

## If you haven't purchased an Agilent scope lately, why should you consider one now?

**Agilent has been the fastest growing oscilloscope supplier since 1997** (source: Prima Data, 2007). Wonder why? Agilent engineers developed the InfiniiVision 6000 Series with advanced technology that will allow you to see more subtle signal detail and more infrequent events than any other scope on the market. See the InfiniiVision 6000 Series oscilloscope—the industry's best for signal viewing.

*There is no better way to experience the superiority of the InfiniiVision 6000 Series scopes than to see it. Contact Agilent today to request an evaluation.*



The InfiniiVision 6000 Series offers bandwidths up to 1 GHz. Each model, equipped with a 6.3" XGA LCD display, comes in a whisper-quiet package that weighs only 11 pounds.

Model	Bandwidth	Sample rate	Memory	Scope channels	Digital channels	Update rate
DSO6012A	100 MHz	2 GSa/s	8 Mpts	2	16	Up to 100,000 deep-memory waveforms per second, even with deep memory, digital channels and serial decode turned on.
DSO6014A				4		
MSO6012A				2		
MSO6014A				4		
DSO6032A	300 MHz	2 GSa/s	8 Mpts	2	16	
DSO6034A				4		
MSO6032A				2		
MSO6034A				4		
DSO6052A	500 MHz	4 GSa/s	8 Mpts	2	16	
DSO6054A				4		
MSO6052A				2		
MSO6054A				4		
DSO6102A	1 GHz	4 GSa/s	8 Mpts	2	16	
DSO6104A				4		
MSO6102A				2		
MSO6104A				4		

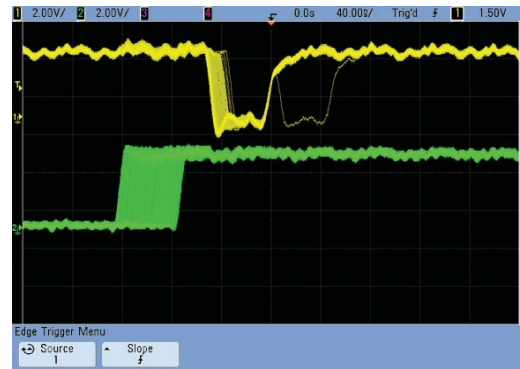
Choose from sixteen InfiniiVision 6000 Series models. Agilent provides an easy 5-minute DSO-to-MSO upgrade kit for previously purchased 6000 Series DSOs.

# What gives the InfiniiVision 6000 Series the best signal visibility?

## 1. High resolution

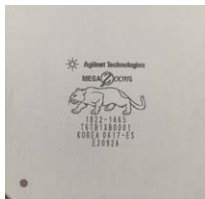
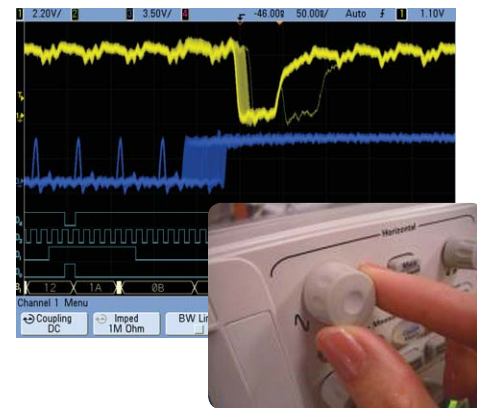
Oscilloscopes are visual tools and high-resolution screens make the product better. High resolution displays have become increasingly important as general purpose scopes need to display digital and serial signals in addition to traditional scope channels.

View up to 20 channels simultaneously with serial protocol. See subtle signal detail with up to 256 levels of intensity.



## 2. Fastest architecture

See a display more representative of the actual signals under test than with any other scope. The InfiniiVision 6000 Series shows jitter, infrequent events, and subtle signal detail that other scopes miss. Turn knobs and the instrument responds instantly and effortlessly. Need to also view digital channels? The instrument stays responsive. Decoding serial packets? Offering the industry's only hardware-accelerated serial bus decode, Agilent's InfiniiVision series delivers serial debug without compromising analog measurements.



InfiniiVision scopes incorporate acquisition memory, waveform processing, and display memory in an advanced 0.13  $\mu$  ASIC. This patented 3rd generation technology, known as MegaZoom III, delivers up to 100,000 waveforms (acquisitions) per second with responsive deep memory always available.

## 3. Insightful applications

Customize your general purpose scope. A wide range of application packages provide meaningful insight into your application-specific problems. (See pages 8-9 and 13-14 for more detail.)

- Serial with hardware-accelerated decode
    - I<sup>2</sup>C, SPI
    - CAN/LIN
    - RS-232/UART
    - FlexRay
  - DSO/MSO offline analysis
  - Core-assisted FPGA debug
  - Vector signal analysis
  - Segmented memory
  - Mask testing
  - Power measurement
  - Secure environment
- Battery option

# Agilent InfiniiVision Portfolio

Agilent's InfiniiVision lineup includes 5000, 6000 and 7000 Series oscilloscopes. These share a number of advanced hardware and software technology blocks. Use the following selection guide to determine which best matches your specific needs.



**Largest display,  
shallow depth**



**Optional battery,  
100 MHz MSO**



**Ideal for ATE rackmount  
applications**



**Smallest form factor,  
lowest price**

Bandwidth	7000 Series	6000A Series	6000L Series	5000 Series
100 MHz Bandwidth	•	•	•	•
300/350 MHz Bandwidth	•	•	•	•
500 MHz Bandwidth	•	•	•	•
1 GHz Bandwidth	•	•	•	
MSO Models	•	•	•	
GPIB Connectivity		•	•	•
Rackmount height	7U	5U	1U	5U
Battery option		•		
Display size	12.1"	6.3"		6.3"
Footprint (WxHxD)	17.9"x 10.9"x 6.8"	15.7"x 7.4"x 11.1"	17.1"x 1.7"x 10.6"	15.2"x 7.4"x 6.9"



## Agilent's InfiniiVision oscilloscope portfolio offers:

- A variety of form factors to fit your environment
- Responsive controls and best signal visibility
- Insightful application software
- Responsive deep memory with MegaZoom III

# Performance characteristics

## Acquisition: scope channels

Sample rate	MSO/DSO601xA/603xA: 2 GSa/sec each channel MSO/DSO605xA/610xA: 4 GSa/sec half channel*, 2 GSa/sec each channel Equivalent-time sample rate: 400 GSa/s (when real-time mode is turned off)
Memory depth	2 channels/4 channels 8 Mpts/4 Mpts
Vertical resolution	8 bits
Peak detection	MSO/DSO601xA: 1-ns peak detect MSO/DSO603xA: 500-ps peak detect MSO/DSO605xA/610xA: 250-ps peak detect
Averaging	Selectable from 2, 4, 8, 16, 32, 64 ... to 65536
High resolution mode	Average mode with avg = 1 12 bits of resolution when $\geq 10 \mu\text{s}/\text{div}$ @ 4 GSa/s or $\geq 20 \mu\text{s}/\text{div}$ @ 2 GSa/s
Filter	Sinx/x interpolation (single shot BW = sample rate/4 or bandwidth of scope, whichever is less) with vectors on and in real-time mode

## Acquisition: digital channels (MSO6000A or MSO-upgraded DSO6000A only)

Sample rate	2 GSa/sec one pod**, 1 GSa/sec each pod
Maximum input frequency	250 MHz
Memory depth	One pod/both pods (with scope channels turned off) 8 Mpts/4 Mpts One pod/both pods (with scope channels turned on) 2.5 Mpts/ 1.25 Mpts
Vertical resolution	1 bit
Glitch detection	2 ns (min pulse width)

\* Half channel is when only one of channel 1 or 2 is turned on, and only channel 3 or 4 is turned on.

\*\* A pod is a group of eight digital channels, either 0-7 or 8-15.

## Performance characteristics (continued)

### Vertical system: scope channels

Scope channels	MSO/DSO6xx2A: Ch 1 and 2 simultaneous acquisition MSO/DSO6xx4A: Ch 1, 2, 3 and 4 simultaneous acquisition
Bandwidth (–3dB)*	MSO/DSO601xA: DC to 100 MHz MSO/DSO603xA: DC to 300 MHz MSO/DSO605xA: DC to 500 MHz MSO/DSO610xA: DC to 1 GHz
AC coupled	MSO/DSO601xA: 3.5 Hz to 100 MHz MSO/DSO603xA: 3.5 Hz to 300 MHz MSO/DSO605xA: 3.5 Hz to 500 MHz MSO/DSO610xA: 3.5 Hz to 1 GHz
Calculated rise time (=0.35/bandwidth)	MSO/DSO601xA: 3.5 nsec MSO/DSO603xA: 1.17 nsec MSO/DSO605xA: 700 psec MSO/DSO610xA: 350 psec
Single-shot bandwidth	MSO/DSO601xA: 100 MHz MSO/DSO603xA: 300 MHz MSO/DSO605xA: 500 MHz MSO/DSO610xA: 1 GHz (in half-channel mode)
Range <sup>1</sup>	MSO/DSO601xA: 1 mV/div to 5 V/div (1 M $\Omega$ ) MSO/DSO603xA and MSO/DSO605xA: 2 mV/div to 5 V/div (1 M $\Omega$ or 50 $\Omega$ ) MSO/DSO610xA: 2 mV/div to 5 V/div (1 M $\Omega$ ), 2 mV/div to 1 V/div (50 $\Omega$ )
Maximum input	CAT I 300 Vrms, 400 Vpk; transient overvoltage 1.6 kVpk CAT II 100 Vrms, 400 Vpk With 10073C or 10074C 10:1 probe: CAT I 500 Vpk, CAT II 400 Vpk
Offset range	$\pm 5$ V on ranges <10 mV/div; $\pm 20$ V on ranges 10 mV/div to 200 mV/div; $\pm 75$ V on ranges >200 mV/div
Dynamic range	$\pm 8$ div
Input impedance	MSO/DSO601xA: 1 M $\Omega$ $\pm$ 1%    11 pF MSO/DSO603xA/605xA/610xA: 1 M $\Omega$ $\pm$ 1%    14 pF or 50 $\Omega$ $\pm$ 1.5%, selectable
Coupling	AC, DC
BW limit	MSO/DSO601xA: 20 MHz selectable MSO/DSO603xA/605xA/610xA: 25 MHz selectable
Channel-to-channel isolation	DC to max bandwidth >40 dB
Standard probes	MSO/DSO601xA: 10:1 10074C shipped standard for each scope channel MSO/DSO603xA/605xA/610xA: 10:1 10073C shipped standard for each scope channel
Probe ID	MSO/DSO601xA: Auto probe sense MSO/DSO603xA/605xA/610xA: Auto probe sense and AutoProbe interface Agilent- and Tektronix-compatible passive probe sense

\* Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and  $\pm 10$  °C from firmware calibration temperature.

<sup>1</sup> 1 mV/div is a magnification of 2 mV/div setting for 100 MHz models and 2 mV/div is a magnification of 4 mV/div setting for 300 MHz to 1 GHz models. For vertical accuracy calculations, use full scale of 16 mV for 1 mV/div sensitivity setting and 32 mV for 2 mV/div sensitivity setting.

## Performance characteristics (continued)

### Vertical system: scope channels (continued)

ESD tolerance	±2 kV
Noise, RMS, input shorted	MSO/DSO601xA: 0.50% FS or 250 µV, whichever is greater MSO/DSO603xA: 0.50% FS or 300 µV, whichever is greater MSO/DSO605xA: 0.50% FS or 360 µV, whichever is greater MSO/DSO610xA: 0.65% FS or 360 µV, whichever is greater
DC vertical gain accuracy* <sup>1</sup>	±2.0% full scale
DC vertical offset accuracy	≤200 mV/div: ±0.1 div ±2.0 mV ±0.5% offset value; >200 mV/div: ±0.1 div ±2.0 mV ±1.5% offset value
Single cursor accuracy <sup>1</sup>	±{DC vertical gain accuracy + DC vertical offset accuracy + 0.2% full scale (~1/2 LSB)} <i>Example:</i> for 50 mV signal, scope set to 10 mV/div (80 mV full scale), 5 mV offset, accuracy = ±{2.0% (80 mV) + 0.1 (10 mV) + 2.0 mV + 0.5% (5 mV) + 0.2% (80 mV)} = ± 4.785 mV
Dual cursor accuracy* <sup>1</sup>	±{DC vertical gain accuracy + 0.4% full scale (~1 LSB)} <i>Example:</i> for 50 mV signal, scope set to 10 mV/div (80 mV full scale), 5 mV offset, accuracy = ±{2.0% (80 mV) + 0.4% (80 mV)} = ±1.92 mV

\* Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ±10 °C from firmware calibration temperature.

<sup>1</sup> 1 mV/div is a magnification of 2 mV/div setting for 100 MHz models and 2 mV/div is a magnification of 4 mV/div setting for 300 MHz to 1 GHz models. For vertical accuracy calculations, use full scale of 16 mV for 1 mV/div sensitivity setting and 32 mV for 2 mV/div sensitivity setting.

### Vertical system: digital channels (MSO6000A or MSO-upgraded DSO6000A only)

Number of channels	16 logic timing channels – labeled D15 - D0
Threshold groupings	Pod 1: D7 - D0 Pod 2: D15 - D8
Threshold selections	TTL, CMOS, ECL and user-definable (selectable by pod)
User-defined threshold range	±8.0 V in 10 mV increments
Maximum input voltage	±40 V peak CAT I; transient overvoltage 800 Vpk
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 capacitance	~8 pF
Input resistance	100 kΩ ±2% at probe tip
Channel-to-channel skew	2 ns typical, 3 ns maximum

\* Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ±10 °C from firmware calibration temperature.

## Performance characteristics (continued)

### Horizontal

Range	MSO/DSO601xA: 5 nsec/div to 50 sec/div MSO/DSO603xA: 2 nsec/div to 50 sec/div MSO/DSO605xA: 1 nsec/div to 50 sec/div MSO/DSO610xA: 500 psec/div to 50 sec/div
Resolution	2.5 psec
Time scale accuracy*	$\leq \pm (15 + 2 \cdot (\text{instrument age in years})) \text{ ppm}$
Vernier	1-2-5 increments when off, ~25 minor increments between major settings when on
Delay range	Pre-trigger (negative delay): Greater of 1 screen width or 1 ms (with 8 Mpts memory option) Post-trigger (positive delay): 1 s to 500 seconds
Analog delta-t accuracy	Same channel: $\pm 0.0015\%$ reading $\pm 0.1\%$ screen width $\pm 20 \text{ ps}$ Channel-to-channel: $\pm 0.0015\%$ reading $\pm 0.1\%$ screen width $\pm 40 \text{ ps}$ <i>Same channel example (MSO/DSO605xA):</i> For signal with pulse width of $10 \mu\text{s}$ , scope set to $5 \mu\text{s}/\text{div}$ ( $50 \mu\text{s}$ screen width), $\text{delta-t accuracy} = \pm\{0.0015\% (10 \mu\text{s}) + 0.1\% (50 \mu\text{s}) + 20 \text{ ps}\} = 50.17 \text{ ns}$
Logic delta-t accuracy	Same channel: $\pm 0.005\%$ reading $\pm 0.1\%$ screen width $\pm (1 \text{ logic sample period, } 1 \text{ ns})$ Channel-to-channel: $\pm 0.005\%$ reading $\pm 0.1\%$ screen width $\pm (1 \text{ logic sample period}) \pm \text{chan-to-chan skew}$ <i>Same channel example:</i> For signal with pulse width of $10 \mu\text{s}$ , scope set to $5 \mu\text{s}/\text{div}$ ( $50 \mu\text{s}$ screen width), $\text{delta-t accuracy} = \pm\{0.005\% (10 \mu\text{s}) + 0.1\% (50 \mu\text{s}) + 1 \text{ ns}\} = 51.5 \text{ ns}$
Modes	Main, delayed, roll, XY
XY	Bandwidth: Max bandwidth Phase error @ 1 MHz: $< 0.5 \text{ degrees}$ Z Blanking: 1.4 V blanks trace (use external trigger on MSO/DSO6xx2A, channel 4 on MSO/DSO6xx4A)
Reference positions	Left, center, right
Segmented memory rearm time	$8 \mu\text{s}$ (minimum time between trigger events)

### Trigger system

Sources	MSO6xx2A: Ch 1, 2, line, ext, D15 - D0 DSO6xx2A: Ch 1, 2, line, ext MSO6xx4A: Ch 1, 2, 3, 4, line, ext, D15 - D0 DSO6xx4A: Ch 1, 2, 3, 4, line, ext
Modes	Auto, Normal (triggered), single
Holdoff time	~60 ns to 10 seconds
Trigger jitter	15 ps rms

\* Denotes warranted specifications for units manufactured after January 1, 2008. Specifications are valid after a 30 minute warm-up period and within 10 °C of firmware calibration procedure.

## Performance characteristics (continued)

### Trigger system (continued)

Selections	Edge, pulse width, pattern, TV, duration, sequence, CAN, LIN, FlexRay, USB, I <sup>2</sup> C, SPI, RS-232, Nth edge burst
Edge	Trigger on a rising, falling, alternating or either edge of any source
Pattern	Trigger at the beginning of a pattern of high, low, and don't care levels and/or a rising or falling edge established across any of the analog and digital channels, but only after a pattern has stabilized for a minimum of 2 nsec. The scope channel's high or low level is defined by that channel's trigger level. The logic channel's trigger level is defined by the threshold for the pod, 0 - 7 or 8 - 15.
Pulse width	Trigger when a positive- or negative-going pulse is less than, greater than, or within a specified range on any of the source channels. Minimum pulse width setting: 5 ns (MSO/DSO601xA/603xA scope channels) 2 ns (MSO/DSO605xA/610xA scope channels) 2 ns (logic channels on MSO6000A or MSO-upgraded DSO6000A) Maximum pulse width setting: 10 s
TV	Trigger using any scope channel on most analog progressive and interlaced video standards including HDTV/EDTV, NTSC, PAL, PAL-M or SECAM broadcast standards. Select either positive or negative sync pulse polarity. Modes supported include Field 1, Field 2, all fields, all lines, or any line within a field. TV trigger sensitivity: 0.5 division of sync signal. Trigger holdoff time can be adjusted in half field increments.
Sequence	Arm on event A, trigger on event B, with option to reset on event C or time delay.
CAN	Trigger on CAN (Controller Area Network) version 2.0A and 2.0B signals. Trigger on the start of frame (SOF) bit (standard). N5424A option supports triggering on remote frame ID (RTR), data frame ID (~RTR), remote or data frame ID, data frame ID and data, error frame, all errors, acknowledge error and overload frame.
LIN	Trigger on LIN (Local Interconnect Network) sync break at beginning of message frame (standard). N5424A option supports triggering on frame ID.
FlexRay	N5432A option supports trigger on FlexRay frame ID or time slot or specific error condition, along with cycle-base and repetition-cycle filtering.
USB	Trigger on USB (Universal Serial Bus) start of packet, end of packet, reset complete, enter suspend, or exit suspend on the differential USB data lines. USB low speed and full speed are supported.
I <sup>2</sup> C	Trigger on I <sup>2</sup> C (Inter-IC bus) serial protocol at a start/stop condition or user defined frame with address and/or data values. Also trigger on missing acknowledge, address with no acq, restart, EEPROM read, and 10-bit write.
SPI	Trigger on SPI (Serial Protocol Interface) data pattern during a specific framing period. Supports positive and negative Chip Select framing as well as clock Idle framing and user-specified number of bits per frame.
RS-232/UART	This application eliminates the need to manually decode bus traffic. Using data captured on the scope or digital channels, the application provides the ability to easily view the information sent over a RS-232 serial bus. Display real-time time-aligned decode of transmit and receive lines. This application also enables triggering on RS-232/UART conditions.
Duration	Trigger on a multi-channel pattern whose time duration is less than a value, greater than a value, greater than a time value with a timeout, or inside or outside of a set of time values. Minimum duration setting: 2 ns Maximum duration setting: 10 s
Nth edge burst	Trigger on the Nth edge of a burst that occurs after an idle time that you specify. Max edge count: 65,536.



## Performance characteristics (continued)

### Trigger system (continued)

Autoscale	Finds and displays all active scope and logic (for MSO6000A series MSO) channels, sets edge trigger mode on highest-numbered channel, sets vertical sensitivity on scope channels and thresholds on logic channels, time base to display ~1.8 periods. Requires minimum voltage >10 mVpp, 0.5% duty cycle and minimum frequency >50 Hz.
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### Scope channel triggering

Range (internal)	±6 div from center screen
Sensitivity*	<10 mV/div: greater of 1 div or 5 mV; ≥10 mV/div: 0.6 div
Coupling	AC (~3.5 Hz on MSO/DSO601xA, ~10 Hz on MSO/DSO603xA/605xA/610xA), DC, noise reject, HF reject and LF reject (~50 kHz)

### Digital (D15 - D0) channel triggering (MSO6000A or MSO-upgraded DSO6000A only)

Threshold range (user defined)	±8.0 V in 10 mV increments
Threshold accuracy	±(100 mV + 3% of threshold setting)
Predefined thresholds	TTL = 1.4 V, CMOS = 2.5 V, ECL = -1.3 V

External (EXT) triggering	MSO/DSO6xx2A (2-/2+16-ch models)	MSO/DSO6xx4A (4-/4+16-ch models)
Input impedance	MSO/DSO6012A: 1 MΩ ± 3%    11 pF or 50 Ω MSO/DSO6032A/6052A/6102A: 1 MΩ ± 3%    14 pF or 50 Ω	MSO/DSO6014A: 1.015 kΩ ±5% MSO/DSO6034A/6054A/6104A: 2.14 kΩ ±5%
Maximum input	CAT I 300 Vrms, 400 Vpk, CAT II 100 Vrms, 400 Vpk With 10073C 10:1 probe: CAT I 500 Vpk, CAT II 400 Vpk 5 Vrms with 50-Ω input	±15 V
Range	DC coupling: trigger level ±1 V and ±8 V	±5 V
Sensitivity	For ±1 V range setting: DC to 100 MHz, 100 mV; MSO/DSO6032A/6052A/6102A: >100 MHz to bandwidth of oscilloscope: 200 mV For ±8 V range setting: DC to 100 MHz, 250 mV; MSO/DSO6032A/6052A/6102A: >100 MHz to bandwidth of oscilloscope: 500 mV	MSO/DSO6014A: DC to 100 MHz: 500 mV MSO/DSO6034A/6054A/6104A: DC to 500 MHz: 500 mV
Coupling	AC (~3.5 Hz), DC, noise reject, HF reject and LF reject (~50 kHz)	
Probe ID	MSO/DSO601xA: Auto probe sense MSO/DSO603xA/605xA/610xA: Auto probe sense and AutoProbe interface Agilent- and Tektronix-compatible passive probe sense	

\* Denotes warranted specifications, all others are typical. Specifications are valid after a 30-minute warm-up period and ±10 °C from firmware calibration temperature.

## Performance characteristics (continued)

### Display system

Display	6.3-inch (161 mm) diagonal color TFT LCD
Throughput of scope channels	Up to 100,000 waveforms/sec in real-time mode
Resolution	XGA – 768 vertical by 1024 horizontal points (screen area); 640 vertical by 1000 horizontal points (waveform area) 256 levels of intensity scale
Controls	Waveform intensity on front panel. Vectors on/off; infinite persistence on/off, 8 x 10 grid with intensity control
Built-in help system	Key-specific help displayed by pressing and holding key or softkey of interest. Language support for 11 languages including English, German, French, Russian, Japanese, Traditional Chinese, Simplified Chinese, Korean, Spanish, Portuguese and Italian.
Real-time clock	Time and date (user adjustable)

### Measurement features

Automatic measurements	Measurements are continuously updated. Cursors track last selected measurement. Up to four measurements can be displayed on screen at any one time.
Voltage (scope channels only)	Peak-to-peak, maximum, minimum, average, amplitude, top, base, overshoot, preshoot, RMS, standard deviation (AC RMS), Ratio (dB)
Time	Frequency, period, + width, – width and duty cycle on any channel. Rise time, fall time, X at max Y (time at max volts), X at min Y (time at min volts), delay, and phase on scope channels only.
Counter	Built-in 5-digit frequency counter on any channel. Counts up to the scope's bandwidth (1 GHz max). The counter resolution can be increased to 8 digits with an external 10-MHz reference.
Threshold definition	Variable by percent and absolute value; 10%, 50%, 90% default for time measurements
Cursors	Manually or automatically placed readout of horizontal (X, $\Delta X$ , $1/\Delta X$ ) and vertical (Y, $\Delta Y$ ). Tracking Cursors provides an additional mode for cursor positioning beyond the current manual method. When cursor tracking is enabled, changing a cursor's x-axis position results in the y-axis cursor tracking the corresponding y-axis (voltage, current, etc.) value. Additionally logic or scope channels can be displayed as binary or hex values.
Waveform math	$f(g(t))$ $g(t)$ : { 1, 2, 3, 4, 1-2, 1+2, 1x2, 3-4, 3+4, 3x4} $f(t)$ : { 1-2, 1+2, 1x2, 3-4, 3+4, 3x4, FFT( $g(t)$ ), differentiate $d/dt g(t)$ , integrate $\int g(t) dt$ , square root $\sqrt{g(t)}$ } Where 1,2,3,4 represent analog input channels 1, 2, 3, and 4 Note: Channels 3 and 4 only available on MSO/DSO6xx4A models
Measurement statistics	Statistical data for enabled measurements such as mean, min, max, standard deviation and count

## Performance characteristics (continued)

### Storage

Save/recall (non-volatile)	10 setups and traces can be saved and recalled internally. Optional secure environment mode ensures setups and traces are stored to internal volatile memory so data is erased when power is removed. Compliant to NISPOM Chapter 8 requirements.
Storage type and format	USB 1.1 host ports on front and rear panels Image formats: BMP (8-bit), BMP (24-bit), PNG (24-bit) Data formats: X and Y (time/voltage) values in CSV format, ASCII XY and binary format Trace/setup formats: Recalled

### FFT

Points	Fixed at 1000 points
Source of FFT	1, 2, 1+2, 1-2, 1x2, MSO/DSO6xx4A: 3, 4, 3+4, 3-4, 3x4; where 1, 2, 3, 4 represent the analog channel inputs 1, 2, 3, and 4
Window	Rectangular, flattop, hanning, Blackman Harris
Noise floor	-50 to -90 dB depending on averaging
Amplitude	Display in dBV, dBm at 50 $\Omega$
Frequency resolution	0.05/time per div
Maximum frequency	50/time per div

### I/O

Standard ports	USB 2.0 high speed device, two USB 1.1 host ports, 10/100-BaseT LAN, IEEE488.2 GPIB, XGA video output
Max transfer rate	IEEE488.2 GPIB: 500 kbytes/sec USB (USBTMC-USB488): 3.5 Mbytes/sec 100 Mbps LAN (TCP/IP): 1 Mbytes/sec
Supported printers via USB	For a list of currently supported printers visit

### General characteristics

Physical size	35.4 cm wide x 18.8 cm high x 28.2 cm deep (without handle) 39.9 cm wide x 18.8 cm high x 28.2 cm deep (with handle)
Weight	Net: 4.9 kgs (10.8 lbs) Shipping: 9.4 kgs (20.7 lbs)
Probe comp output	Frequency ~1.2 kHz; Amplitude ~2.5 V

## Performance characteristics (continued)

### General characteristics (continued)

Trigger out	When Triggers is selected (delay ~17 ns) 0 to 5 V into high impedance 0 to 2.5 V into 50 $\Omega$ When Source Frequency or Source Frequency/8* is selected 0 to 580 mV into high impedance 0 to 290 mV into 50 $\Omega$ Max frequency output: 350 MHz (in source frequency mode when terminated in 50 $\Omega$ ) 125 MHz (in source frequency/8 mode when terminated in 50 $\Omega$ )
10 MHz ref in/out	TTL out, 180 mV to 1 V amplitude with 0 to 2 V offset
Kensington lock	Connection on rear panel for security

### Power requirements

Line voltage range	100-120 V, 50/60/400 Hz; 100-240V, 50/60 Hz auto ranging
Line frequency	50/60 Hz, 100-240 VAC; 400 Hz, 100-120 VAC
Power usage	120 W max
Battery option – BAT	100-240 V, 50/60 Hz 2+ hours between charges, battery-low indicator at 20% Battery capacity after repeated charging: 80% after 300 cycles Non-operating temperature: –20 °C to 60 °C Operating temperature: 0 °C to 50 °C Power consumption is 67-75 Watts with optional N5429A DC Power adapter

### Environmental characteristics

Ambient temperature	Operating -10 °C to +55 °C; non-operating –40 °C to +70 °C
Humidity	Operating 95% RH at 40 °C for 24 hr; non-operating 90% RH at 65 °C for 24 hr
Altitude	Operating to 4,570 m (15,000 ft); non-operating to 15,244 m (50,000 ft)
Vibration	Agilent class B1 and MIL-PRF-28800F; class 3 random
Shock	Agilent class B1 and MIL-PRF-28800F; class 3 random; (operating 30g, 1/2 sine, 11 ms duration, 3 shocks/axis along major axis, total of 18 shocks)
Pollution degree	Normally only dry non-conductive pollution occurs. Occasionally a temporary conductivity caused by condensation must be expected.
Indoor use	Rated for indoor use only

### Other

Measurement categories	CAT I  Regulatory information Safety IEC 61010-1:2001 / EN 61010-1:2001 Canada: CSA C22.2 No. 1010.1:1992 UL 61010B-1:2003
Supplementary information	The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE-marking accordingly. The product was tested in a typical configuration with HP/Agilent test systems.

\* Source Frequency/8 is supported on 300 MHz to 1 GHz 6000 Series only.

## Ordering information

Model	Bandwidth	Maximum sample rate	Memory depth	Scope channels	Digital channels
DSO6012A	100 MHz	2 GSa/s	8 Mpts	2	
MSO6012A	100 MHz	2 GSa/s	8 Mpts	2	16
DSO6014A	100 MHz	2 GSa/s	8 Mpts	4	
MSO6014A	100 MHz	2 GSa/s	8 Mpts	4	16
DSO6032A	300 MHz	2 GSa/s	8 Mpts	2	
MSO6032A	300 MHz	2 GSa/s	8 Mpts	2	16
DSO6034A	300 MHz	2 GSa/s	8 Mpts	4	
MSO6034A	300 MHz	2 GSa/s	8 Mpts	4	16
DSO6052A	500 MHz	4 GSa/s	8 Mpts	2	
MSO6052A	500 MHz	4 GSa/s	8 Mpts	2	16
DSO6054A	500 MHz	4 GSa/s	8 Mpts	4	
MSO6054A	500 MHz	4 GSa/s	8 Mpts	4	16
DSO6102A	1 GHz	4 GSa/s	8 Mpts	2	
MSO6102A	1 GHz	4 GSa/s	8 Mpts	2	16
DSO6104A	1 GHz	4 GSa/s	8 Mpts	4	
MSO6104A	1 GHz	4 GSa/s	8 Mpts	4	16

### Accessories included:

Model number	DSO60xxA	MSO60xxA
Standard 3-year warranty	•	•
Standard 1-year warranty on MSO/DSO6000A-BAT option	•	•
10073C or 10074C 10:1 divider passive probe with readout per scope channel	•	•
16 channel flying lead set logic probe (two pods with eight channels each)		•
Built-in help language support for English, French, German, Russian, simplified Chinese, traditional Chinese, Korean, Spanish, Portuguese, Japanese and Italian	•	•
Interface language support GUI menus: English, simplified Chinese, traditional Chinese, Korean, Japanese	•	•
Choose one of ABA (printed users guide in English), ABJ (printed users guide in Japanese) or AB2 (printed users guide in simplified Chinese)	•	•
Documentation CDs/PDFs of Programmer's reference guide, User's guide and Service guide	•	•
Agilent I/O libraries suite 15.0	•	•
Localized power cord	•	•
Front panel cover	•	•