

## MSO-2000E Specifications

	Channels	Bandwidth (-3dB)	Calculated Rise Time	Bandwidth Limit (-3dB)
MSO-2072E(A)	2ch+Ext	DC~70MHz	5ns	20MHz
MSO-2074E(A)	4ch	DC~70MHz	5ns	20MHz
MSO-2102E(A)	2ch+Ext	DC~100MHz	3.5ns	20MHz
MSO-2104E(A)	4ch	DC~100MHz	3.5ns	20MHz
MSO-2202E(A)	2ch+Ext	DC~200MHz	1.75ns	20M/100MHz
MSO-2204E(A)	4ch	DC~200MHz	1.75ns	20M/100MHz

Specifications	
<b>Vertical Sensitivity</b>	
Resolution	8 bit :1mV~10V/div
Input Coupling	AC, DC, GND
Input Impedance	1MΩ// 16pF approx.
DC Gain Accuracy	±(3%)when 2mV/div or greater is selected ±(5%)when 1mV/div is selected;
Polarity	Normal & Invert
Maximum Input Voltage	300Vrms, CAT I
Offset Position Range	1mV/div ~ 20mV/div : ±0.5V
	50mV/div ~ 200mV/div : ±5V
	500mV/div ~ 2V/div : ±25V
	5V~10V/div : ±250V
Waveform Signal Process	+, -, ×, ÷, FFT, FFTrms ,User Defined Expression.
	FFT:1Mpts FFT:Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning, or Blackman-Harris.
<b>Trigger</b>	
Source	CH1 ,CH2, CH3, CH4, Line, EXT* *dual channel models only
Trigger Mode	Auto (supports Roll Mode for 100 ms/div and slower), Normal, Single Sequence
Trigger Type	Edge, Pulse Width(Glitch), Video, Pulse Runt, Rise & Fall(Slope), Alternate,tme out, Event-Delay(1~65535 events), Time-Delay(Duration,4nS~10S), Bus
Holdoff range	4ns~10s
Coupling	AC,DC,LF rej. ,HF rej. ,Noise rej.
Sensitivity	1div
<b>External Trigger</b>	
Range	±15V
Sensitivity	DC ~ 100MHz Approx. 100mV
	100MHz ~ 200MHz Approx. 150mV
Input Impedance	1MΩ±3%~16pF

<b>Horizontal</b>	
Time base Range	1ns/div ~ 100s/div (1-2-5 increments) ROLL: 100ms/div ~ 100s/div
Pre-trigger	10 div maximum
Post-trigger	2,000,000 div maximum.
Time base Accuracy	±50 ppm over any ≥ 1 ms time interval
Real Time Sample Rate	Max.:1GSa/s (4ch model) Per channel 1GSa/s (2ch model)
Record Length	Max:10Mpts
Acquisition Mode	Normal, Average, Peak Detect, Single
Peak Detection	2ns (typical)
Average	selectable from 2 to 256
<b>X-Y Mode</b>	
X-Axis Input	Channel 1; Channel 3* *four channel models only
Y-Axis Input	Channel 2; Channel 4* *four channel models only
Phase Shift	±3° at 100kHz
<b>Cursors and Measurement</b>	
Cursors	Amplitude, Time, Gating available;Unit:Seconds(s),Hz(1/s) ,Phase(degree) ,Ration(%)
Automatic Measurement	38 sets: Pk-Pk, Max, Min, Amplitude, High, Low, Mean, Cycle Mean, RMS, Cycle RMS, Area, Cycle Area, ROVShoot, FOVShoot, RPRESshoot, FPRESshoot, Frequency, Period, RiseTime, FallTime, +Width, -Width, Duty Cycle, +Pulses, -Pulses, +Edges, -Edges, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase ,Cursor measurements
<b>Control Panel Function</b>	
Auto counter	6 digits, range from 2Hz minimum to the rated bandwidth
Autoset	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo Autoset
Save Setup	20set
Save Waveform	24set
<b>Display</b>	
TFT LCD Type	8" TFT LCD WVGA color display
Display Resolution	800 horizontal × 480 vertical pixels (WVGA)
Interpolation	Sin(x)/x
Waveform Display	Dots, vectors, variable persistence (16ms~4s), infinite persistence
Waveform Update Rate	120,000 waveforms per second, maximum
Display Graticule	8 x 10 divisions
Display mode	YT ;XY
<b>Interface</b>	
USB Port	USB 2.0 High-speed host port X1, USB High-speed 2.0 device port X1
Ethernet(LAN) Port	RJ-45 connector, 10/100Mbps with HP Auto-MDIX
Go-NoGo BNC	5V Max/10mA TTL open collector output
Kensington Style Lock	Rear-panel security slot connects to standard Kensington-style lock.
<b>Logic analyser specifications</b>	
Sample Rate	Per Channel 1GSa/s
Bandwidth	200MHz
Record Length	Per Channel 10M pts (max)
Input Channels	16 Digital (D15 - D0)

Trigger type	Edge, Pattern, Pulse Width, Serial bus (I2C, SPI, UART(RS232/422/485), CAN, LIN), Parallel Bus
Thresholds Quad	D0~D3, D4~D7,D8~D11 ,D12~D15 Thresholds
Threshold selections	TTL, CMOS(5V,3.3V,2.5V), ECL, PECL,0V ,User Defined
User-defined Threshold Range	±5V
Maximum Input Voltage	±40 V
Minimum Voltage Swing	±250 mV
Input impedance	101KΩ probe loading 8pF
Vertical Resolution	1 bit
<b>AWG Specifications (MSO-2000EA only)</b>	
Channels	2
Sample Rate	200 Msa/s
Vertical Resolution	14 bits
Max. Frequency	25 MHz
Standard Waveform	Sine, Square, Pulse, Ramp, DC, Noise
Built-in ARB Waveform	Sinc, Gaussian, Lorentz, Exponential Rise, Exponential Fall, Haversine, Cardiac
Output Range	20 mVpp to 5 Vpp, HighZ; 10 mVpp to 2.5 Vpp, 50 Ω
Output Resolution	1mV
Output Accuracy	2% (1 kHz)
Offset Range	±2.5 V, HighZ;±1.25 V, 50 Ω
Offset Resolution	1mV
Sine	
Frequency Range	100mHz to 25MHz
Flatness	±0.5 dB<15MHz; ±1 dB:15MHz~25MHz( relative to 1kHz)
Harmonic Distortion	-40 dBc
Stray (Non-harmonic)	-40 dBc
Total Harmonic Distortion	1%
S/N Ratio	40 dB
Square/Pulse	
Frequency Range	100mHz to 15MHz
Rise/Fall time	<15ns
Overshoot	<3%
Duty cycle	Square:50%;Pulse:0.4%~99.6%
Min. Pulse Width	30 ns
Jitter	500 ps
Ramp	
Frequency Range	100mHz~1MHz
Linearity	1%
Symmetry	0 to 100%
<b>Frequency Response Analysis(MSO-2000EA only)</b>	
Dynamic Range	> 80 dB (typical)
Input and Output Sources	Channel 1 or 2 ( 3 or 4 for four channel model)
Frequency Range	20 Hz to 25 MHz
Number of Test Points	10 to 90 points per decade

Test Amplitude	20 mVpp to 5 Vpp into High-Z ; Fixed amplitude across entire sweep
Test Results	Logarithmic overlaid gain and phase plot
Manual Measurements	Two pairs of tracking gain and phase markers
Plot Scaling	Auto-scaled during test
<b>Miscellaneous</b>	
Multi-language menu	Available
operation environment	Temperature: 0°C to 50°C. Relative Humidity ≤ 80% at 40°C or below; ≤ 45% at 41°C ~ 50°C.
On-line help	Available
Time clock	Time and Date ,Provide the Date/Time for saved data
Dimensions	384mmX208mmX127.3mm
Weight	2.8kg