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	
Vertical Sensitivity	
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.
Trigger	
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
External Trigger	
Range	±15V
Sensitivity	DC ~ 100MHz Approx. 100mV
	100MHz ~ 200MHz Approx. 150mV
Input Impedance	1MΩ±3%~16pF

Horizontal	
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
X-Y Mode	
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
Cursors and Measurement	
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, RPREShoot, FPREShoot, Frequency, Period, RiseTime, FallTime, +Width, -Width, Duty Cycle, +Pulses, -Pulses, +Edges, -Edges, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase ,Cursor measurements
Control Panel Function	
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
Display	
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
Interface	
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.
Logic analyser specifications	
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
AWG Specifications (MSO-2000EA only)	
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	±2.5V(DC+AC), HighZ; ±1.25V(DC+AC), 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%
Frequency Response Analysis(MSO-2000EA only)	
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
Miscellaneous	
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