

KEYSIGHT TECHNOLOGIES (AGILENT HP)

DSO9104A

The Keysight Infiniium DSO9104A is a 1 GHz, 4-channel digital storage oscilloscope featuring a large 15-inch touchscreen display and an innovative thin form factor. Engineered for broad measurement capabilities, it combines standard oscilloscope features with advanced debugging, compliance, and protocol analysis options to serve demanding digital and analog design requirements.

SPECIFICATIONS

General

Interfaces	USB 2.0 (host and device), LAN (10/100/1000Base-T), LXI Class C, GPIB (optional), DVI, VGA
Display	15-inch XGA active-matrix color TFT touchscreen, 1024 x 768 resolution
Warm-up Time	30 minutes
Calibration Interval	1 year

Physical

Power Supply	100-240 VAC, 50/60 Hz; 100-120 VAC, 400 Hz; 375 W maximum
Operating Temperature	5 °C to +40 °C °C
Dimensions (W×H×D)	418 mm × 324 mm × 226 mm mm
Weight	11.8 kg kg
Shipping Weight	16 kg (approx.)

Vertical System

Analog Bandwidth	1 GHz
Analog Channels	4
Rise Time (10% to 90%)	350 ps
Input Impedance	50 Ω or 1 M Ω (selectable)
Input Coupling	DC, AC (1 M Ω only)
Vertical Resolution	8-bit (up to 12-bit with High Resolution mode)
Hardware Bandwidth Limits	20 MHz, 250 MHz
Input Sensitivity Range (50 Ω)	1 mV/div to 1 V/div
Input Sensitivity Range (1 M Ω)	1 mV/div to 5 V/div
Maximum Input Voltage (50 Ω)	5 Vrms
Maximum Input Voltage (1 M Ω)	± 150 V (DC + peak AC)
DC Gain Accuracy	$\pm 2\%$ of full scale
Channel-to-Channel Isolation	40 dB (DC to 1 GHz)
RMS Noise Floor (10 mV/div, 50 Ω)	0.231 mV
RMS Noise Floor (100 mV/div, 50 Ω)	2.31 mV
RMS Noise Floor (1 V/div, 50 Ω)	23.1 mV

Horizontal System

Main Timebase Range	5 ps/div to 20 s/div
Timebase Accuracy	± 0.1 ppm (initial)
Channel-to-Channel Deskew Range	± 270 ns

Acquisition System

Maximum Sample Rate (2 Channels)	20 GSa/s
Maximum Sample Rate (4 Channels)	10 GSa/s
Standard Memory Depth (2 Channels)	40 Mpts
Standard Memory Depth (4 Channels)	20 Mpts
Maximum Memory Depth (2 Channels)	1 Gpts (option dependent)
Maximum Memory Depth (4 Channels)	500 Mpts (option dependent)
Acquisition Modes	Normal, Peak Detect, Average, High Resolution, Segmented

Trigger System

Trigger Sources	Channel 1, Channel 2, Channel 3, Channel 4, Aux, Line
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	100 ns to 10 s
Trigger Sensitivity	Internal: 0.6 div (≤ 500 MHz), 1.0 div (500 MHz to 1 GHz)
Standard Trigger Types	Edge, Edge Transition, Glitch, Width, Pattern, State, Window, Runt, Timeout, Setup/Hold
Advanced Triggering	InfiniiScan Software Triggering

Waveform Measurements and Analysis

Automatic Measurements	Over 60 built-in voltage, time, and frequency measurements
Waveform Math Functions	Add, Subtract, Multiply, Divide, FFT, Integrate, Differentiate, Square Root, Absolute, Log, Exponential
FFT Window Types	Hanning, Hamming, Rectangular, Blackman-Harris, Flat Top
Limit and Mask Testing	Standard
Compliance Test Options	Ethernet, USB 2.0, DDR1/2/3, CAN/LIN/FlexRay

Computer System Specs

Operating System	Windows 7 Embedded Standard 64-bit
Processor (CPU)	Intel Core 2 Duo
System Memory (RAM)	4 GB
Storage Capacity	250 GB removable hard drive (or SSD)

Connectivity & I/O Interfaces

USB Host Ports	2 front, 4 rear (USB 2.0)
USB Device Ports	1 rear (USB 2.0)
LAN Interface	10/100/1000Base-T (RJ-45), LXI Class C
External Trigger Input	BNC, 1 M
Trigger Output (Aux Out)	BNC
Reference Clock Input	10 MHz (BNC)
Reference Clock Output	10 MHz (BNC)
Video Ports	DVI-D, VGA

Power & Environmental

Operating Humidity	Up to 95% relative humidity (non-condensing) at +40 °C
Operating Altitude	Up to 3,000 m (10,000 ft)
Acoustic Noise	35 dB (at operator position)

Ordering Information & Upgrade Options

Memory Depth Upgrades	Option 50M, 100M, 200M, 500M
Supported Passive Probes	N2873A (standard)
Supported Active Probes	InfiniiMax I/II series, InfiniiMode series
MSO Upgrade Kit	N2901D (upgrade to 16 digital channels)

Power Requirements

Power Consumption	Max 375 W
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Connectivity

LXI Compliance	LXI Class C
Audio Ports	Microphone Input, Line Output (3.5 mm jack)

Acquisition

Maximum Number of Segments	Up to 131,072 (memory option dependent)
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Compliance

Safety Standards	IEC 61010-1, CAN/CSA-C22.2 No. 61010-1, UL Std. No. 61010-1
EMC Standards	IEC 61326-1, CISPR 11/EN 55011 Group 1 Class A

Environmental

Vibration (Operating)	0.21 g (rms) random, 5 Hz to 500 Hz, 10 minutes per axis
Vibration (Non-operating)	2.09 g (rms) random, 5 Hz to 500 Hz, 10 minutes per axis
Storage Temperature Range	-40 °C to +70 °C
Storage Altitude	Up to 15,300 m (50,000 ft)
Operating Shock	30 g peak, 11 ms duration, half-sine wave
Non-operating Shock	50 g peak, 11 ms duration, half-sine wave

Trigger

Trigger Level Range (Internal)	±4 divisions from center of screen
Trigger Level Range (External)	±5 V
Trigger Jitter	< 1.6 ps rms

Probe Compensator

Probe Compensator Output Amplitude	~1 V p-p into 1 MΩ, ~500 mV p-p into 50 Ω
Probe Compensator Output Frequency	~5.85 kHz

TECHNOLOGY

Digital Storage Oscilloscope

APPLICATIONS

General-purpose electronics debug, high-speed digital design, protocol testing, compliance verification

