

KEYSIGHT TECHNOLOGIES (AGILENT HP)

MSO6012A

The Keysight Technologies (formerly Agilent) InfiniiVision MSO6012A is a high-performance 100 MHz Mixed Signal Oscilloscope featuring 2 analog channels and 16 digital channels. Built with MegaZoom III technology, it delivers a deep 8 Mpts standard memory, an ultra-fast update rate of up to 100,000 waveforms/second, and a high-definition 6.3-inch XGA display with 256 intensity levels. These features make it highly effective for debugging complex analog, digital, and serial bus designs.

SPECIFICATIONS

General

Interfaces	USB 2.0 host (2 ports), USB 2.0 device (1 port) standard; LAN (10/100Base-T), GPIB, XGA Video Output optional
Display	6.3-inch (160 mm) diagonal color flat-panel TFT-LCD, 320 × 240 pixels (QVGA) with 256 levels of intensity

Physical

Power Supply	100-240 VAC, 50/60 Hz; 100-120 VAC at 400 Hz; Auto-ranging; 120 W maximum
Operating Temperature	0 to +55 °C °C
Dimensions (W×H×D)	354 mm × 188 mm × 174 mm mm
Weight	4.9 kg

Analog Vertical System

Analog Input Channels	2
Analog Bandwidth (-3 dB)	100 MHz
Calculated Rise Time (10% to 90%)	3.5 ns
Input Coupling	AC, DC
Input Impedance	1 MΩ ± 1% ~14 pF, or 50 Ω ± 1.5%
Input Sensitivity Range	2 mV/div to 5 V/div (1 MΩ), 2 mV/div to 1 V/div (50 Ω)
Vertical Resolution	8 bits
Max Input Voltage (1 MOhm)	CAT I 400 V (DC + peak AC), CAT II 300 V (DC + peak AC)
Max Input Voltage (50 Ohm)	5 Vrms
DC Gain Accuracy	±2.0% of full scale
Offset Range	1 MΩ: ±5 V (<10 mV/div), ±25 V (10 mV/div to 198 mV/div), ±100 V (200 mV/div to 1.98 V/div), ±400 V (2 to 5 V/div); 50 Ω: ±5 V (<10 mV/div), ±25 V (10 to 198 mV/div), ±100 V (200 mV to 1 V/div)

Digital Vertical System

Digital Channels	16
Threshold Grouping	Pod 1 (D7 - D0), Pod 2 (D15 - D8)
Threshold Selections	TTL, CMOS, ECL, user-defined
Threshold Voltage Range	± 8.0 V in 10 mV steps
Threshold Accuracy	$\pm(100$ mV + 3% of threshold setting)
Input Impedance (Digital Probe)	$100\text{ k}\Omega \pm 2\%$ ~ 8 pF (with flying-lead probe)
Minimum Voltage Swing	500 mVpp
Maximum Toggle Rate	250 MHz

Horizontal System

Maximum Real-time Sample Rate (Analog)	2 GSa/s (interleaved), 1 GSa/s (per channel)
Maximum Sample Rate (Digital)	1 GSa/s
Maximum Record Length (Analog Channels)	8 Mpts (interleaved), 4 Mpts (per channel)
Maximum Record Length (Digital Channels)	8 Mpts (interleaved), 4 Mpts (per channel)
Time Base Range	5 ns/div to 50 s/div
Time Base Accuracy	± 15 ppm (0.0015%)
Channel-to-Channel Deskew Range	± 100 ns
Timebase Modes	Main, Zoom, Roll, XY
XY Phase Difference	$\pm 1^\circ$ (from DC to 100 kHz)

Trigger System

Trigger Modes	Normal, Auto, Single
Trigger Coupling	AC, DC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	60 ns to 10 s
Edge Triggering	Rising, falling, alternating, or either edge on any channel
Pulse Width Triggering	Positive or negative pulse from 15 ns to 10 s
Runt Triggering	Not supported
Setup and Hold Triggering	Trigger on setup/hold violations
Pattern Triggering	Trigger on logical state combination across any analog/digital channel

Acquisition Modes

Sample Mode	Successive samples are registered
Peak Detect Mode	Captures high-frequency glitches down to 2 ns
Averaging Mode	Selectable from 2 to 65536 averages
High Resolution Mode	Real-time boxcar filtering reduces random noise and yields up to 12 bits of resolution
Segmented Memory Mode	Supported, partition acquisition memory into up to 1,000 segments

Waveform Analysis & Measurements

Automatic Measurements	Voltage: Peak-to-peak, Max, Min, Amplitude, Top, Base, Overshoot, Preshoot, Average, RMS. Time: Frequency, Period, Width, Duty Cycle, Rise, Fall, Phase, Delay
Math Functions	Add, Subtract, Multiply, FFT
FFT Window Types	Hanning, Flat Top, Rectangular

Display & User Interface

Waveform Update Rate	100,000 waveforms/second
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Environmental & Compliance

Operating Humidity Range	95% relative humidity at 40 °C (non-condensing)
Operating Altitude	Up to 4,600 m (15,000 ft)
Non-Operating Altitude	Up to 15,300 m (50,000 ft)

External Trigger Input

External Trigger Max Input Voltage	400 V (DC + peak AC) CAT I / 300 Vrms CAT II (1 M Ω), 5 Vrms (50 Ω)
External Trigger Coupling	DC, AC, LF Reject, HF Reject

Trigger Sensitivity

Internal Trigger Sensitivity	Greater of 1 div or 5 mV (< 10 mV/div), 0.6 div ($\geq$ 10 mV/div)
External Trigger Sensitivity	40 mV (DC to 100 MHz)

Environmental

Storage Temperature Range	-40 °C to +70 °C
Operating Vibration	0.21 g rms (5 Hz to 500 Hz)
Non-Operating Vibration	2.09 g rms (5 Hz to 500 Hz)
Operating Shock	30 g (half-sine, 11 ms duration)
Non-Operating Shock	50 g (half-sine, 11 ms duration)

Electrical

Maximum Power Consumption	120 W
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Probe Compensation

Probe Compensation Output Amplitude	approximately 2.5 Vpp
Probe Compensation Output Frequency	approximately 1.2 kHz

Hardware Frequency Counter

Frequency Counter Resolution	5 digits
Frequency Counter Max Frequency	100 MHz

Compliance

Safety Standards Compliance	UL61010-1, CSA C22.2 No. 61010-1, IEC 61010-1
EMC Standards Compliance	IEC 61326-1, EN 61326-1, CISPR 11/EN 55011 Group 1 Class A

Analog Input

Channel-to-Channel Isolation	≥ 40 dB (DC to 100 MHz)
Bandwidth Limit Filter	20 MHz (selectable)

Triggering

Trigger Jitter	< 15 ps RMS (typical)
Video Triggering Formats	NTSC, PAL, SECAM, HDTV (480i, 480p, 576i, 720p, 1080i, 1080p)

Digital Channels

Minimum Glitch Detection Width	2 ns
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Accessories

Included Probes (Analog)	2 × 10074C 10:1 passive probes (150 MHz)
Included Probes (Digital)	1 × 54620-68701 16-channel digital probe kit

Connectivity

Trigger Out Output	0 to 5 V into open circuit, 0 to 2.5 V into 50 Ω
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TECHNOLOGY

Mixed Signal Oscilloscope

APPLICATIONS

Embedded system design, mixed-signal debugging, serial bus testing, automotive and industrial electronics repair

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