MDO-2000A Series

	Channels	Bandwidth (-3dB)	Calculated Rise Time	Bandwidth Limit (-3dB)
MDO-2102A	**2ch+Ext**	**DC~100MHz**	**3.5ns**	**20MHz**
MDO-2102AG	**2ch+Ext**	**DC~100MHz**	**3.5ns**	**20MHz**
MDO-2202A	**2ch+Ext**	**DC~200MHz**	**1.75ns**	**20M/100MHz**
MDO-2202AG	**2ch+Ext**	**DC~200MHz**	**1.75ns**	**20M/100MHz**
MDO-2302A	**2ch+Ext**	**DC~300MHz**	**1.17ns**	**20M/100/200MHz**
MDO-2302AG	**2ch+Ext**	**DC~300MHz**	**1.17ns**	**20M/100/200MHz**

*MDO-2000AG provides dual channel 25MHz AWG

MDO-2000A series Specifications			
	MDO-2102A/AG	MDO-2202A/AG	MDO-2302A/AG
Channels	2CH+ EXT.		
Bandwidth(-3dB)	DC~100MHz	DC~200MHz	DC~300MHz
Rise time	3.5ns	1.75ns	1.17ns
Bandwidth Limit	20MHz	20M/100MHz	20M/100M/200MHz
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, 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.		
Trigger			
Source	CH1 ,CH2 Line, EXT		
Trigger Mode	Auto (supports Roll Mode for 100ms/div or slower), Normal, Single Sequence		
Trigger Type	Edge, Pulse Width(Glitch), Video, Pulse Runt, Rise & Fall(Slope), Alternate, Time 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
	200MHz ~ 300MHz 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 ≥ 1ms time interval
Real Time Sample Rate	Max.:2GSa/s
Record Length	Per Channel 20M pts
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
Y-Axis Input	Channel 2
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, %Flicker ,Flicker Idx,FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase
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	20 sets
Save Waveform	24 sets
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 2.0 High-speed 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.
Spectrum Analyzer Specifications	
Frequency range	DC~1GHz (Max. ,Max.bandwidth~1GHz uncalibrated)
Span	1kHz~1GHz(Max.)
Resolution bandwidth	1Hz ~ 1MHz(Max.)
Reference level	-50 dBm to +40dBm in steps of 5dBm
Vertical units	dBV RMS; Linear RMS; dBm
Vertical position	-12divs to +12divs
Vertical scale	1dB/div to 20dB/div in a 1-2-5 Sequence
Display average noise level	1V/div < -50dBm, Avg : 16 100mV/div < -70dBm, Avg : 16 10mV/div < -90dBm, Avg : 16
Spurious response	2nd harmonic distortion< 40dBc 3rd harmonic distortion< 45dBc
Frequency domain trace types	Normal ; Max Hold ; Min Hold ; Average (2 ~ 256)
Detection methods	Sample ; +Peak ; -Peak ; Average
FFT Windows	FFT Factor :
	Hanning 1.44
	Rectangular 0.89
	Hamming 1.30
	Blackman 1.68
AWG Specifications (MDO-2000AG only)	
Channels	2
Sample Rate	200 MSa/s
Vertical Resolution	14 bits
Max. Frequency	25 MHz
Waveforms	Sine, Square, Pulse, Ramp, DC, Noise, 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(DC+AC), HighZ; ±1.25 V(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	100 mHz 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 (MDO-2000AG only)	
Dynamic Range	> 80 dB (typical)
Input and Output Sources	Channel 1 or 2
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 test amplitude or custom amplitude for each decade
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	3kg