host PC with Infiniium Offline installed.

Jitter Analysis Upgrade

With the faster edge speeds and shrinking data valid windows in today's high-speed digital designs, insight into the causes of signal jitter is critical for ensuring the reliability of your design. EZJIT Complete software for Infiniium oscilloscopes provides the advanced decomposition, analysis, and views of jitter necessary for fast and accurate insight into your signal.

This EJZIT Complete package provides basic jitter analysis such as histograms and jitter trends, advanced level clock and data measurements such as time-interval error and UI measurements, and expert level analysis with complete jitter separation in timing and noise in over ten categories.
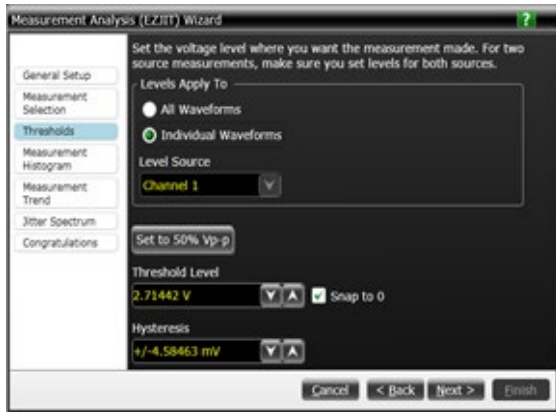
Finally, EZJIT Complete will allow you to make phase noise measurements on clock signals. Keysight is the first to offer a dedicated phase noise measurement application on Infiniium oscilloscopes. Phase noise is related to clock TIE and is generally used to measure change in an oscillator's frequency, either in the long term or short term.

Another large measurement benefit of EZJIT Complete is that the oscilloscope will make applicable jitter measurements on all cycles of the waveform, including those not in the display window, instead of just one cycle.

The D9010JITO EZJIT Complete offline software option is the functional equivalent of D90x0JITA. Please reference that product's datasheet for complete information and measurement capabilities.

# Signal Integrity Analysis Upgrade

Deeper insight and simulation capabilities are available in the D9010ASIO bundle, which includes equalization, de-embedding, crosstalk, power integrity, and PAM-N analysis tools. This is the equivalent of the D90x0ASIA, D9010POWA, and D9010PAMA analysis tool available on Infiniium oscilloscopes.

The Keysight Technologies, Inc. serial data equalization (SDE) software for Infiniium Series oscilloscopes provides fast and accurate equalization simulating decision feedback equalization (DFE), feed-forward equalization (FFE), and continuous time linear equalization (CTLE) modeling in real time. SDE software allows users to input their own self-designated tap values, or it will find the optimal tap values for the designer for FFE and DFE. CTLE allows DC gain and up to three-pole modeling.

The crosstalk and power integrity analysis application can provide a lot of valuable insight into your design. For instance, it can help you determine the margins the design would recover without the crosstalk. It can also help determine if a signal failing design specification would pass without the crosstalk. This approach can lead to important design decisions on whether it is worth the time and effort to improve the crosstalk effect and where in the board to make improvements.

InfiniiSim works by relating the transfer functions of two circuits to yield an overall transfer function between them. The two circuits (the 'measurement circuit' and 'simulation circuit') are defined by the user. The measurement circuit represents the measurement setup the user has on the bench, while the simulation circuit represents the circuit the user would like to have. This is useful for removing or inserting channel insertion loss, removing scope input inflection, relocating a measurement plane, removing probe loading effects and more.

The PAM-N analysis within D9010ASIO extends the ease-of-use advantages of the Infiniium oscilloscopes to the analysis of PAM-3 or PAM-4 signals. A wizard walks you quickly through the steps required to setup measurements for a PAM encoded signal, to select methods for clock recovery, and then the measurements you wish to have performed on your PAM signal. Our PAM software is also able to accurately set the individual threshold levels of your PAM signal and render each individual eye.
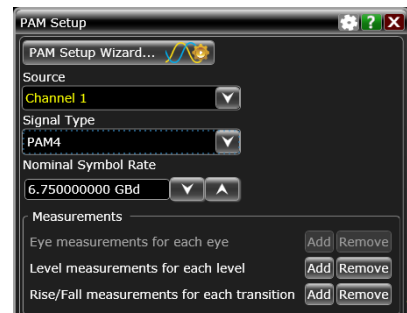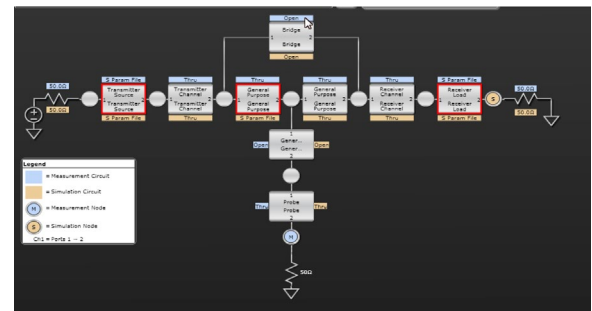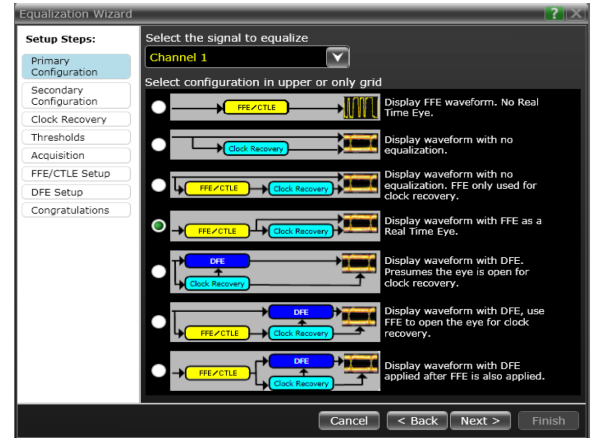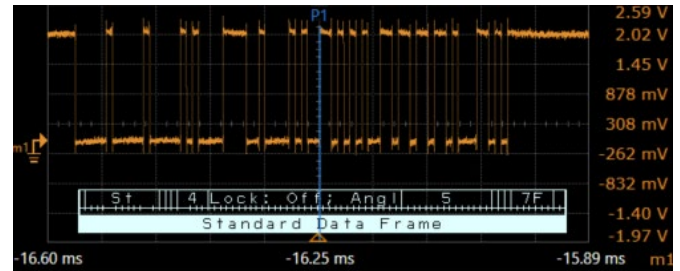
Serial Decode Upgrades

Need additional capability? Take advantage of the wide range of protocol decode software offered in the Infiniium Offline bundles. There are low-speed and high-speed protocol decode bundles available, D9010LSPO and D9010HSPO respectively. These can be included in the initial D9010BSEO Infiniium Offline purchase or added at a later point in time.

Quickly navigate between physical and protocol layers using time-correlated markers and serial decode views. 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.
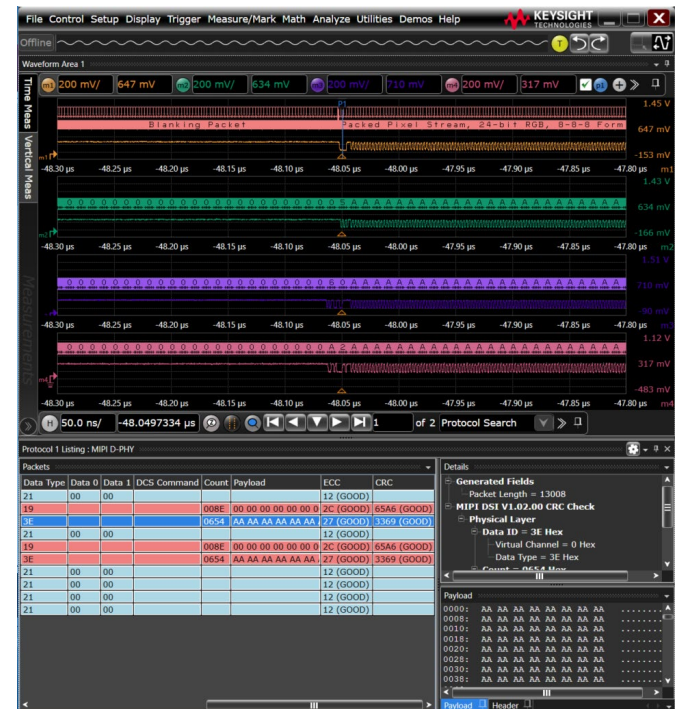
Infiniium Offline serial decode offers decode of up to four serial buses simultaneously. Additional listing windows show when decoding multiple buses, or you can choose to view time-aligned packet decode in the waveforms area. The decode listing window can be displayed simultaneously with the waveform window, configured as an unique window tab, or undocked and moved to any location on your PC monitor including on extended or multi-displays.

Low-speed serial decode package D9010LSPO includes CAN, CAN-FD, LIN, FlexRay, I²C, I²S, JTAG, SPI, Quad SPI, eSPI, SVID, RS232, UART, USB 2.0, USB-PD, Ethernet 10/100BaseT, SPMI, Automotive Ethernet 100BASE-T1, Manchester, MIL-STD-1553, ARINC 429, and SpaceWire.

High-speed serial decode package D9010HSPO includes decoding for SATA, DigRF, MIPI® (C-PHY, D-PHY and M-PHY), 10G-KR, PCI Express® Gen 1, 2 and 3, USB 2.0/3.0/3.1/3.2, 8b/10b, Ethernet 100BASE KR/CR and DDR 1/2/3.

Performance Information

Recommended PC hardware

Offline software 6.xx is also partially compatible with Windows XP and Windows 7, but there may be some limitations in performance. Keysight always recommends the latest version of Windows 10.

	Windows OS	RAM	Hard disk space
Suggested	Windows 10	4 GB	3 GB

Compatible Software Versions

If you are pairing Infiniium Offline with an Infiniium oscilloscope you already own, or are using with our MultiScope setup, we recommend downloading the same code as your Infiniium oscilloscope already uses for maximum compatibility.

Infiniium version	Oscilloscope families
6.xx	S-Series, V-Series, Z-Series, 9000 Series, 90000 Series
11.xx	MXR-Series, EXR-Series, and UXR-Series

Recommended file types

Infiniium Offline supports most popular waveform and setup file formats in addition to Keysight's proprietary composite file format, which combines oscilloscope setup files and waveform data into one file. Additionally, you can open CSV, TSV, and TXT files produced by EDA tools, or other test equipment. You can open up to 8 signals one at a time, or use a Keysight OSC composite file to open everything with a single click. Composite files include all setup settings, analog and memory waveforms, and window positioning.

Infiniium Offline file compatibility

File type	Infiniium	InfiniiVision	Competitors
.OSC composite files (all data and setup)	Yes		
.SET oscilloscope setup	Yes		
.CSV, .TSV, TXT	Yes	Yes	Yes

waveform data			
.BIN, .H5 waveform data	Yes	Yes	
.WFM	Yes		

Waveform file sizes

The size of waveform files depend mostly on number of channels, interpolation scheme and file format, with settings also playing a smaller factor. File sizes always scale linearly with the memory depth of the saved waveforms. Files scale linearly with channels and memory. For example, four channels and 1 Mpts of data in an OSC file results in a 0.2 MB x 4 x 10 = 8 MB file.

File size estimates (1 channel, 100 kpts memory)

File type	Resulting PC file size (MB)	
	(Interpolation OFF)	(Interpolation ON)
.OSC	0.2	0.2
.H5	0.3	3.5
.WFM	0.2	2
.BIN	0.4	6
.CSV	2.7	43

Ordering Information and Related Literature

Available models and options

Model	Description
D9010BSEO	Baseline software, and pre-requisite for any of the below options.
D9010JITO	EZJIT Complete: vertical noise, jitter, and phase noise separation and analysis
D9010ASIO	Advanced Signal Integrity: Equalization, De-Embedding, Crosstalk, PAM-N
D9010LSPO	Low Speed Protocol Decodes: CAN, CAN-FD, LIN, FlexRay, I²C, I²S, JTAG, SPI, Quad SPI, eSPI, SVID, RS232, UART, USB 2.0, USB-PD, Ethernet 10/100BaseT, SPMI, Automotive Ethernet 100BASE-T1, Manchester, MIL-STD-1553, ARINC 429, and SpaceWire
D9010HSPO	High Speed Protocol Decodes: SATA, DigRF, MIPI® (C-PHY, D-PHY and M-PHY), 10G-KR, PCI Express® Gen 1, 2 and 3, USB 2.0/3.0/3.1/3.2, 8b/10b, Ethernet 100BASE KR/CR and DDR 1/2/3.

Flexible software licenses and KeysightCare Software Support Subscriptions

Keysight offers a variety of flexible licensing options to fit your needs and budget. Choose your license term and license type.

License terms

Perpetual – Perpetual licenses can be used indefinitely.

Subscription – Subscription licenses can be used through the term of the license only.

License types

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 SW1000-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.

KeysightCare Software Support Subscriptions

Perpetual licenses are sold with a 12 (default) and up to 60-month software support subscription with a user-selected start and end date. Support subscriptions can be renewed for a fee after that.

Subscription licenses include a software support subscription through the term of the license, from 3 to 36 months, with a user-selected start date.

Selecting your license

Step 1. Choose your software product (e.g. D9020ASIA)

Step 2. Choose your license term: perpetual or subscription.

Step 3. Choose your license type: node-locked, transportable, USB portable, or floating.

Step 4: Depending on the license term, choose your support subscription duration.

Example

If you selected:	Your quote will look like this:	
D9020ASIA Node-locked	Part number D9020ASIA	Description Advanced Signal Integrity Software (EQ, InfiniiSimAdv, Crosstalk) Node-locked perpetual license
Perpetual license	SW1000-LIC-01 SW1000-SUP-01	Node-locked KeysightCare software support subscription with user-selected start and end dates
D9020ASIA Transportable Subscription 6-month license	Part number D9020ASIA SW1000-SUB-01	Description Advanced Signal Integrity Software (EQ, InfiniiSimAdv, Crosstalk) 6-months, transportable subscription license

To configure your product and request a quote:

http://www.keysight.com/find/software

Contact your Keysight representative or authorized partner for more information or to place an order:

www.keysight.com/find/contactus

Related Literature

Type	Description / URL
Data sheet	Infiniium MXR B-Series (500 MHz to 6 GHz, 8-channel, real-time oscilloscope)
Data sheet	Infiniium EXR-Series (500 MHz to 6 GHz, 8-channel, real-time oscilloscope)
Data sheet	Infiniium UXR B-Series (13 GHz to 110 GHz real time oscilloscope)
Brochure	30 Things Only Infiniium Oscilloscopes Can Do