MPO-2000B/P Series Specifications

The specifications apply when the MPO-2000B/P series is powered on for at least 30 minutes under +20°C~+30°C.

Model-specific

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

Common

Vertical Sensitivity	Resolution	8 bit :1mV~10V/div
	Input Coupling	AC, DC, GND
	Input Impedance	1MΩ// 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 Process	+, -, ×, ÷, FFT, User Defined Expression 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.
	Holdoff range	4ns to 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	Timebase 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.
	Timebase Accuracy	±50ppm over any ≥ 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* *4 channel models only
	Y-Axis Input	Channel 2; Channel 4* *4 channel models only
	Phase Shift	±3° at 100kHz
Cursors and Measurement	Cursors	Amplitude, Time, Gating available; 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 Function	Autoset	Single-button, automatic setup of all 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	
	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	1mV
	Sine	
	Frequency Range	100mHz to 25MHz

	Flatness (relative to 1 kHz)	±0.5dB < 15MHz; ±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 Analyzer	Frequency Range	DC~500MHz Max, dual channel with spectrogram (based on Advanced FFT). Notice: Frequency which exceeds analog front end bandwidth is uncalibrated.
	Span	1kHz~500MHz (Max.)
	Resolution Bandwidth	1Hz~500kHz (Max.)
	Reference Level	-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 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

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: ± (% of Reading + % of Range). *AC measurement are based on a 50% duty cycle.
	DC Voltage	
	Range	50mV, 500mV, 5V, 50V, 500V, 1000V, 6 ranges
	Accuracy	50mV, 500mV, 5V, 50V, 500V, 1000V : ±(0.1% + 0.1%)
	Input Impedance	10MΩ
	DC Current	
	Range	50mA, 500mA, 10A, 3 ranges
	Accuracy	50mA, 500mA : ±(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, 5 range
	Accuracy	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ: ±(0.3% + 0.01%)
	*Measure range: 50Ω to 5MΩ	
	Diode Test	Maximum forward voltage 1.5V, Open voltage 2.8V
	Temperature (Thermocouple)*	
	Range	-50°C ~ +1000°C
	Resolution	0.1°C
	* Specifications do not include probe accuracy.	
	Continuity Beeper	15Ω
Power Supply	Output Channel	Ch1 & Ch2
	Output Range	1V~5V/1A; 5V~10V/0.5A; 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 (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 2.0 Hi-speed Host Port	1 on the front panel. Supporting USB2.0 Mass Storage Class (FAT32 or NTFS formatted). Professional version (MPO-2000P series) also supports USB CDC ACM Class and USB HID Class
	USB 2.0 Hi-speed Device Port	1 on the rear panel, USBTMC Class is supported.
	Ethernet Port (LAN)	RJ-45 connector, 10/100Mbps with HP Auto-MDIX which also supporting TCP sockets communication, the TCP socket communication is using the default 5025 port number.
	Web Server	Supporting remote control and monitoring of the oscilloscope in web browser by using the LAN.
	Go-NoGo BNC	5V 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 ≤ 80% at 40°C or below; ≤ 45% at 41°C ~ 50°C.
	Python Script Execution (µPy)	Maximum number of installable python apps: 100 sets (including the pre-installed Python apps). Note. There is no restriction on script files (*.py). APPs installation capacity limit: 20M byte maximum MQTT Protocol: “Message Queuing Telemetry Transport” is supported which including the “Publish” and “Subscribe” pattern. Basic version (MPO-2000B series): *Supporting 1,000 points waveform data processing. Professional version (MPO-2000P series): *Supporting USB CDC ACM Class, *USB HID Class, *Python GUI library, *100,000 points waveform data processing.
	Component Tester	Providing I-V characteristic curve (tracer) with readout scale. Please refer to the application note for the details.
	Time clock	Time and Date, Provide the Date/Time for saved data

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