

SPECIFICATIONS				
Model	MPO-2102B	MPO-2104B	MPO-2202P	MPO-2204P
Channels	2ch+Ext	4ch	2ch+Ext	4ch
Bandwidth	DC~100MHz (-3dB)	DC~100MHz (-3dB)	DC~200MHz (-3dB)	DC~200MHz (-3dB)
Rise Time(calculated)	3.5ns	3.5ns	1.75ns	1.75ns
Bandwidth Limit	20MHz	20MHz	20M/100MHz	20M/100MHz
Python Script Execution (µPy)	Basic version	Basic version	Professional version	Professional version
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, CH3**, CH4** ; Line, EXT* ; *dual channel models only ; **four channel models only			
Trigger Mode	Auto (supports Roll Mode for 100 ms/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, I ² C, SPI*, CAN, LIN) *This bus decoder is only available on 4 channel models			
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	Per channel 10M pts			
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 (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, RPRESShoot, 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			
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	20 sets			
AWG SPECIFICATIONS				
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 ~ 5 Vpp, HighZ; 10 mVpp ~ 2.5 Vpp, 50 Ω			
Output Resolution	1mV			
Output Accuracy	2% (1kHz)			
Offset Range	±2.5V, HighZ; ±1.25V, 50 Ω			
Offset Resolution	1mV			
SINE				
Frequency Range	100mHz ~ 25MHz			
Flatness((relative to 1kHz)	±0.5 dB<15MHz; ±1dB 15MHz~25MHz			
Harmonic Distortion	-40 dBc			
Stray (Non-harmonic)	-40 dBc			
Total Harmonic Distortion	1%			
S/N Ratio	40 dB			
SQUARE/PULSE				
Frequency Range	100 mHz ~ 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%			
SPECTRUM ANALYZER SPECIFICATIONS				
Frequency Range	DC~500MHz (Max. ,Max.bandwidth~500MHz uncalibrated)			
Span	1kHz~500MHz(Max.)			
Resolution Bandwidth	1Hz ~ 500kHz(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 : 16100mV/div < -70dBm, Avg : 1610mV/div < -90dBm, Avg : 16			
Spurious Response	2nd harmonic distortion< 40dBc3rd 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			

SPECIFICATIONS				
Model	MPO-2102B	MPO-2104B	MPO-2202P	MPO-2204P
DMM SPECIFICATIONS				
Reading	5,000 counts			
Voltage Input	CAT II 600Vrms, CAT III 300Vrms Below are the basic conditions required to operate the DMM within specifications: 1. Calibration: Yearly. 2. Operating Temperature Specification: 18~28 °C (64.4~82.4 °F). 3. Relative humidity: 80%. (Non-condensing). 4. Accuracy: ± (% of Reading + % of Range). 5. AC measurement are based on a 50% duty cycle.			
DC Voltage	50mV, 500mV, 5V, 50V, 500V, 1000V 6 ranges			
Accuracy	50mV, 500mV, 5V, 50V, 500V, 1000V ±(0.1% + 0.1%)			
Input Impedance	10MΩ			
DC Current	50mA, 500mA, 10A 3 ranges			
Accuracy	50mA - 500mA: ±(0.5% + 0.1%); 10A ±(0.5%+0.5%)			
AC Voltage	50mV, 500mV, 5V, 50V, 700V 5 ranges			
Accuracy	50mV, 500mV, 5V, 50V, 700V ±(1.5%+1.5%) at 50Hz~1kHz			
AC Current	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*	500Ω, 5kΩ, 50kΩ, 500kΩ, 5MΩ, 5 ranges			
Accuracy	500Ω, 5kΩ, 50kΩ, 500kΩ ±(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.			
POWER SUPPLY SPECIFICATIONS				
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 x 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	One 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	One on the rear panel, USBTMC Class is supported			
Ethernet(LAN) Port	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			
Internal flash disk	100M bytes Single-Level Cell flash memory			
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.			
Dimensions & Weight	384mmX208mmX127.3mm, Approx. 3kg			

Specifications subject to change without notice.

MPO2000GD1BH

ORDERING INFORMATION	
MPO-2204P	200MHz, 4-channel, Digital Storage Oscilloscope, Spectrum Analyzer, dual channel 25MHz AWG, 5,000 counts DMM and Power Supply
MPO-2202P	200MHz, 2-channel, Digital Storage Oscilloscope, Spectrum Analyzer, dual channel 25MHz AWG, 5,000 counts DMM and Power Supply
MPO-2104B	100MHz, 4-channel, Digital Storage Oscilloscope, Spectrum Analyzer, dual channel 25MHz AWG, 5,000 counts DMM and Power Supply
MPO-2102B	100MHz, 2-channel, Digital Storage Oscilloscope, Spectrum Analyzer, dual channel 25MHz AWG, 5,000 counts DMM and Power Supply
ACCESSORIES	
Power Cord, Certificate of Calibration, Passive probe (one probe per channel)	
GTL-110 BNC-BNC cable x 2, GTL-105A Alligator Clip test lead, GTL-207 Banana plug test lead	
GTP-100B-4:100MHz(10:1/1:1)Switchable passive probe for MPO-2102B/2104B(one per channel)	
GTP-200B-4:200MHz(10:1/1:1)Switchable passive probe for MPO-2202P/2204P(one per channel)	

OPTIONAL ACCESSORIES			
GRA-426	Rack Adapter Panel	GCP-530	50MHz/30A Current probe
GAk-003	50Ω Impedance Adapter	GCP-500	500kHz/150A Current probe
GSC-008	Soft Carrying Case	GCP-1030	100MHz/30A Current probe
GTL-246	USB Cable, USB 2.0, A-B Type, 1200mm	GCP-1000	1MHz/70A Current probe
GDP-025	Differential Probe, 25M High Voltage Differential Probe	GCP-206P	Power supply for current probe (2 input channel)
GDP-050	Differential Probe, 50M High Voltage Differential Probe	GCP-425P	Current Probe - Power Supply, 4 Channel Power Supply for GCP-530/1030
GCP-300	300kHz/200A Current probe		
OPTIONAL			
MP2-PRO		Basic version upgrade to professional version	
FREE DOWNLOAD			
PC Software	OpenWave software	Driver	LabView driver

Global Headquarters
GOOD WILL INSTRUMENT CO., LTD.
 T +886-2-2268-0389 F +886-2-2268-0639

China Subsidiary
GOOD WILL INSTRUMENT (SUZHOU) CO., LTD.
 T +86-512-6661-7177 F +86-512-6661-7277

Malaysia Subsidiary
GOOD WILL INSTRUMENT (SEA) SDN. BHD.
 T +604-6111122 F +604-6115225

Europe Subsidiary
GOOD WILL INSTRUMENT EURO B.V.
 T +31(0)40-2557790 F +31(0)40-2541194

U.S.A. Subsidiary
INSTEK AMERICA CORP.
 T +1-909-399-3535 F +1-909-399-0819

Japan Subsidiary
TEXIO TECHNOLOGY CORPORATION.
 T +81-45-620-2305 F +81-45-534-7181

Korea Subsidiary
GOOD WILL INSTRUMENT KOREA CO., LTD.
 T +82-2-3439-2205 F +82-2-3439-2207

India Subsidiary
GW INSTEK INDIA LLP.
 T +91-80-6811-0600 F +91-80-6811-0626

GW INSTEK
 Simply Reliable



Website Facebook LinkedIn