

MDS2000 Series Oscilloscopes Technical Specifications

Unless otherwise specified, the technical specifications applied are for the oscilloscope only, and Probes attenuation set as 10X. Only if the oscilloscope fulfills the following two conditions at first, these specification standards can be reached.

- This instrument should run for at least 30 minutes continuously under the specified operating temperature.
- If change of the operating temperature is up to or exceeds 5°C, do a "Self-calibration" procedure.

All specification standards can be fulfilled, except one(s) marked with the word "Typical".

Performance Characteristics		Instruction	
Bandwidth		MDS2022	20 MHz
		MDS2052	50 MHz
		MDS2102	100 MHz
		MDS2202	200 MHz
Channel		2 channels	
Acquisition	Mode	Normal, Peak detect, Averaging	
	Sample rate (real time)	MDS2022	100 MS/s
		MDS2052	500 MS/s
		MDS2102 MDS2202	1 GS/s
Input	Input coupling	DC, AC, Ground	
	Input impedance	1 MΩ±2%, in parallel with 20 pF±5 pF	
	Input coupling	1X, 10X, 100X, 1000X	
	Max. input voltage	400V (DC+AC, PK - PK)	
	Channel –channel isolation	50Hz: 100 : 1 10MHz: 40 : 1	
	Time delay between channel(typical)	150ps	
	Bandwidth limit	MDS2022 MDS2052	Not support
		MDS2102 MDS2202	20 MHz, full bandwidth
Horizontal System	Sampling rate range	MDS2022	0.5 S/s~100 MS/s
		MDS2052	0.5 S/s~500 MS/s
		MDS2102 MDS2202	0.5 S/s~1 GS/s
	Interpolation	(Sinx)/x	
	Max Record length	10K	
	Scanning speed (S/div)	MDS2022	5 ns/div – 1000 s/div, step by 1 – 2 - 5

Performance Characteristics		Instruction		
		MDS2052 MDS2102 MDS2202	2 ns/div – 1000 s/div, step by 1 – 2 - 5	
	Sampling rate / relay time accuracy	±100 ppm		
	Interval(ΔT) accuracy (DC - 100MHz)	Single: ±(1 interval time+100 ppm×reading+0.6 ns); Average>16: ±(1 interval time +100 ppm×reading+0.4 ns)		
Vertical system	Vertical Resolution (A/D)	8 bits (2 channels simultaneously)		
	Sensitivity	5 mV/div~5 V/div		
	Displacement	MDS2022	±2 V (5 mV/div – 100 mV/div) ±50 V (200 mV/div – 5 V/div)	
		MDS2052 MDS2102 MDS2202	±2 V (5 mV/div – 200 mV/div) ±50 V (500 mV/div – 5 V/div)	
	Analog bandwidth	MDS2022	20 MHz	
		MDS2052	50 MHz	
		MDS2102	100 MHz	
		MDS2202	200 MHz	
	Single bandwidth	Full bandwidth		
	Low Frequency	≥10 Hz (at input, AC coupling, -3 dB)		
	Rise time (at input, Typical)	MDS2022	≤ 17.5 ns	
		MDS2052	≤ 7.0 ns	
		MDS2102	≤ 3.5 ns	
		MDS2202	≤ 1.75 ns	
	DC gain accuracy	±3%		
	DC accuracy (average)	Delta Volts between any two averages of ≥16 waveforms acquired with the same scope setup and ambient conditions (ΔV): ±(3% reading + 0.05 div)		
	Waveform inverted ON/OFF			
Measurement	Cursor	ΔV, ΔT, ΔT&ΔV between cursors, auto cursor		
	Automatic	Period, Frequency, Mean, PK-PK, RMS, Max, Min, Top, Base, Amplitude, Overshoot, Preshoot, Rise Time, Fall Time, +PulseWidth, -PulseWidth, +Duty Cycle, -Duty Cycle, Delay A→B $\frac{\mu s}{\mu s}$, Delay A→B $\frac{\mu s}{\mu s}$, Cycle RMS, Cursor RMS, Screen Duty, Phase, +PulseCount, -PulseCount,RiseEdgeCnt, FallEdgeCnt, Area, and Cycle Area.		
	Waveform Math	+, -, *, / ,FFT		
	Waveform storage	16 waveforms		

Performance Characteristics			Instruction
	Lissajous figure	Bandwidth	Full bandwidth
		Phase difference	±3 degrees
Communication port	USB 2.0 (USB storage)		
Counter	Support		

Trigger:

Performance Characteristics		Instruction
Trigger level range	Internal	±5 div from the screen center
Trigger level Accuracy (typical)	Internal	±0.3 div
Trigger displacement	According to Record length and time base	
Trigger Holdoff range	100 ns – 10 s	
50% level setting (typical)	Input signal frequency ≥ 50 Hz	
Edge trigger	slope	Rising, Falling
Video Trigger	Modulation	Support standard NTSC, PAL and SECAM broadcast systems
	Line number range	1-525 (NTSC) and 1-625 (PAL/SECAM)

General Technical Specifications

Display

Display Type	7" Colored LCD (Liquid Crystal Display)
Display Resolution	800 (Horizontal) × 480 (Vertical) Pixels
Display Colors	65536 colors, TFT screen

Output of the Probe Compensator

Output Voltage (Typical)	About 5 V, with the Peak-to-Peak voltage $\geq 1 \text{ M}\Omega$.
Frequency (Typical)	Square wave of 1 KHz

Power

Mains Voltage	100 - 240 VACRMS, 50/60 Hz, CAT II
Power Consumption	< 15 W
Fuse	2 A, T class, 250 V

Environment

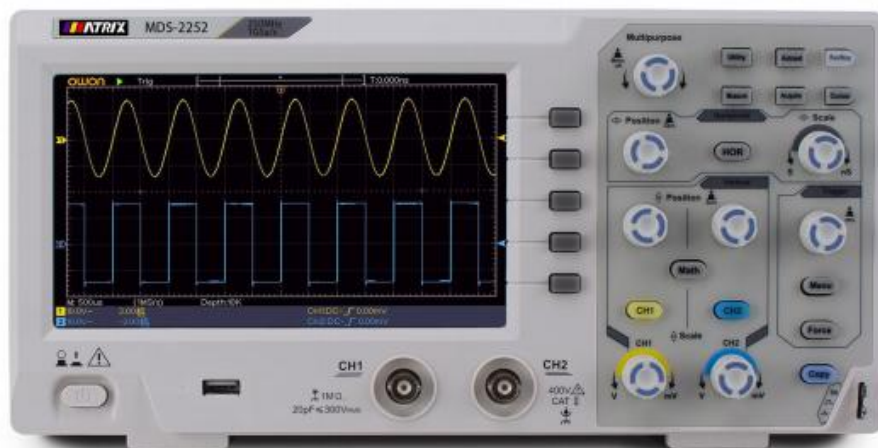
Temperature	Working temperature: 0 °C - 40 °C Storage temperature: -20 °C - 60 °C
Relative Humidity	$\leq 90\%$
Height	Operating: 3,000 m Non-operating: 15,000 m
Cooling Method	Natural cooling

Mechanical Specifications

Dimension	301 mm × 152 mm × 70 mm (L*H*W)
Weight	About 1.1 kg

Interval Period of Adjustment:

One year is recommended for the calibration interval period.



V1.1.1



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