Keysight Technologies
Infiniium 9000 Series Oscilloscopes

Data Sheet

Engineered for broadest measurement capability

EDN innovation EDN China Innovation Award EDN 创新奖 2009 最佳产品

KEYSIGHT TECHNOLOGIES

If you haven't purchased a Keysight scope lately, why should you consider one now?

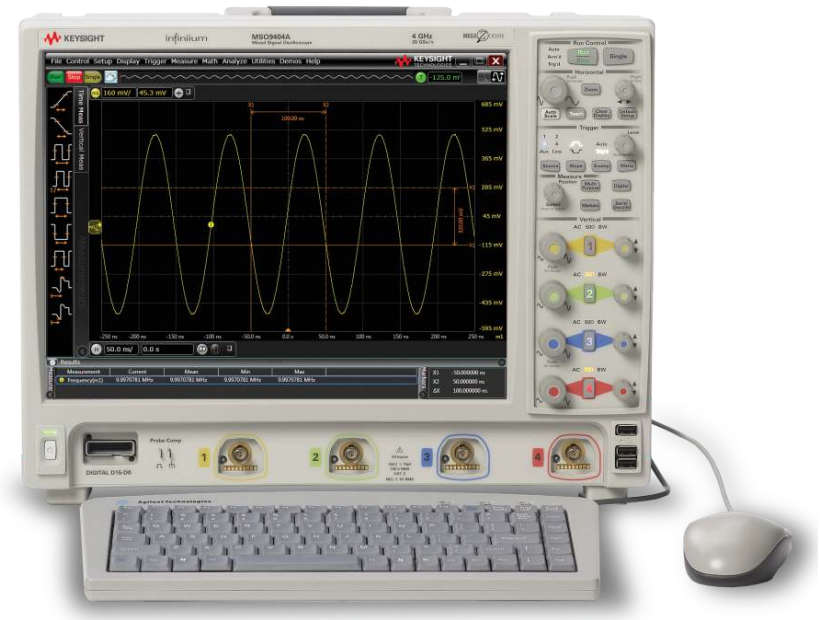
If you're like most engineers, you never know what your next project will demand from you. You need an oscilloscope that can adapt to a wide variety of debug and test challenges.

That's why we designed our new Infiniium 9000 Series oscilloscope to meet a full range of needs.

First we built in the powerful features you'd expect in any Infiniium scope. Then we engineered the scope for the broadest measurement capability, so it would be the most indispensable tool in your arsenal.

There is no better way to experience the superiority of the Infiniium 9000 Series scopes than to see it. Contact Keysight Technologies, Inc. today to request an evaluation.

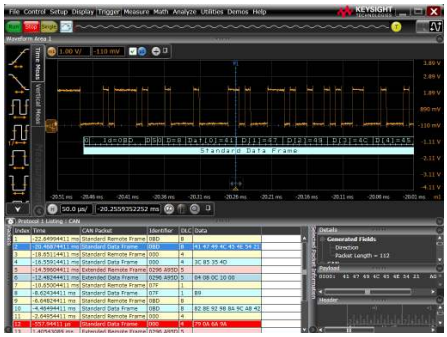
There is no better way to experience the superiority of the Infiniium 9000 Series scopes than to see it. Contact Keysight today to request an evaluation. Or visit: **www.keysight.com/find/9000**



The Infiniium 9000 Series offers bandwidths up to 4 GHz. Each model, equipped with a large 15" XGA LCD display, comes in a whisper-quiet package that is just 9" (23 cm) deep and weighs only 26 pounds (11.8 kg).

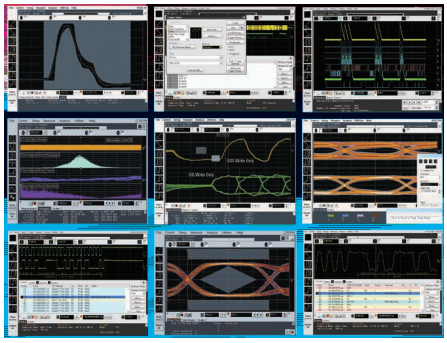
Model	Analog bandwidth	Analog sample rate 4-channel/2-channel	Standard memory 4-channel/2-channel	Scope channels	Logic channels
DSO9064A	600 MHz	5 GSa/s/10 GSa/s	20 Mpts/40Mpts	4	-
MSO9064A	600 MHz	5 GSa/s/10 GSa/s	20 Mpts/40Mpts	4	16
DSO9104A	1 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	-
MSO9104A	1 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	16
DSO9254A	2.5 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	-
MSO9254A	2.5 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	16
DSO9404A	4 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	-
MSO9404A	4 GHz	10 GSa/s/20 GSa/s	20 Mpts/40Mpts	4	16

What makes the Infiniium 9000 Series the go-to scope for a whole range of test and debug challenges?



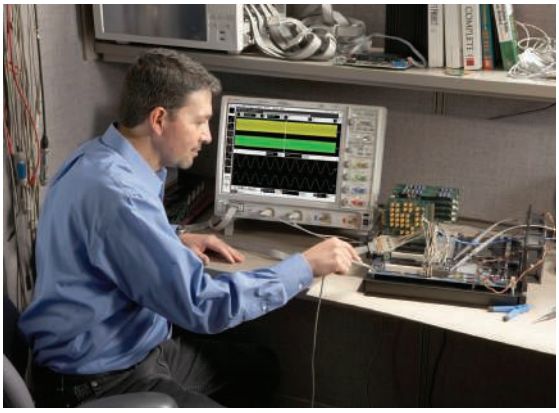
It's three instruments in one

1. Scope: The powerful features of our Infiniium Series oscilloscopes coupled with superior specifications give you precise signal representation.
2. Logic analyzer: Fast deep-memory digital channels let you see critical data values and timing relationships.
3. Protocol analyzer: The world's first scope-based protocol viewer with multi-tab viewing. Quickly drill and move between protocol and physical layers.



It offers the widest range of debug and compliance application software

Need accurate answers to your measurement questions? The Infiniium 9000 Series offers the largest range of application-specific software for debug, analysis and compliance testing. Which application is right for you? Take a look at the possibilities on pages 7-12.



It's sized to fit your environment

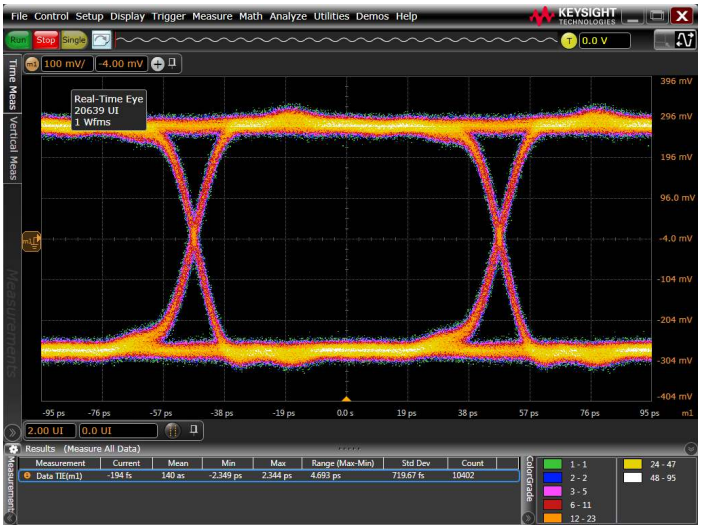
Limited bench space? It has a small footprint and thin profile
Height: 12.9" (33 cm); width: 16.8" (43 cm); depth: just 9" (23 cm)

Need to share the scope? It's light weight: 26 lbs. (11.8 kg)
Need to see lots of signals? It has the biggest screen: 15" (23 cm) XGA

It's three instruments in one

1. Oscilloscope

High-performance scope channels ensure superior viewing of signals under test. All models incorporate a powerful, feature-packed Infiniium oscilloscope with responsive deep memory.



Up to 4 GHz bandwidth and 20 GSa/s high sample rates guarantee you'll see a precise representation of the analog characteristics of signals you're testing.

Mask tests, histograms and a wide variety of functions such as the gated FFTs in the above image provide deep signal analysis.

Responsive deep memory

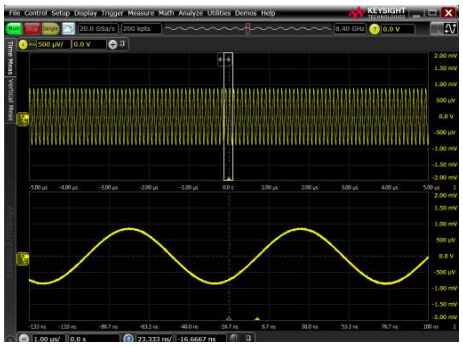
With standard 20 Mpts/ch, and up to 1 Gpts/ch of memory, you can capture long time periods while retaining fast sample rates. Fast update rates mean your scope stays responsive with deep memory on, ensuring precise representation of analog signals.

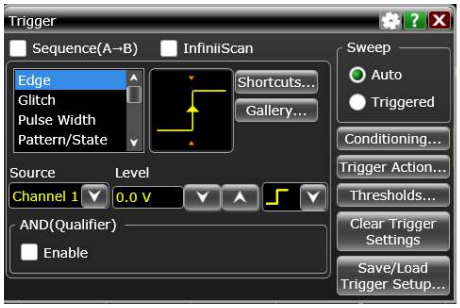
Advanced triggering

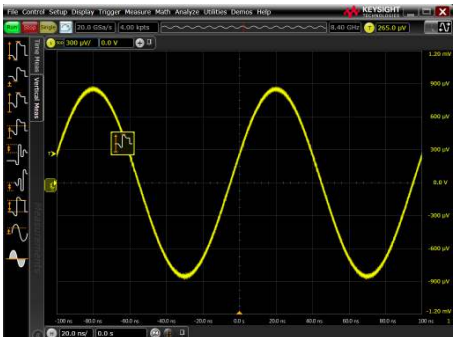
Advanced triggers are essential when you are investigating suspected problems. Infiniium offers a full range of advanced triggers to help you isolate and capture the condition you need to characterize. The 9000 Series simplifies trigger setups by using intuitive dialog boxes with descriptive graphics.

Drag and drop measurements

It's simple: drag an icon from the measurement bar and drop it on the cycle you want to measure. You can make up to ten measurements on your waveforms. All of the measurements appear at the bottom of the display with statistics and are color-coded to the channel you are measuring.







It's three instruments in one

2. Logic analyzer

MSO models add 16 high-speed timing channels with standard 128 Mpts digital memory, allowing you to retain fast 2 GSa/s sample rates over long periods of time.

Use the timing channels to evaluate control signal relationships and data buses up to 16 bits wide. Use symbols to more quickly interpret waveforms.

Designing with Xilinx FPGAs? Use the FPGA dynamic probe for rapid internal FPGA measurements. Using I²C, SPI, RS-232, or low- or full-speed USB? Use the digital channels to acquire and decode these buses, preserving analog channels for other time-correlated measurements.

Digital and mixed-signal trigger

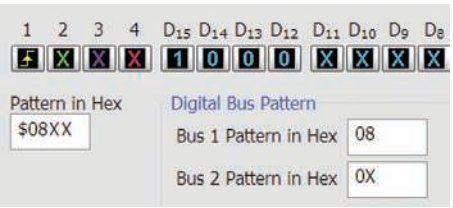
Trigger on and display individual signals or buses. With precise time-correlation between analog and digital signals, confidently trigger across any combination of analog and digital signals simultaneously.

Industry's only segmented memory for both analog and digital channels

Capture short bursts without consuming memory during periods when the trigger condition is not met. Keysight is the only vendor that supports segmented memory capture on both analog and digital channels.

Waveform and Listing Windows

View buses as waveforms or easily follow events in the listing window expandable to the entire display. A blue tracking marker provides time-correlation between waveform and listing displays.



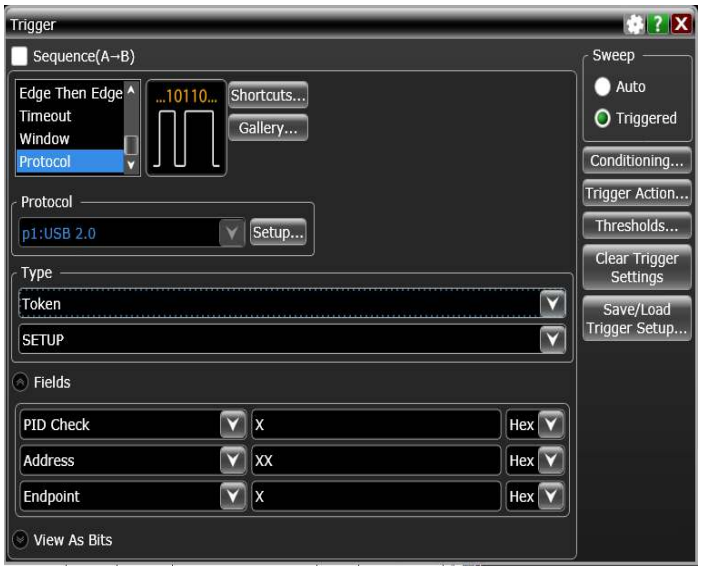
It's three instruments in one

3. Protocol analyzer

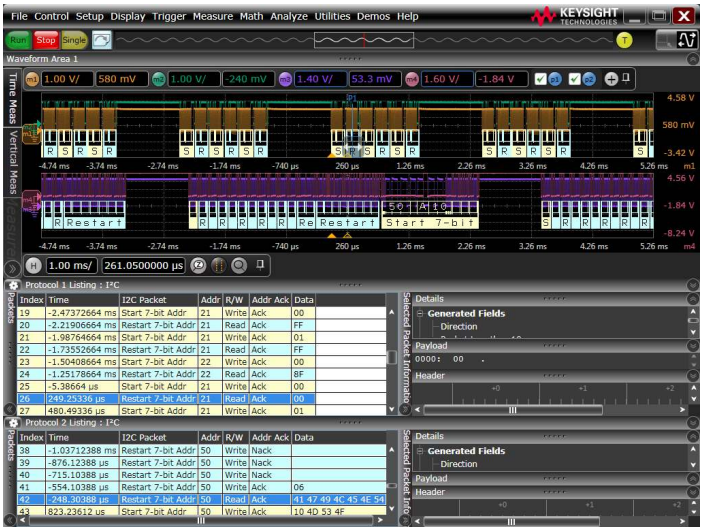
Does your design include a serial bus that is a key point for testing or debugging? Add protocol analysis capability to your scope for:

- CAN
- PCIe
- digRF
- FlexRay
- RS-232/UART
- I2C
- SATA
- JTAG
- SPI
- LIN
- USB
- MIPI D-Phy
- 8B/10B

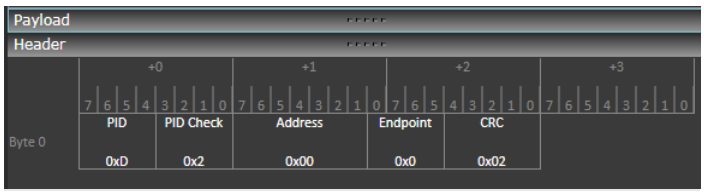
Quickly move between physical and protocol layer information using the time-correlated tracking marker. Display protocol content using waveform symbols and the industry's first multi-tab protocol viewer. The packets tab shows a high level view of the packet over time.



Protocol-level triggering makes it easy to isolate events with pinpoint accuracy.



Use any combination of analog or digital channels for serial protocol decode, with up to four buses decoded simultaneously.



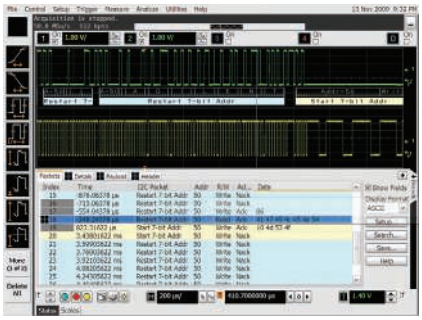
Header tab shows packets in a databook format. Hovering on any tab reveals additional detail.

Widest range of debug and compliance software applications: serial protocol-level

I²C/SPI serial trigger and decode (N5391B or Option 007 on new scope purchases)

This application displays real-time time-aligned decode of I²C and SPI serial buses. Hardware-based triggering means triggering reliably, even on the most infrequent events.

This application works on all models and can use any combination of scope or logic acquisition channels. For more information: **www.keysight.com/ind/9000_I²C-SPI**



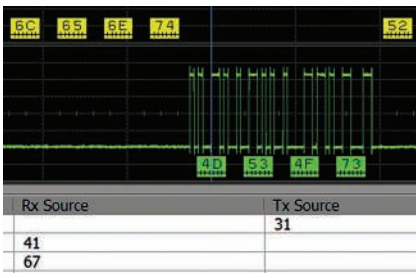
Trigger and view on-screen serial decode of I²C packets.

RS-232/UART serial decode and trigger (N5462B or Option 001 on new scope purchases)

This application eliminates the need to manually decode bus trafic. Using data captured on the scope or logic channels, the application lets you easily view the information sent over an RS-232 RS-422, RS-485 or other UART serial buses.

Display real-time time-aligned decode of transmit and receive lines. Hardware-based triggering means triggering reliably, even on the most infrequent events.

This application works on all models and can use any combination of the scope or logic acquisition channels. For more information: **www.keysight.com/find/9000_RS-232**



Trigger on and decode RS-232/UART transmission.

CAN, LIN and FlexRay triggering and decode (N8803B or Option 008 on new scope purchases)

Trigger on and view both protocol layer information and physical layer signal characteristics for CAN, LIN and FlexRay buses. Numerical decode values are automatically displayed and synchronized below the captured signal or seen in protocol viewer.

Hardware-based triggering for CAN and LIN means triggering reliably, even on the most infrequent events. FlexRay uses software-based protocol triggering.

This application works on all models and can use any combination of scope or logic acquisition channels. For more information: **www.keysight.com/find/9000_CAN**

Trigger on and decode CAN, LIN and FlexRay serial packets.

JTAG (IEEE 1149.1) triggering and decode (N8817A or Option 042 on new scope purchases)

This application displays real-time time-aligned decode of JTAG (IEEE 1149.1) TDI and TDO signals. The application eliminate the dificult task of manually determining JTAG TAP controller states, instruction and data register decode, and lags error conditions. The application includes scan chain description features including the ability to import .bsdl iles for each device and displays device names and opcodes in the protocol listing.

This application works on all models and can use any combination of scope or logic acquisition channels. For more information: **www.keysight.com/find/9000_JTAG**

Import BSDL files and decode JTAG scan chain activity.

Widest range of debug and compliance software applications: serial protocol and FPGA

USB serial trigger and protocol viewer (N5464B or Option 005 on new scope purchases)

Trigger on and quickly view USB packets, payload, header and detail information. Powerful time-correlated views of waveform and symbol, to the bit level, make it easy to isolate communication faults to logic or analog sources.

USB hardware-based triggering means triggering reliably, even on the most infrequent events.

Low and full-speed USB protocol is supported on digital and scope channels of all models.

High-speed USB protocol is supported on scope channels of 1 GHz, 2.5 GHz and 4 GHz models. For more information: **www.keysight.com/find/9000_USB**

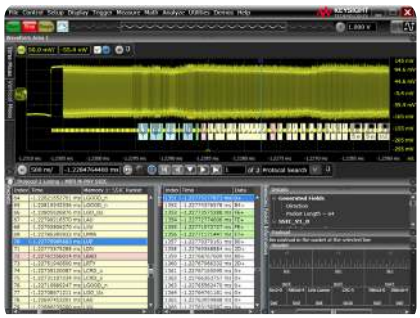
Trigger on and decode USB packets.

MIPI D-Phy serial decode and trigger (N8802A or Option 019 on new scope purchases)

This application eliminates the need to manually decode bus traffic. Using data captured on the scope, the application lets you easily view the information sent over MIPI serial buses.

The application also enables software-based protocol triggering.

This application works on all 4 GHz models and can use any combination of the scope channels. For more information: **www.keysight.com/find/N8802A**



Trigger on and decode MIPI packets

PCI Express® serial trigger and protocol viewer (N5463B or Option 006 on new scope purchases)

This application provides protocol-level triggering and viewing of a PCIe® lane. Quickly view packets, payload, header, and detail information. Powerful time-correlated views of waveform, symbol, character, link and transaction layer packet data down to the bit level make it easy to isolate communication faults to logic or analog sources.

Trigger on and view CRC, 8B/10B and disparity errors. Hardware-based triggering for PCIe means triggering reliably, even on the most infrequent events.

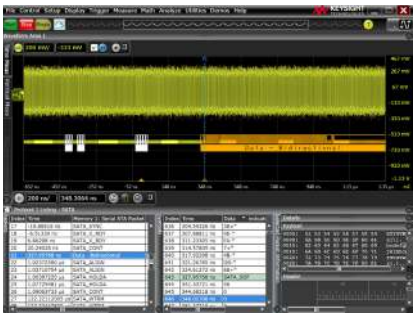
This application is supported on scope channels of 4 GHz models. For more information: **www.keysight.com/find/9000_PCI**

Trigger on and decode PCIe serial packets.

SATA triggering and decode (N8801A or Option 038 on new scope purchases)

Trigger on and view both protocol layer information and physical layer signal characteristics for SATA 1 (1.5 GB/s). Numerical decode values are automatically displayed and synchronized below the capture signal or seen in protocol viewer.

This application enables software-based protocol triggering. This application works on 4 GHz and can use any combination of scope channels. For more information: **www.keysight.com/find/N8801A**



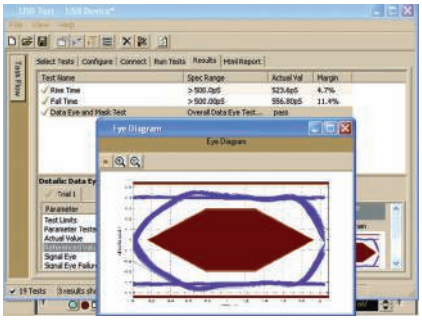
Trigger on and decode SATA serial packets

Widest range of debug and compliance software applications: serial physical-layer

USB 2.0 compliance testing (N5416A or Option 029 on new scope purchases)

Quickly determine USB compliance with this USB-IF recognized solution. A setup wizard guides you through test selection and coniguration.

This application is USB-IF approved and supported on all 2.5 GHz and 4 GHz models. For more information: **www.keysight.com/find/9000_USB-compliance**

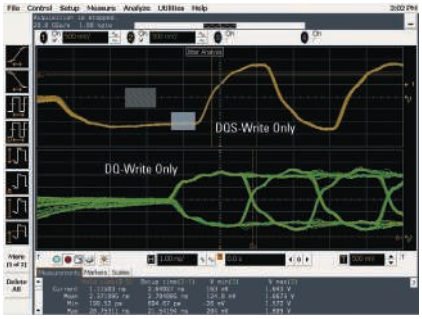


Check for USB compliance.

DDR1 and LPDDR/DDR2 and LPDDR2/DDR3 compliance testing (U7233A/N5413B/U7231A or Options 031/032/033 on new scope purchases) or N5459A Opt 001 for all memory applications

Quickly and easily evaluate and characterize your memory designs. Automated testing based on JEDEC speciications saves time. The application also includes additional debug and compliance capabilities.

This application is supported on all models. However, the DDR technology you are using may dictate the minimal bandwidth required for your scope. For more information: **www.keysight.com/find/9000_DDR**

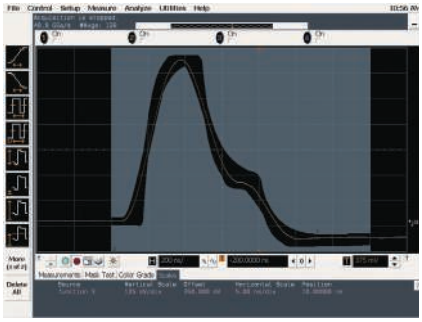


Test DDR memory.

Ethernet compliance testing (N5392A or Option 021 on new scope purchases)

Perform a wide range of electrical tests for 10-, 100-, and 1000-Base-T systems. An N5395C test ixture and N5396A jitter test cable speed compliance testing.

This application is supported on all 600 MHz and higher bandwidth models. For more information: **www.keysight.com/find/9000_ethernet**

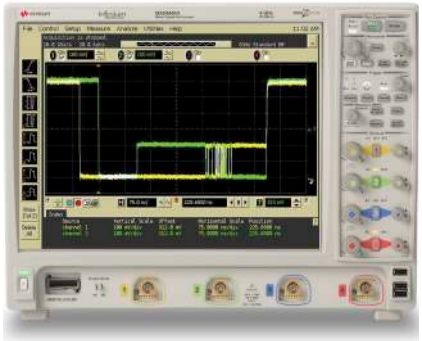


Validate Ethernet compliance.

MIPI compliance testing (U7238A or Option 035 on new scope purchased)

Quickly validate your embedded D-Phy data link for CSI and DSI architectures. This software performs a wide range of tests required for meeting MIPI D-Phy physical layer requirements.

This application is supported on analog channels of all 4 GHz models. For more information: **www.keysight.com/find/U7238A**



Check for MIPI compliance.

Widest range of debug and compliance software applications: IniniiScan and jitter analysis

IniniiScan event identiication (N5415B or Option 009 on new scope purchases)

Rapidly trigger on complex events and identify signal integrity issues. This innovative software quickly scans through thousands of acquired waveform cycles and isolates anomalous signal behavior. Up to eight zones across channels are available.

This application is supported on all models. For more information: **www.keysight.com/find/infiniiScan**

Identify signal integrity issues with InfiniiScan Zone – Qualify triggering.

EZJIT analysis software (E2681A or Option 002 on new scope purchases)

Quickly characterize and evaluate most commonly needed jitter measurements, including cycle-cycle, N-cycle, period, time-interval, error, setup and hold time, histograms, measurement trending and jitter spectrum.

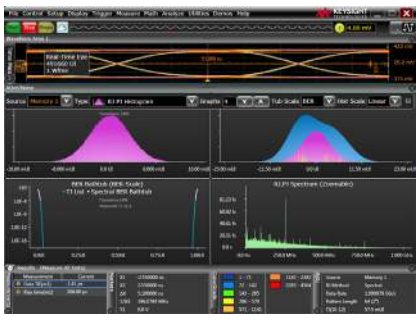
This application is supported on all models. For more information: **www.keysight.com/find/EZJIT**

Conduct jitter analysis.

EZJIT Plus analysis software (N5400A or Option 004 on new scope purchases. To upgrade from EZJIT to EZJIT Plus, order N5401A.)

EZJIT Plus adds additional compliance views and an expanded measurement setup wizard to simplify and automate RJ/DJ separation for testing against industry standards.

This application is supported on all models. For more information: **www.keysight.com/find/EZJITPlus**



Analyze jitter plus RJ/DJ separation.

EZJIT Complete analysis software (N8823A or Option 070 on new scope purchases. To upgrade from EZJIT Plus to EZJIT Complete, order N8813A.)

EZJIT Complete includes all of the advanced jitter analysis capabilities of EZJIT and EZJIT Plus, and adds advanced analysis of the vertical noise affecting the ones and zeros of your real-time eye. Decomposition of vertical noise provides key insight into degradation of your eye height. In providing advanced decomposition of both horizontal jitter and vertical noise components of your signals, EZJIT Complete represents the most comprehensive analysis software available.

This application is supported on all models and is standard on DSA models. For more information: **www.keysight.com/ind/EZJITComplete**

EZJIT Complete

Widest range of debug and compliance software applications: viewing and analysis

High-speed serial data analysis software (N5384A or Option 003 on new scope purchases)

Quickly validate signal integrity for high-speed serial interfaces with embedded clocks. Recover embedded clocks synchronized with the analog waveform view. Build and validate eye diagrams.

The SDA package also includes software-based bit-level triggering and decode for 8B/10B.

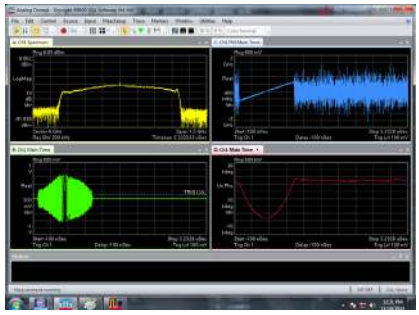
This application is supported on all models. For more information: **www.keysight.com/find/9000_SDA**

Recover embedded clocks with serial data analysis (SDA).

Vector signal analysis software (89601B)

Expand the measurement capability of your scope with the 89601B vector signal analysis software. This advanced DSP-based software takes the digitized signal data from the scope. Then it provides FFT-based spectrum analysis and wide-bandwidth digital modulation analysis for wireless communication signals such as WCDMA and cdma2000 and wireless networking signals such as 802.11 WiFi and 802.16 WiMax.

Take advantage of the super-wide bandwidth of your scope to capture and evaluate radar signals. For more information: **www.keysight.com/find/VSA**

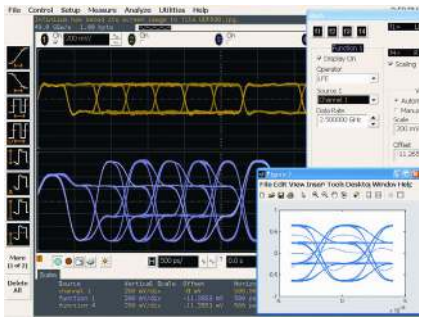


Use vector signal analysis software to see FFT-based spectrum analysis.

User-defined function (N5430A or Option 010 on new scope purchases)

Install MATLAB® on your scope and add your favorite MATLAB .m scripts as function operators and use them as standard waveform functions.

This application is supported on all models and requires MATLAB software (not included with UDF. For more information: **www.keysight.com/find/UDF**



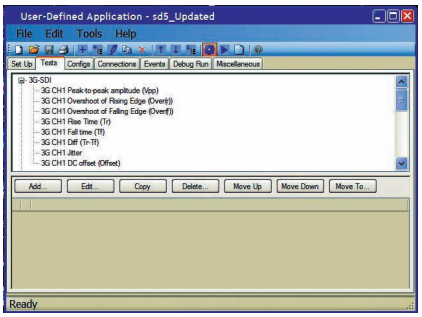
Signal equalization using user-defined function.

Infiniium 9000 Series applications and upgrades

User-definable application (5467A or Option 040 on new scope purchases)

Rapidly develop your own automated measurements and tests. This application provides the framework you need to quickly program and automate any single or set of measurements the oscilloscope can make.

The application also provides full control of other Keysight instruments and HTML reporting capabilities. For more information: **www.keysight.com/find/9000_UDA**

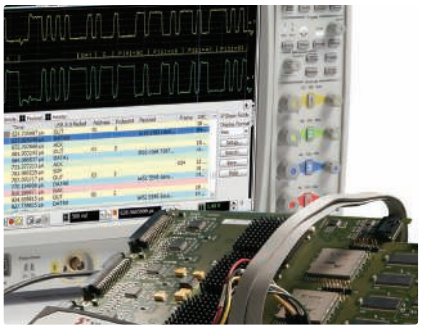


Quickly automate oscilloscope measurements.

FPGA dynamic probe application (N5397A or Option 016 on new scope purchases)

Keysight's MSO FPGA dynamic probe provides internal FPGA visibility and quick instrument setup using an innovative core-assisted debug approach. Measurement tasks that previously took hours can be done in seconds with a few mouse clicks.

This application is supported on all MSO models.For more information: **www.keysight.com/find/9000_xilinx**

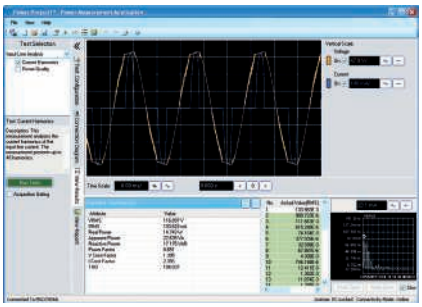


Rapid FPGA debug.

Power application (U1882A or Option 015 on new scope purchases)

Keysight's power application provides a full suite of power measurements. Make more accurate power-supply efficiency measurements by using an U1880A de-skew fixture to de-skew your voltage and current probes.

This application is supported on all models. For more information: **www.keysight.com/find/9000_power-app**



Use your scope to quickly make and analyze power measurements.

PrecisionProbe software (N2808A)

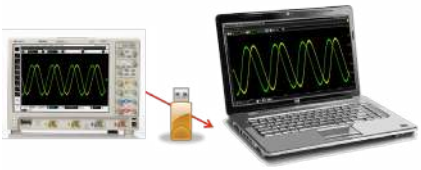
Make more accurate measurements independent of what probes or cables used. Keysight's N2808A PrecisionProbe software characterizes and corrects for the loss in your specific cable or probe. PrecisionProbe removes the uncertainty about the input connected to your oscilloscope by allowing you to see its characteristics in less than five minute. PrecisionProbe gives you design and debug confidence by allowing you to quickly de-embed probe and cable loss to make more accurate measurements.

For more information: **www.keysight.com/find/PrecisionProbe**

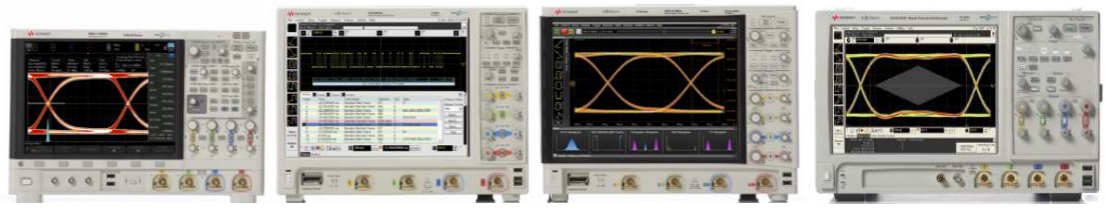
Quickly characterize and correct for any input to your oscilloscope

Infiniium Offline Analysis Software (N8900A)

Wish you could do additional signal viewing, analysis and documentation tasks away from your scope and target system? With Keysight's InfiniiView oscilloscope analysis software you can. Capture waveforms on your scope, save to a file, and open the data record into Keysight's InfiniiView application. View, analyze, share, and document scope measurements anywhere your PC goes.



Keysight Portfolio Compare



	InfiniiVision	Infiniium		
Family	**6000 X-Series**	**9000 Series**	**S-Series**	**90000A Series**
Optimized for	Fastest update rate and lowest price up to 6 GHz	Measurements up to 4 GHz	Superior signal integrity up to 8 GHz	Superior signal integrity up to 13 GHz
Available bandwidths	500 MHz to 6 GHz	600 MHz to 4 GHz	500 MHz to 8 GHz	2.5 GHz to 13 GHz
Standard memory depth/ch (2-ch)	4 Mpts	40 Mpts	100 Mpts	40 Mpts
ADC bits	8	8	10	8
Bandwidth filters	Yes	20 MHz (only on 1 MΩ input)	Yes. Extensive	Yes. Extensive
Bandwidth correction filters	No	No	Yes	Yes
Probe inputs	50 Ω and 1 MΩ	50 Ω and 1 MΩ	50 Ω and 1 MΩ	50 Ω
Motherboard and OS	None. Embedded	Intel Core 2 Duo. Win7	Intel i5 Quad-Core. Win7	Intel Core 2 Duo. Win7
Standard internal drive	None	HDD	Removable SSD	HDD
BNC inputs	Traditional	Traditional	Precision BNC	Precision BNC
MSO models	Yes	Yes	Yes	No
Frame volume comparison	1/ 2 X	X	X	2X

Infiniium S-Series blends high-performance oscilloscope capability with a wide range general-purpose features.

Keysight Infiniium 9000 Series oscilloscopes

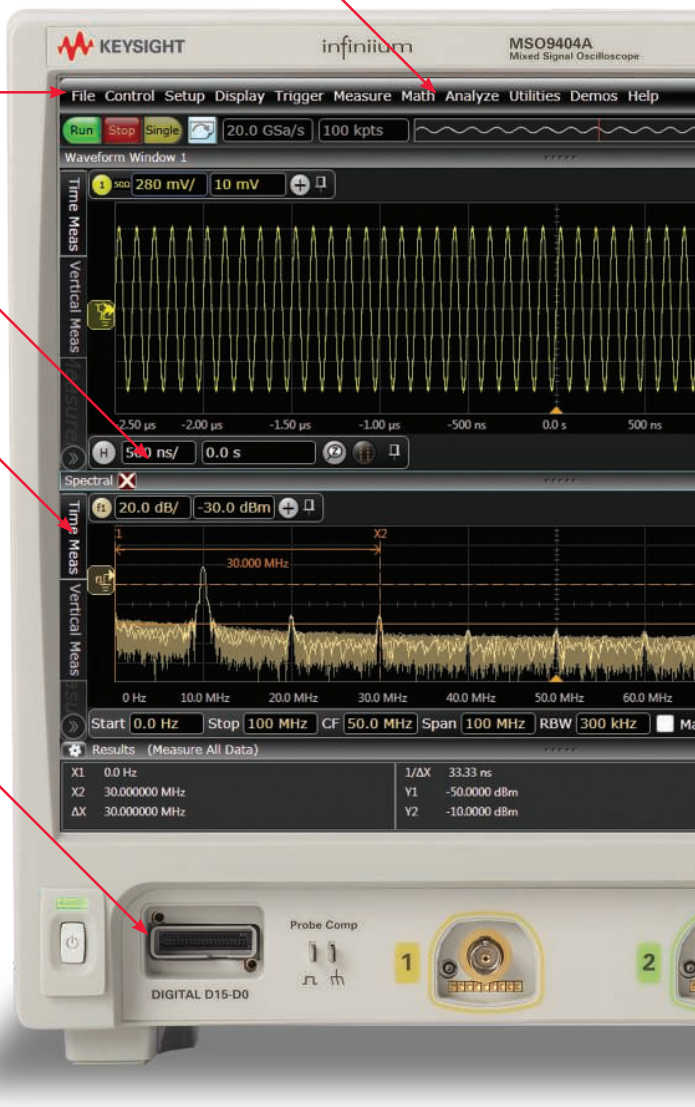
Comprehensive built-in information system gives you fast answers to your questions. The task-oriented setup guide provides step-by-step instructions for several measurement procedures.

15" XGA display makes it easier to view analog, digital and serial signals.

Touchscreen display comes standardfor mouse-free operation.

Drag-and-drop measurements from the measurement bar provide an intuitive way to make a measurement on a particular cycle of your waveform.

Mixed-signal oscilloscope (MSO) models seamlessly integrate four analog scope channels with 16 digital channels.



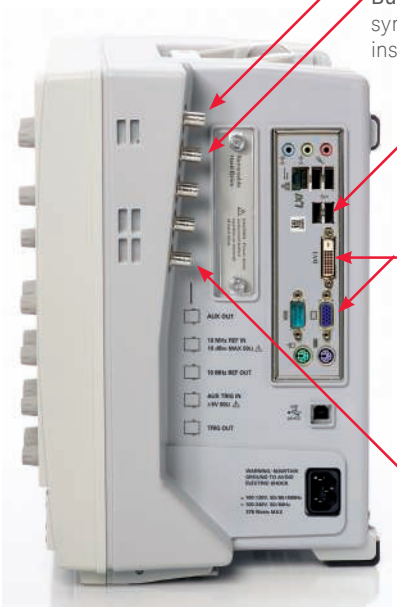
AUX OUT for calibration

Built-in 10-MHz reference in/out port synchronizes multiple measurement instruments in a system.

Standard USB and LAN ports provide PC and printer connectivity.

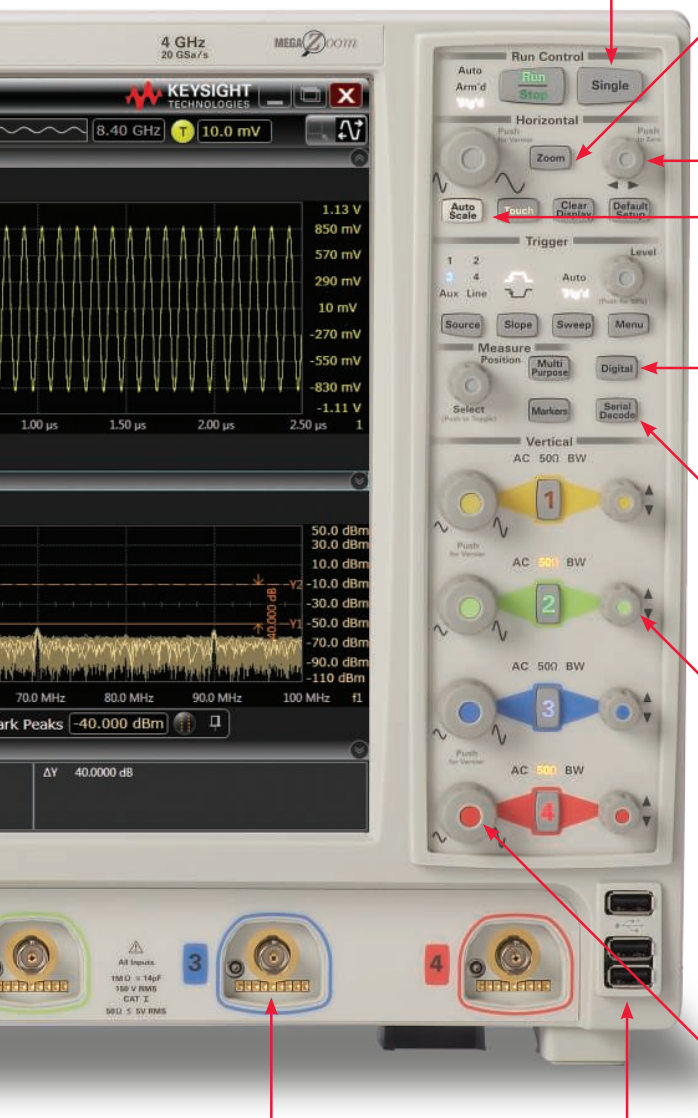
XGA and DVI video output port lets you connect to an external monitor.

Trig in/out ports provide an easy way to synchronize your scope to other instruments.



Dedicated **single acquisition button** provides better control to capture a unique event.

MegaZoom instant response and optimum resolution allows you to pan and zoom quickly.



Pressing horizontal delay knob sets the delay to zero. A **zoom button** provides quick access to two screen-zoom modes.

Autoscale lets you rapidly display any analog or digital active signals, automatically setting the vertical, horizontal and trigger controls for the best display, while optimizing memory.

Digital channel button provides quick setup access.

Serial decode button enables quick setup access.

Dedicated per-channel front panel controls make it easy to access the vertical and horizontal scaling and offset.

Quick access to fine/vernier control by pressing the horizontal and vertical sensitivity knobs.

AutoProbe interface automatically configures the attenuation ratio of the probe and provides probe power for Keysight's active probes.

Built-in USB ports makes it easy to save your work and update your system software quickly.

Accessory pouch detaches easily.

Connectivity and probing

Connectivity

Industry compatibility

Export screen shots and waveforms in numerous industry-standard formats. In addition, the 9000 Series supports compatibility with the following

- MATLAB Basic and Advanced (add as 061 and 062 on new scope orders)
- IVI COM driver for application development environments such as Visual Studio, Keysight VEE, NI LabView and MATLAB instrument control toolbox. **www.keysight.com/find/adn**
- IntuiLink tool bars and data capture. **www.keysight.com/find/intuilink**
- LXI Class C including built-in Web control
- NI LabView PnP and IVI drives **www.keysight.com/find/ni9404**

To see our entire award-winning portfolio of passive, single-ended active, differential active, and current probes for Infiniium oscilloscopes, please view the Infiniium Oscilloscope Probes and Accessories Selection Guide. publication number 5968-7141EN.

Probing

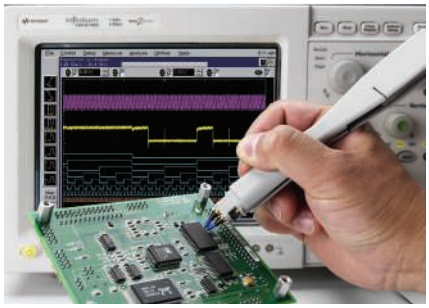
Each Infiniium 9000 Series oscilloscope ships with four N2873A 10:1 divider passive probes and probe accessory pouch.

With both 50 Ω and 1 MΩ inputs, Infiniium 9000 Series scopes support a wide range of probes, including Keysight's InfiniiMax and InfiniiMode Series probes.

Keysight offers an innovative family of probes that are engineered for signal access and measurement accuracy. Whether you're looking for simple passive probes, the high bandwidth and low loading of an active probe, or specialty probes for current or high voltage, we can meet your needs. Our innovative accessories allow reliable connection to challenging components like small pitch devices, surface mount ICs, and DDR BGA packages – even hands free!

Recommended optional active probes

DSO/MSO9404A	1132A InfiniiMax 5 GHz probe N2752A InfiniiMode 6 GHz probe
DSO/MSO9254A	1131A InfiniiMax 3.5 GHz probe N2751A InfiniiMode 3.5 GHz probe
DSO/MSO9104A	N2796A 2 GHz single-ended probe 1130A InfiniiMax 1.5 GHz probe N2750A InfiniiMode 1.5 GHz probe
DSO/MSO9064A	N2795A 1 GHz single-ended probe N2750A InfiniiMode 1.5 GHz probe
All	N7020A 2 GHz power rail probe with offset up to 24V.



Infiniium 9000 Series performance characteristics

Vertical: scope channels	9064A	9104A	9254A	9404A
Analog bandwidth (–3 dB) 50 Ω[1] 1MΩ	600 MHz 500 MHz	1.0 GHz 500 MHz	2.5 GHz 500 MHz	4 GHz 500 MHz
Typical Rise Time / Fall Time 10% to 90% at 50 Ω	540 ps	253 ps	142 ps	85 ps
Typical Rise Time / Fall Time 20% to 80% at 50 Ω	360 ps	174 ps	98 ps	59 ps
Input channels	DSO9000 – 4 analog MSO9000 – 4 analog + 16 digital			
Input impedance[1]	50 Ω ± 2.5%, 1 MΩ ± 1% (11pF typical)			
Input sensitivity[3]	1 MΩ: 1 mV/div to 5 V/div 50 Ω: 1 mV/div to 1 V/div			
Input coupling	1 MΩ: AC (3.5 Hz), DC 50 Ω:DC			
Bandwidth limit	20 MHz on 1 MΩ input ; 500 MHz up to full scope bandwidth in increments of 500 MHz			
Vertical resolution[2,3]	8 bits, ≥12 bits with averaging			
Channel-to-channel isolation	DC to 50 MHz: 50 dB >50 MHz to 2.5 GHz: 40 dB >2.5 GHz to 4 GHz: 25 dB			
DC gain accuracy[1,2,3]	± 2% of full scale at full resolution on channel scale ± 5 °C from cal temp			
Maximum input voltage[1]	1 MΩ: 150V RMS or DC, CAT I ± 250 V (DC + AC) in AC coupling 50 Ω: 5 Vrms			
Offset range 1 MΩ	Vertical sensitivity 1 mV to <10 mV/div 10 mV to <20 mV/div 20 mV to <100 mV/div 100 mV to <1 V/div 1 V to 5 V/div			Available offset ± 2 V ± 5 V ± 10 V ± 20 V ± 100 V
50 Ω				±12 div or ±4V, whichever is smallest

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
2. impedance is valid when V/div scaling is adjusted to show all waveform vertical values within scope display.
3. Vertical resolution for 8 bits = 0.4% of full scale, for 12 bits = 0.024% of full scale.50Ω input: Full scale is defined as 8 vertical divisions. Magnification is used below 10mV/div, full-scale is defined as 80 mV. The major scale settings are 5mV, 10mV, 20mV, 50mV, 100mV, 200 mV, 500 mV,

   1V.1MΩ input: Full scale is defined as 8 vertical divisions. Magnification is used below 5mV/div, full-scale is defined as 40 mV. The major scale settings are 5mV, 10mV, 20mV, 50mV, 100 mV, 200 mV, 500 mV, 1V,2V, 5V.

Infiniium 9000 Series performance characteristics

Vertical: scope channels (continued)	
Offset accuracy[1,3]	± (1.25% of channel offset +1% of full scale + 1 mV)
Dynamic range	1 MΩ: ± 8 div from center screen 50 Ω: ± 8 div from center screen
DC voltage measurement accuracy[2]	Dual cursor ± [(DC gain accuracy)+(resolution)] Single cursor ± [(DC gain accuracy)+(offset accuracy)+(resolution/2)] V increments)

RMS Noise Floor ($V_{RMS\ AC}$)

Volts/div	9064A	9104A	9254A	9404A
10 mV	213 uV	240 uV	273 uV	402 uV
20 mV	470 uV	481 uV	445 uV	627 uV
50 mV	1.15 mV	1.24 mV	1.22 mV	1.67 mV
100 mV	2.37 mV	2.43 mV	2.54 mV	3.17 mV
200 mV	4.65 mV	4,85 mV	5.06 mV	6.18 mV
500 mV	11.8 mV	12.3 mV	12.2 mV	15.8 mV
1 V	23.9 mV	24.3 mV	25.2 mV	31.5 mV

Vertical: digital channels	On all MSO Models
Input channels	16 digital channels
Threshold groupings	16 digital channels Pod 2: D15 – D8
Threshold selections	TTL (1.4V), CMOS, (5.0V, 3.3V, 2.5V), ECL (-1.3V), PECL (3.7V), user defined (±8.00 V in 100 mV increments)
Maximum input voltage	±40 V peak CAT I
Threshold accuracy	±(100 mV + 3% of threshold setting)
Input dynamic range	±10 V about threshold
Minimum input voltage swing	500 mV peak-to-peak
Input impedance (flying leads)	100 kΩ ± 2% (~ 8 pF) at probe tip
Resolution	1 bit
Analog bandwidth	400 MHz

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. Vertical resolution for 8 bits = 0.4% of full scale, for 12 bits = 0.024% of full scale.
3. 50Ω input: Full scale is defined as 8 vertical divisions. Magnification is used below 10mV/div, full-scale is defined as 80 mV. The major scale settings are 5mV, 10mV, 20mV, 50 mV, 100 mV, 200 mV, 500 mV, 1V.

   1MΩ input: Full scale is defined as 8 vertical divisions. Magnification is used below 5mV/div, full-scale is defined as 40 mV. The major scale settings are 5mV, 10mV, 20mV, 50 mV, 100 mV, 200 mV, 5 00mV, 1V,2V, 5V.

Infiniium 9000 Series performance characteristics

Horizontal	
Channel-to-channel skew (digital)	2 ns typical
Main time base range	≥ 2.0 ns
Horizontal position range	5 ps/div to 20 s/div
Delayed sweep range	1 ps/div to current main time base setting
Resolution	1 ps
Modes	Main, delayed, roll (200 ms to 20 sec)
Reference positions	Left, center, right
Channel deskew	-1 ms to +1 ms range
Time scale accuracy (internal reference) (External reference clock = off)	Horizontal time base setting ± ((Horizontal time base setting) *(0.4 + 0.5* years since calibration) ppm

Delta-time measurement accuracy[2,3,4,5]

Absolute averaging disabled

$$\sqrt{\left(\frac{x * Noise}{SlewRate}\right)^2 + y * 10^{-24} +} \quad \frac{TimeScaleAccy \cdot Reading}{2} \quad \text{sec pk}$$

	x=	y=
9064	4.8	20
9104	4.8	15
9254	4.0	15
9404	5.0	20

Absolute >256 averages

$$\sqrt{\left(\frac{x * Noise}{SlewRate}\right)^2 + y * 10^{-24} +} \quad \frac{TimeScaleAccy \cdot Reading}{2} \quad \text{sec pk}$$

	x=	y=
9064	.33	.1
9104	.33	.05
9254	.33	.10
9404	.35	.15

Standard deviation averaging disabled

$$\sqrt{\left(\frac{1.4 * Noise}{SlewRate}\right)^2 + y * 10^{-24}} \ \text{sec}_{rms}$$

	y=
9064	.75
9104	.65
9254	.75
9404	.80

Standard deviation >256 averages

$$\sqrt{\left(\frac{0.1 * Noise}{SlewRate}\right)^2 + 0.01 * 10^{-24}} \ \text{sec}_{rms}$$

Jitter measurements floor[2,3]

Time interval error [4]

$$\sqrt{\left(\frac{x * Noise}{SlewRate}\right)^2 + y * 10^{-24} +} \ \text{sec}_{rms}$$

	x=	y=
9064	1.0	1.0
9104	1.0	0.5
9254	.95	1.1
9404	.95	1.2

Period jitter

$$\sqrt{\left(\frac{1.4 * Noise}{SlewRate}\right)^2 + y * 10^{-24}} \ \text{sec}_{rms}$$

	y=
9064	.75
9104	.65
9254	.75
9404	.80

N-cycle, cycle-cycle jitter

$$\sqrt{\left(\frac{2.4 * Noise}{SlewRate}\right)^2 + y * 10^{-24}} \ \text{sec}_{rms}$$

	y=
9064	1.8
9104	1.4
9254	1.9
9404	2.0

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. Noise is the displayed noise floor. SlewRate is the displayed slew rate of the signal at the threshold crossings. Sample rate = max, sin(x)/x interpolation enabled.
3. Measurement threshold = fixed voltage at 50% level.
4. Time ranges ≤ 10 µs.
5. Values represent time error between two edges on a single channel. Standard deviation value refers to the standard deviation of 256 consecutive measurements performed using an individual instrument. Reading is the displayed DTMA measurement value.

Infiniium 9000 Series performance characteristics

Acquisition	**9104, 9254, 9404**	**9064**
Maximum real-time sample rate	4 ch x 10 GS/s or 2 ch x 20 GS/s	4 ch x 5 GSa/s or 2 ch x 10 GSa/s

Memory depth per channel	
Standard	20 Mpts on 4 channels, 40 Mpts on 2 channels
Option 50M	50 Mpts on 4 channels, 100 Mpts on 2 channels
Option 100	100 Mpts on 4 channels, 200 Mpts on 2 channels
Option 200	200 Mpts on 4 channels, 400 Mpts on 2 channels
Option 500	500 Mpts/ 250 Mpts on 4 channels, 1 Gpts/ 500 Mpts on 2 channels (single/repetitive mode)

Sampling Modes

Real-time
Real-time with peak detect
Real-time with high resolution (user selectable to 9-, 10-, 11-, or 12-bits of resolution)
Real-time with roll mode (200 ms to 20 sec.)
Equivalent-time (1.0 ps fine interpolator resolution yields a maximum effective sample rate of 1,000 GSa/s)
Segmented memory (1 ps time stamp resolution between segments)
- Up to 8192 segments for 20 Mpts standard memory, up to 131,072 segments with Option 500
- Maximum time between triggers is 562,950 seconds (6.5 days)
- Re-arm time (minimum time between trigger events) is 4.5 µs with analog channels, 5.8 µs with digital channels on

Filters	Sin (x) / x Interpolation

Acquisition: digital channels	
Maximum real time sample rate	2 GSa/s
Maximum memory depth per channel	128/ 64 Mpts with 2 GSa/s. 64/32 Mpts with sampling < 2 GSa/s (single/repetitive mode).
Minimum width glitch detection	2 ns

Trigger: scope channels		
Trigger sources	Channel 1, channel 2, channel 3, channel 4, aux, and line	
Sensitivity	1 MΩ input, edge trigger,	DC to 500 MHz: 0.6 div
	50 Ω	DC to 2 GHz, 0.5 div
		2 GHz to 4 GHz: 1.0 div
	Auxiliary	DC to 700 MHz: 300 mVp-p
Trigger level range	± 4 div from center screen (50 Ω)	
Channel 1,2,3,4	± 8 div from center screen with max of ± 8 V (1 MΩ)	
Auxiliary	± 5 V (50Ω up to 500 MHz with at least 500 mV signal swing)	
Sweep modes	Auto, triggered, single	
Display jitter (displayed trigger jitter)1,2	$\sqrt{\left(\frac{1.0 * Noise}{SlewRate}\right)^2 + y * 10^{-24}}\ \text{sec}_{rms}$	

	y=
9064	.50
9104	.35
9254	.50
9404	.40

Trigger holdoff range	100 ns to 10 s fixed and random
Trigger actions	Specify an action to occur, and the frequency of the action, when a trigger condition occurs. Actions include: e-mail on trigger and execute “multipurpose” user settings
Trigger coupling	1 MΩ: DC, AC, (10 Hz) low frequency reject (50 kHZ high pass filter), high frequency reject (50 kHz low pass filter)

1. Internal edge trigger mode. Trigger threshold = fixed voltage at 50% level. The slew rate independent value in the formula represents the traditional trigger jitter.
2. Display jitter example. At 100 mV/div typical noise values are 3.2 mV RMS for 9404 models, 2.5 mV RMS for 9254A models, and 2.4 mV RMS for 9104A models. For slew rate of 500 mVpp sin wave with frequency equal to max analog bandwidth of each model, typical display jitter is .95 ps RMS for 9404A models, .97ps for 9254A models, and 1.7 ps RMS for 9104A models.

Infiniium 9000 Series performance characteristics

Trigger: digital channels MSO Models	
Threshold range	(user defined) ±8.0 V in 100-mV increments
Threshold accuracy	±(100 mV + 3% of threshold setting)
Measurements and math	
Waveform measurements Voltage (scope channels)	(can be made on either min or zoom window with up to 10 simultaneous measurements with statistics) Peak-to-peak, minimum, maximum, average, RMS, amplitude, base, top, overshoot, V overshoot, preshoot, V preshoot, upper, middle, lower, crossing point voltage , pulse top, pulse base, pulse amplitude
Time (digital channels) Time (scope channels)	Period, frequency, positive width, negative width, duty cycle, delta time Rise time, fall time, period, frequency, positive width, negative width, duty cycle, Tmin, Tmax, Tvolt, channel-to-channel delta time, channel-to-channel phase , count pulses , burst width, burst period, burst interval, setup time, hold time
Mixed (scope channels only) Frequency domain Level qualification	Area, slew rate FFT frequency, FFT magnitude, FFT delta frequency, FFT delta magnitudey all timing measurements
Eye-diagram measurements	(Eye height, eye width, eye jitter, crossing percentage, Q factor, and duty-cycle distortion
Measurement modes Statistics	Displays the mean, standard deviation, minimum, maximum range, and number of measurement values for the displayed automatic measurements
Histograms (scope channels) Source Orientation Measurements	Waveform or measurement (histogram on measurement requires EZJIT, EZJIT+, or EZJIT Complete option) Vertical (for timing and jitter measurements) or horizontal (noise and amplitude change) modes, regions are defined using waveform markers Mean, standard deviation, mean ± 1, 2, and 3 sigma, median, mode, peak-to-peak, min, max, total hits, peak (area of most hits), X scale hits, and X offset hits
Marker modes	Manual markers, track waveform data, track measurements
Waveform math	Manual markers, track waveform data, track measurements
Number of functions Operators	16 Operators Absolute value, add, AM demodulation, average, horizontal gating, Butterworth2, common mode, differentiate, divide, FFT magnitude, FFT phase, FIR11, high pass filter, integrate, invert, LFE2, low pass filter (4th-order Bessel Thompson filter), magnify, max, min, multiply, RT Eye2, smoothing, SqrtSumOfSquare2, square, square root, subtract, versus Chartstate (MSO models), charttiming (MSO models)
Automatic measurements Multipurpose Drag-and-drop	Measure menu access to all measurements, ten measurements can be displayed simultaneously Front-panel button activates up to ten pre-selected or ten user-defined automatic measurements Measurement toolbar with common measurement icons that can be dragged and dropped onto the measurement toolbar displayed waveforms
FFT	Manual markers, track waveform data, track measurements
Frequency range Frequency resolution Window modes	DC to 10 GHz (at 20 GSa/s) or 5 GHz (at 10 GSa/s) Resolution = sample rate/memory depth Hanning, flattop, rectangular , Blackman Harris, Force

2 Requires MATLAB software.

Infiniium 9000 Series performance characteristics

Trigger modes	On all MSO Models
Edge (analog and digital)	Triggers on a specified slope (rising, falling or alternating between rising and falling) and voltage level on any channel.
Edge transition (analog	Trigger on rising or falling edges that cross two voltage levels in > or < the amount of time specified. Edge transition setting from 250 ps.
Edge then edge (time) (analog and digital)	The trigger is qualified by an edge. After a specified time delay between 10 ns to 10 s, a rising or
Edge then edge (event) (analog and digital)	The trigger is qualified by an edge. After a specified delay between 1 to 16,000,000 rising or falling edges, another rising or falling edge on any one selected input will generate the trigger.
Glitch (analog and 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 equal pulse width settings
Line	Triggers on the line voltage powering the oscilloscope.
Pulse width (analog and digital) 4 GHz model 2.5 GHz model 1 GHz and 600 MHz model	Trigger on a pulse that is wider or narrower than specified. Minimum detectable pulse width: 125 ps for analog channels, 1 ns for digital channels. Pulse width range settings: 250 ps to 10 s for analog channels, 2 ns to 10 s for digital channels. Minimum detectable pulse width: 200 ps for analog channels, 1 ns for digital channels. Pulse width range settings: 350 ps to 10 s for analog channels, 2 ns to 10 s for digital channels. Minimum detectable pulse width: 500 ps for analog channels, 1 ns for digital channels. Pulse width range settings: 700 ps to 10 s for analog channels, 2 ns to 10 s for digital channels.
Runt (analog)	Triggers on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again. Runt settings equal pulse width settings.
Timeout (analog and digital)	Timeout (analog and digital)
Pattern/pulse range (analog and digital)	Triggers when a specified logical combination of the channels is entered, exited, present for a specified period of time or is within a specified time range or times out. Each channel can have a value of High (H), Low (L) or Don't care (X).
State (analog and digital)	Pattern trigger clocked by the rising, falling or alternating between rising and falling edge of one channel
Setup/hold (analog)	Triggers on setup, hold, or setup and hold violations in your circuit. Requires a clock and data signal on any two inputs (except aux or line) channels as trigger sources. Setup and/or hold time must then be specified.
Window (analog)	Trigger on entering, exiting, or inside specified voltage range
Video (analog)	NTSC, PAL-M(525/60), PAL, SECAM(625,50) EDTV(480p/60), EDTV(576/50), HDTV(720p/60), HDTV(720p/50) HDTV(1080i/60)
Serial (analog and digital)	Requires specified serial software option, I2C, SPI, CAN, LIN,FlexRay, RS-232/UART, JTAG, USB, PCIe, MIPI D-Phy, generic 8B/10B
Zone-qualified	Requires InfiniiScan software option. SW-based triggering across up to 8 user-drawn zones. For each zone, user specifies "must intersect" or "must not intersect." Zones can be drawn on multiple channels and combined using Boolean expressions

Infiniium 9000 Series performance characteristics

Display	
Display	15 inch color XGA TFT-LCD with touch screen
Display intensity grayscale	64-level intensity-graded display
Resolution	1024 pixels horizontally x 768 pixels vertically
Annotation	Up to 12 labels, with up to 100 characters each, can be inserted into the waveform area
Grids	Can display 1, 2 or 4 waveform grids
Waveform styles	Connected dots, dots, variable persistence, infinite persistence, color graded infinite persistence. Includes up to 64 levels of intensity-graded waveforms
Waveform update rate (10 GS/s, 50 ns/div, sin(x)/x: on)	Segmented mode: Maximum up to 250,000 waveforms/sec Real time mode Typical of 700waveforms/sec with 1kpts memory. Typical of 230 waveforms/sec with 100 kpts memory Typical of 130 waveforms/sec with 1 Mpts memory

Computer system and peripherals, I/O ports	
Computer system and peripherals	
Operating system	Windows 7 Embedded Standard
CPU	Intel® Core 2 Duo, M890, 3.0 GHz microprocessor
PC system memory	4 GB
Drives	≥ 250-Gb internal hard drive (optional removable hard drive), external DVD-RW drive (optional)
Peripherals	Optical USB mouse and compact keyboard supplied. All Infiniium models support any Windowscompatible input device with a PS/2 or USB interface.
File types	
Waveforms	Compressed internal format (*.wfm), comma separated values (*.csv), .hdf5, .bin, tab separated values (*.tsv), ability to save .osc (composite including both setup and waveform. and Y value files (*.txt)
Images	BMP, TIFF, GIF, PNG or JPEG
I/O ports	
LAN	RJ-45 connector, supports 10Base-T, 100Base-T, and 1000Base-T. Enables Web-enabled remote control, e-mail on trigger, data/file transfers and network printing.
RS-232 (serial)	9-pin, COM1, printer and pointing device support
PS/2	Two ports. Supports PS/2 pointing and input devices.
USB 2.0 Hi-Speed	Three 2.0 high-speed ports on front panel plus four ports on side panel. Allows connection of USB peripherals like storage devices and pointing devices while the oscilloscope is on. One device port on side for instrument control
Video output	15 pin XGA on side of scope, full output of scope display or dual monitor video output, DVI
Auxiliary output	DC (± 2.4 V); square wave ~755 Hz with ~200 ps rise time.
Time base reference output	10 MHz, Amplitude into 50 ohms: 800 mV pp to 1.26 V pp (4 dBm ± 2 dB) if derived from internal reference. Tracks external reference input amplitude ± 1 dB if applied and selected.
Time base reference output	Must be 10 MHz, input Z = 50 ohms. Minimum 500 mV pp (–2 dBm), maximum 2.0 V pp (+10 dBm).
LXI compliance	LXI Class C

Infiniium 9000 Series performance characteristics

General characteristics	
Temperature	
Operating	5 °C to + 40 °C
Non-operating	–40 °C to + 65 °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 4,000 meters (12,000 feet)
Non-operating	Up to 15,300 meters (50,000 feet)
Vibration	
Operating	Random vibration 5-500 Hz, 10 minutes per axis, 0.3 g (rms)
Non-operating	Random vibration 5-500 Hz, 10 minutes per axis, 2.41 g (rms); resonant search 5-500 Hz, swept sine, 1 octave/minute sweep rate, (0.75 g), 5 minute resonant dwell at 4 resonances per axis
Power	100 - 120 V, ± 10% 50/60/400 Hz 100 - 240 V, ± 10% 50/60 Hz Max power dissipated: 375 W
Typical operator noise	30 dB at front of instrument
Weight	Net: 11.8 kg (26 lbs.) Shipping: 17.8 kg (39 lbs.)
Dimensions (with feet retracted	Height: 12.9 in (33 cm); width: 16.8 in (43 cm); depth: 9 in (23 cm)
Safety	Meets IEC1010-1 Second Edition, certified to UL61010-1 and CAN/CSA-C22.2 No 61010-1 Second Edition (IEC61010-1:2001, MOD).

Infiniium 9000 Series ordering information

How to configure an Infiniium 9000 Series

1. Choose needed bandwidth
2. Choose MSO or DSO
3. Choose desired software applications
4. Choose memory depth upgrade
5. Choose any additional probes and accessories

Accessories included:

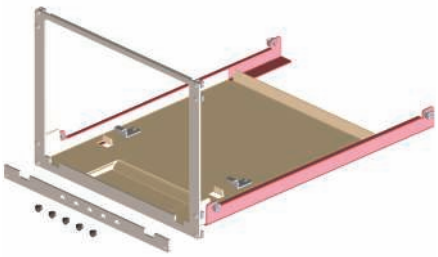
All models ship standard with: 1-year warranty, four N2873A 500 MHz passive probes, probe accessory pouch (mounts on rear of instrument), Keysight I/O libraries suite 15.0, localized power cord, front panel cover, keyboard, mouse, and stylus. User guide and programmer's guide ship on oscilloscope hard drive. Service guide available on Keysight.com. MSO models additionally ship with channel flying lead set logic probe, MSO cable and calibration fixture.

Model	Analog bandwidth	Analog sample rate* (4 ch / 2 ch)	Standard memory* (4 ch / 2 ch)	Scope channels	Logic channels
DSO9064A	600 MHz	5 GSa/s / 10 GSa/s	20 Mpts / 40 Mpts	4	-
MSO9064A	600 MHz	5 GSa/s / 10 GSa/s	20 Mpts / 40 Mpts	4	16
DSO9104A	1 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	-
MSO9104A	1 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	16
DSO9254A	2.5 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	-
MSO9254A	2.5 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	16
DSO9404A	4 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	-
MSO9404A	4 GHz	10 GSa/s / 20 GSa/s	20 Mpts / 40 Mpts	4	16

* In 2-channel mode, maximum sample rate and memory depth double.

Additional options and accessories	
Option A6J	ANSI Z540 compliant calibration
DSO9000A-820	External DVD-RW with USB connection
N2902B or Option 1CM (8U)	9000 Series oscilloscope rackmount kit
Option 801	Removable solid state drive
N2746A (requires Option 801)	Additional solid state drive Windows 7 embedded standard
Gemstar 5000 custom-molded case	Available from **www.gemstarmfg.com**
N4865A	GPIB to LAN adapter

Quickly remove your solid state drive for additional security with Option 801.



Mount your 9000 Series scope in an 8U high, 19" (487mm) wide rack with option ICM.

Infiniium 9000 Series ordering information

SW Applications	Factory-installed option for new scope purchases	User-installed stand-alone product number	User-installed floating license (N5435A option)
RS-232/UART triggering and decode	001	N5462B	031
EZJIT jitter analysis software	002	E2681A	002
High-speed SDA and clock recovery	003	N5384A	003
EZJIT Plus jitter analysis software	004	N5400A	001
USB triggering and decode	005	N5464B	034
PCI Express 1.1 triggering and decode	006	N5463B	032
I²C/SPI triggering and decode	007	N5391B	006
CAN, LIN, and FlexRay triggering and decode	008	N8803A	033
InfiniiScan	009	N5415B	004
User-defined function	010	N5430A	005
InfiniiSim signal equalization	012	N5461A	025
InfiniiSim basic signal de-embedding	013	N5465A 001	026
InfiniiSim advanced signal de-embedding	014	N5465A 002	027
Power measurement application software	015	U1882A	
Xilinx FPGA dynamic probe	016	N5397A	
Altera FPGA dynamic probe	017	N5433A	
RS-232, SPI and I2C triggering and decode bundle	018	N8800B	
MIPI D-Phy Triggering and decode	019	N8802A	036
Ethernet compliance	021	N5392A	008
USB2.0 compliance	029	N5416A	017
DDR1 and LPDDR compliance	031	U7233A	021
DDR2 and LPDDR2 compliance	032	N5413B	016
DDR3 compliance	033	U7231A	020
MIPI D-Phy compliance	035	U7238A	022
SATA1 (1.5 GB/s triggering and decode)	038	N8801A	035
User definable application	040	N5467A	
JTAG (IEEE 1149.1) triggering and decode	042	N8817A	038
USB HSIC compliance test	043	U7248	042
DigRF protocol decode	045	N8807A	047
SVID protocol triggering and decode	046	N8812A	054
Communication mask test kit		E2625A	
MATLAB basic	061		
MATLAB advanced	062		
HDMI 1.4 (up to 740 Mbp/s)		N5399B	
10GBase-T Ethernet compliance		U7236A	
Precision Probe		N2808A	044
eMMC compliance	064	N6465A	061
BroadR-Reach compliance	065	N6467A	062
EZJIT Complete jitter analysis software	070	N8823A	067
MOST compliance	073	N6466A	068
MIPI RFFE protocol	075		
Energy Efficient Ethernet		N5392B	

Upgrades

DSO to MSO upgrades N2901E

Upgrade your existing DSO to an MSO model in 5 minutes. The upgrade kit turns on all MSO capability and includes an MSO cable, 16-channel lead set with grabbers, an MSO-enabled sticker, and a digital-analog deskew fixture.

Additional acquisition memory (N2900A or options 50, 100, 200, and 500 on new scope purchase)

Increase memory depth to capture longer time periods and maintain faster speeds. Memory depth doubles in 2-channel mode.

Memory upgrade

Memory per scope channel (4-channel/ 2-channel mode)	Factory-installed option for new scope purchases	User-installed option (N2900A)
20 Mpts/40 Mpts	Standard	020
50 Mpts/100 Mpts	50M	050
100 Mpts/200 Mpts	100	100
200 Mpts/400 Mpts	200	200
500 Mpts/1 Gpts	500	500

Post-sales upgrades

DSO → MSO upgrades		
N2901E	DSO to MSO upgrade for 9000 and S-Series	
Oscilloscopes bandwidth upgrades (done at service centers[1])		
N2905A	Upgrade to 2.5 GHz bandwidth	-option 006 600 MHz to 2.5 GHz -option 010 1 GHz to 2.5 GHz
N2904A	Upgrade to 4.0 GHz bandwidth	-option 006 600 MHz to 4 GHz -option 010 1 GHz to 4 GHz -option 025 2.5 GHz to 4 GHz
Memory depth upgrades		
N2900A	Depth doubles in 2 channel mode.	-option 050 upgrade to 50 Mpts/ch -option 100 upgrade to 100 Mpts/ch -option 200 upgrade to 200 Mpts/ch -option 500 upgrade to 500 Mpts/ch
Operating system upgrades		
N2753A	Windows 7 embedded standard for Infiniium 9000 scope with Windows XP and SN>MY50410100 (customer installable)	
N2754A	Window 7 embedded standard and M890 motherboard for Infiniium 9000 scopes with Windows XP and SN <MY50410100 (Return to Service Center required - labor charges are additional. Calibration is recommended but optional.)	

1. Service Center labor and calibration charges are included - no extra charges.

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