

KEYSIGHT TECHNOLOGIES (AGILENT HP)

MSO6032A

The Keysight InfiniiVision MSO6032A is a 300 MHz, 2+16 channel mixed signal oscilloscope (MSO) featuring MegaZoom III deep memory technology, a high-definition color display with 256 levels of intensity, and an industry-leading update rate of up to 100,000 waveforms/sec. Combining analog and digital channels with advanced serial triggering options, this instrument provides deep insights into complex system-level designs.

SPECIFICATIONS

General

Display	6.3-inch high-definition color LCD with 256 levels of intensity
Internal Storage Capacity	10 setups and 10 waveforms
Calibration Cycle	1 year

Physical

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

Analog Vertical System

Analog Bandwidth	300 MHz
Number of Analog Channels	2
Calculated Rise Time	1.17 ns
Input Coupling	AC, DC
Input Impedance	1 MΩ ±1% (14 pF), 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
DC Gain Accuracy	±2.0% of full scale
Maximum Input Voltage	CAT I 400 Vpk (1 MΩ), 5 Vrms (50 Ω)
Hardware Bandwidth Limits	20 MHz (selectable)

Digital Vertical System

Number of Digital Channels	16
Input Impedance (Digital)	100 k Ω $\pm$ 2% (~8 pF) at probe tip
Minimum Voltage Swing	500 mV pp
Threshold Selections	TTL, CMOS, ECL, user-defined
Threshold Accuracy	$\pm$ (100 mV + 3% of threshold setting)
Maximum Input Voltage (Digital)	$\pm$ 40 V peak
Threshold Range	$\pm$ 8.0 V in 10 mV steps

Horizontal System & Acquisition

Maximum Real-Time Sample Rate (Analog)	2 GSa/s (half-channel), 1 GSa/s (each channel)
Maximum Real-Time Sample Rate (Digital)	2 GSa/s (half-pod), 1 GSa/s (each channel)
Maximum Memory Depth	8 Mpts (half-channel / half-pod), 4 Mpts (each channel / pod)
Timebase Range	1 ns/div to 50 s/div
Timebase Accuracy	$\pm$ 15 ppm (0.0015%)
Acquisition Modes	Normal, Peak Detect, Average, High Resolution
Peak Detection Resolution	500 ps
Waveform Update Rate	100,000 waveforms/sec

Trigger System

Trigger Sources	Analog channels, digital channels, external, line
Trigger Modes	Auto, Normal, Single
Trigger Coupling	AC, DC, LF Reject, HF Reject, Noise Reject
Trigger Holdoff Range	60 ns to 10 s
Trigger Sensitivity	0.6 div or 2 mV (DC to 100 MHz), 1.0 div or 3 mV (100 MHz to 300 MHz)
Edge Triggering	Rising, falling, or alternating edge on any source
Pulse Width Triggering	Trigger on pulse width <, >, =, or $\neq$ a specific time (2 ns to 10 s on analog channels, 5 ns to 10 s on digital channels)
Pattern / State Triggering	Pattern of high, low, or don't care levels, or state on any input
TV / Video Triggering	NTSC, PAL, SECAM, HDTV (480i, 480p, 720p, 1080i, 1080p)
Serial Protocol Triggering Options	I2C, SPI, CAN, LIN, UART/RS-232, FlexRay, MIL-STD-1553
Pulse Width Trigger Range	2 ns to 10 s
Supported Video Standards	NTSC, PAL, SECAM, HDTV (480i, 480p, 720p, 1080i, 1080p)

Waveform Measurements & Analysis

Automatic Voltage Measurements	Peak-to-peak, maximum, minimum, average, amplitude, top, base, overshoot, preshoot, RMS
Automatic Time Measurements	Period, frequency, rise time, fall time, + width, - width, duty cycle
Measurement Cursors	Manually placed or track automatic measurements, X and Y axes
Waveform Math Functions	Addition, subtraction, multiplication, FFT
FFT Window Types	Hanning, Flat Top, Rectangular

Connectivity & Interfaces

USB Host Ports	1 x front panel, 1 x rear panel
USB Device Port	1 x rear panel (supports USBTMC)
LAN Port	RJ-45 (10/100Base-T), LXI class C compliant
GPIB Interface	IEEE 488.2 connector on rear panel
External Trigger Input	1 M Ω ($\pm 1\%$), 300 Vrms (400 Vpk) max or 50 Ω ($\pm 1.5\%$), 5 Vrms max
Trigger Output Port	BNC on rear panel
VGA Video Output	15-pin D-sub (XGA resolution)

Power Specifications

Line Voltage Range	100 V to 240 V AC
Line Frequency Range	50/60 Hz (100-240 V), 400 Hz (100-120 V)
Power Consumption	120 W maximum

Environmental & Safety

Storage Temperature Range	-40 °C to +70 °C
Operating Humidity Range	95% RH at +40 °C
Operating Altitude	Up to 4,600 meters (15,000 feet)
Safety Standards Met	UL61010-1, CAN/CSA-C22.2 No. 61010-1, EN61010-1
Electromagnetic Compatibility	IEC 61326-1, EN 61326-1

Physical Characteristics

Kensington Lock Slot	Available on rear panel
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Accessories

Standard Passive Probes	10073C 10:1 passive probe (1 per analog channel)
Digital Channel Cable Kit	54620-61801 16-channel cable kit (standard)

Vertical System (Analog)

Channel-to-Channel Isolation	> 40 dB from DC to 300 MHz
Channel-to-Channel Deskew Range	± 100 ns

Vertical System (Digital)

Digital-to-Analog Channel Deskew	2 ns typical, 3 ns maximum
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Acquisition

Segmented Memory Max Segments	Up to 1000 (with Option SGM)
High Resolution Acquisition Mode	Up to 12 bits of resolution (real-time boxcar averaging)

Environmental

Operating Vibration	0.21 g rms, 5 Hz to 500 Hz, 10 minutes per axis
Non-Operating Vibration	2.09 g rms, 5 Hz to 500 Hz, 10 minutes per axis
Operating Shock	30 g, half-sine, 11 ms duration
Non-Operating Altitude	15,300 m (50,000 ft)
Acoustic Noise	30 dBA (typical) at 25 °C

Digital Channels

Digital Input Capacitance	8 pF (approximate)
Digital Input Dynamic Range	±10 V about threshold
Digital Channel-to-Channel Skew	2 ns typical, 3 ns maximum
Digital Minimum Toggle Rate	250 MHz

Analog Channels

Maximum Input Voltage (50 Ω)	5 Vrms
Maximum Input Voltage (1 MΩ)	400 V (DC + peak AC) CAT I, 300 V (DC + peak AC) CAT II
Probe Interface	AutoProbe

Display & Controls

Display Resolution	640 columns × 480 rows (VGA)
Display Size	6.3-inch (160 mm) diagonal
Display Type	Color TFT LCD

Timebase & Triggering

Trigger Jitter	< 100 ps RMS (typical)
Timebase Delay Jitter	< 1 ppm

Built-In Frequency Counter

Built-In Frequency Counter Resolution	5 digits
Built-In Frequency Counter Max Frequency	300 MHz
Built-In Frequency Counter Sources	Any analog channel or external trigger source

Connectivity & Storage

LXI Compliance	LXI Class C compliant
File Export Formats	CSV, BMP, PNG, ASCII XY, Binary, Setup (.set), Waveform (.wfm)

TECHNOLOGY

Mixed Signal Oscilloscope (MSO)

APPLICATIONS

Embedded system design, debugging analog, digital, and serial communication buses (I2C, SPI, CAN, LIN, USB, UART)

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