MPO-2000B/P Series Specifications

The specifications apply when the MPO-2000B/P series is powered on for at least 30 minutes under $+20^{\circ}C^{+}30^{\circ}C$.

Model-specific

MPO-2102B	Channels Bandwidth Rise Time Bandwidth Limit Python Script Execution (µPy)	2 + Ext DC ~ 100MHz (-3dB) 3.5ns (Calculated) 20MHz Basic version
MPO-2104B	Channels Bandwidth Rise Time Bandwidth Limit Python Script Execution (µPy)	4 DC ~ 100MHz (-3dB) 3.5ns (Calculated) 20MHz Basic version
MPO-2202P	Channels Bandwidth Rise Time Bandwidth Limit Python Script Execution (µPy)	2 + Ext DC ~ 200MHz (-3dB) 1.75ns (Calculated) 20MHz/100MHz Professional version
MPO-2204P	Channels Bandwidth Rise Time Bandwidth Limit Python Script Execution (µPy)	4 DC ~ 200MHz (-3dB) 1.75ns (Calculated) 20MHz/100MHz Professional version

Common

Vertical	Resolution	8 bit
Sensitivity		:1mV~10V/div
	Input Coupling	AC, DC, GND
	Input Impedance	$1M\Omega//16pF$ approx.
	DC Gain Accuracy	1mV: ±5% full scale
	· · · · · · · · · · · · · · · · · · ·	≥2mV: ±3% full scale
	Polarity	Normal & Invert
	Maximum Input Voltage	300Vrms
	Offset Position Range	1mV/div ~ 20mV/div : ±0.5V
		50mV/div ~ 200mV/div : ±5V
		500mV/div ~ 2V/div : ±25V
		5V/div ~ 10V/div : ±250V
	Waveform Signal	+, -, ×, ÷, FFT, User Defined Expression
	Process	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, CH3*, CH4*, Line, EXT**
		*4 channel models only.
		**2 channel models only.
	Trigger Mode	Auto (supports Roll Mode for
		100ms/div and slower), Normal, Single
	Trigger Type	Edge, Pulse Width(Glitch), Video,
		Pulse Runt, Rise & Fall(Slope),
		Timeout, Alternate, Event-
		Delay(1~65535 events), Time-
		Delay(Duration, 4ns~10s), Bus (UART,
		I2C, SPI*, CAN, LIN)
		*This bus decoder is only available on 4 channel models.
	L laldoff range	4 channel models. 4ns to 10s
	Holdoff range	4115 10 105

	Coupling	AC, DC, LF rej., Hf rej., Noise rej.
	Sensitivity	1div
External	Range	±15V
Trigger	Sensitivity	DC ~ 100MHz Approx. 100mV
00	,	100MHz ~ 200MHz Approx. 150mV
	Input Impedance	1MΩ±3%~16pF
Horizontal	Timebase Range	1ns/div ~ 100s/div (1-2-5 increments)
TIONZONIA	Timebase Range	
		ROLL: 100ms/div ~ 100s/div
	Pre-trigger	10 div maximum
	Post-trigger	2,000,000 div maximum.
	Timebase Accuracy	\pm 50ppm over any \geq 1ms time interval
	Real Time Sample Rate	1GSa/s max. (4ch models);
		1GSa/s per channel (2ch models)
	Record Length	Max. 10Mpts
	Acquisition Mode	Normal, Average, Peak Detect, Single
	Peak Detection	2ns (typical)
	Average	selectable from 2 to 512
X-Y Mode	X-Axis Input	Channel 1; Channel 3*
X I Mode	, , , , , , , , , , , , , , , , , , ,	*4 channel models only
	Y-Axis Input	Channel 2; Channel 4*
		*4 channel models only
	Phase Shift	,
<u> </u>		±3° at 100kHz
Cursors and	Cursors	Amplitude, Time, Gating available;
Measurement		Unit: Seconds(s), Hz (1/s), Phase
		(degree), Ratio (%).
	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.
	Cursors measurement	Voltage difference between cursors
		(ΔV) ; Time difference between cursors
		(ΔT)
	Auto counter	6 digits, range from 2Hz minimum to
		the rated bandwidth
Control Panel	Autoset	Single-button, automatic setup of all
Function		channels for vertical, horizontal and
		trigger systems, with "Undo Autoset",
		"Fit Screen"/ "AC Priority" mode, and
		"Fine Scale" functions.
	Save Setup	20set
	Save Waveform	24set
AWG	General	24561
AWG		2
	Channels	2
	Sample Rate	200MSa/s
	Vertical Resolution	14bits
	Max. Frequency	25MHz
	Waveforms	Arbitrary, Sine, Square, Pulse, Ramp,
		DC, Noise, Sinc, Gaussian, Lorentz,
		Exponential Rise, Exponential Fall,
	-	Haversine, Cardiac
	Output Range	20mVpp to 5Vpp, HighZ;
		10mVpp to 2.5Vpp, 50Ω
	Output Resolution	1mV
	Output Accuracy	2% (1 kHz)
	Offset Range	±2.5V, HighZ; ±1.25V, 50Ω
	Offset Resolution	lmV
	Sine	
	Frequency Range	100mHz to 25MHz

	Flatness	±0.5dB < 15MHz;
	(relative to 1 kHz)	±1dB 15MHz~25MHz
	Harmonic Distortion	-40dBc
	Stray (Non-harmonic)	-40dBc
	Total Harmonic Distortion	1%
	S/N Ratio	40dB
	Square/Pulse	
	Frequency Range	Square: 100mHz to 15MHz
	Rise/Fall Time	< 15ns
	Overshoot	< 3%
	Duty Cycle	Square: 50%
		Pulse: 0.4% to 99.6%
	Min. Pulse Width	30ns
	Jitter	500ps
	Ramp	
	Frequency Range	100mHz to 1MHz
	Linearity	1%
	Symmetry	0 to 100%
Spectrum	Frequency Range	DC~500MHz Max, dual channel with
Analyzer		spectrogram (based on Advanced FFT). Notice: Frequency which exceeds analog front end bandwidth is
		uncalibrated.
	Span Recolution Randwidth	1kHz~500MHz (Max.)
	Resolution Bandwidth Reference Level	1Hz~500kHz (Max.) -50dBm 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
	vertical Scale	1-2-5 Sequence
	Displayed 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 ~ 512)
	Detection Methods	Sample; +Peak; -Peak; Average
	FFT Windows	FFT Factor:
		Hanning 1.44
		Rectangular 0.89
		Hamming 1.30
		Blackman 1.68

		F 000
DMM	Reading	5,000 counts
	Voltage Input	CAT II 600Vrms, CAT III 300Vrms
		Below are the basic conditions required to operate the DMM within specifications:
		*Calibration: Yearly.
		*Operating Temperature Specification: 18~28°C (64.4~82.4°F).
		*Relative humidity: 80%. (Non
		condensing)
		*Accuracy: <u>± (% of Reading + % of</u>
		Range).
		*AC measurement are based on a 50% duty cycle.
	DC Voltage	duty cycle.
	Range	50mV, 500mV, 5V, 50V, 500V, 1000V,
	-	6 ranges
	Accuracy	50mV, 500mV, 5V, 50V, 500V, 1000V : ±(0.1% + 0.1%)
	Input Impedance	10ΜΩ
	DC Current	50mA, 500mA, 10A, 3 ranges
	Range Accuracy	$50mA$, $500mA$; $\pm (0.5\% + 0.1\%)$;
	,	10A : ±(0.5% + 0.5%)
	AC Voltage	
	Range	50mV, 500mV, 5V, 50V, 700V, 5 ranges
	Accuracy	50mV, 500mV, 5V, 50V, 700V :
		±(1.5% + 1.5%) at 50Hz~1kHz
	AC Current*	
	Range	50mA, 500mA, 10A, 3 ranges
	Accuracy*	50mA, 500mA: ±(1.5% + 0.1%) at 50Hz~1kHz;
		10A: ±(3% + 0.5%) at 50Hz~1kHz
	*Measure range: >10mA	
	Resistance*	
	Range	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ,
	Accuracy	5 range 500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ:
	,,	$\pm (0.3\% + 0.01\%)$
	*Measure range: 50 Ω to	
	Diode Test	Maximum forward voltage 1.5V, Open voltage 2.8V
	Temperature (Thermocou	ıple)*
	Range	-50°C ~ +1000°C
	Resolution	0.1°C
	* Specifications do not ir	
	Continuity Beeper	
Power Supply	Output Channel	Ch1 & Ch2 1V~5V/1A; 5V~10V/0.5A;
	Output Range	10V~20V/0.25A
		Peak current: 1A@250ms
	Voltage Step	0.1V Continuously Adjustable
	Output Voltage Accuracy	+/- 3%
	Ripple and Noise	50mVrms
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 Waveform Update Rate 120,000 waveforms per second, maximum Display Craticule 8: 10 divisions Display Craticule 8: 10 divisions Display Mode YT, XY Interface USB 2.0 Hi-speed Host 1 on the front panel. Supporting Port USB 2.0 Mass Storage Class (FAT32 or NTFS formatted). Professional version (MPO-2000P series) also supports USB CDC ACM Class and USB HID Class is supported. Ethernet Port (LAN) RJ-45 connector, 10/100Mbps with HP Auto-MDIX which also supporting TCP sockets communication is using the default 5025 port number. Web Server Web Server Supporting remote control and monitoring of the oscilloscope in web browser by using the LAN. Go-NoGo BNC SV Max/10mA TTL open collector output Kensington Style Lock Rear-panel security slot connects to standard Kensington-style lock. Miscellaneous Multi-language menu Available Operation Environment Temperature: 0°C to 50°C. Relative Humidity: Slot Sol at 40°C on below; ≤ 45% at 41°C - 50°C. Python Script Execution Maximum number of installable python apps). Note: There is no restriction on script files (".py). APPs installation capacity limit: 20M byte maximum Subscr			
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Installed APP	Go/NoGo, DVM, DataLog, Digital Filter, Frequency Response Analyzer, Mask, CAN-FD*, USB2.0 (full speed)*, Flexray*+, I2S*+, USB-PD*+, Mount Remote Disk, Demo
	*: Available for bus decoder function +: For Professional version (MPO- 2000P series) Note: The I2S bus decoder is only available on 4 channel models.
Internal Flash Disk	100M bytes Single-Level Cell memory
Dimensions	384mmX208mmX127.3mm
Weight	3kg