GDS-2000HD/HG 系列

12 Bit 250/350/500 MHz
數位儲存示波器

GW INSTEK
Simply Reliable

CE | USB high Speed | PC Software | Labview Driver | Ethernet



* up to 500 Mpts in single-channel mode
* 2.5 GSa/s (single channel) ; 2.5 GSa/s (dual channel) ; 1.25 GSa/s (full channel)

MODEL	GDS-2504HD	GDS-2354HD	GDS-2254HD	GDS-2504HG	GDS-2354HG	GDS-2254HG
Bandwidth	500 MHz	350 MHz	250 MHz	500 MHz	350 MHz	250 MHz
Channels	4 Ch + EXT	4 Ch + EXT	4 Ch + EXT	4 Ch + EXT	4 Ch + EXT	4 Ch + EXT
Bandwidth Limit	20 MHz	20 MHz	20 MHz	20 MHz	20 MHz	20 MHz
Record Length	Max. 500 M / ch *	Max. 500 M / ch *	Max. 100 M / ch	Max. 500 M / ch *	Max. 500 M / ch *	Max. 100 M / ch
Real Time Sample Rate *	Max. 2.5 Gsa/s	Max. 2.5 Gsa/s	Max. 2.5 Gsa/s	Max. 2.5 Gsa/s	Max. 2.5 Gsa/s	Max. 2.5 Gsa/s
Calculated Rise Time	0.7 ns	1 ns	1.75 ns	0.7 ns	1 ns	1.75 ns
Built-in	X	X	X	AFG	AFG	AFG

特　　點

* 頻寬： 250 MHz, 350 MHz, 500 MHz
* 垂直準確度：≥5 mV ± 1.5 %
* 水平準確度：± 2 ppm
* 最大即時取樣率：2.5 GS/s
* 最大記憶深度：500 Mpts (350/500 MHz); 100 Mpts (250 MHz)
* 1 Mpt 快速傅立葉轉換分析
* 內建數位電壓表 (DVM), 6 位數計頻器及數位濾波器
* 避免人為誤差的精心設計
* 14 種觸發型態 + 43自動參數量測(並具統計功能)
* 標配五種串列匯流排觸發與解碼功能： RS232/UART, I², SPI, CAN 及 LIN
* 內建 11 國語言，易學易用

應 用 範 圍

* 工業界及教育研發實驗室
* 產品訓練及品質保證測試
* 電源供應器及串列匯流排設計
* 系統整合及產品偵錯
* 日常保養及維修服務

不同的應用場景切割出不同的市場區隔，實驗室需要精準的儀器，便需要妥協體積與價格、戶外場域需要輕巧的可攜式儀器，便需要犧牲準確度，傳遞正確測量觀念的教學現場又要因有限的預算而犧牲功能，正所謂魚與熊掌難以兼得，GDS-2000HD/HG以12 位元硬體高解析度及輕巧的機身，滿足全應用場景及性價比，創新的 Android 智慧操作體驗。無論是嚴苛的電源設計、複雜的車載通訊驗證，能伴隨您穿梭於實驗室與戶外測試場域，亦或是數位化教學場景，它都能以無與倫比的精準度與直覺化操作，讓您在追求極致的道路上，成為您最可靠的量測中樞。

12 位元硬體高解析度：細節決定一切，告別充滿量化雜訊的粗糙波形。GDS-2000HD/HG搭載全新設計的 12 位元類比數位轉換器 (ADC)，提供 4096 階的垂直量化等級，提高動態範圍與波形清晰度。

1.5 % 垂直準確度：忠實還原，絕不妥協。我們將直流增益準確度推向了嚴苛的 1.5 %。在進行嚴密的功率損耗計算或微弱的醫療電子訊號放大時，確保您螢幕上看到的，就是電路板上真實發生的。

2 ppm 水平準確度：時基準確度是頻率與相位分析的基　，同業的準確度大多是5 ppm或 10 ppm，GDS-2000HD/HG 憑藉 2 ppm 的內部時鐘精準度，是您最可靠的時序驗證後盾。

全能分析：化繁為簡的除錯利器
不再需要為了特定功能額外付費，將最常用的除錯工具列為標準配備，打造 All-in-One 的量測體驗：標配 RS232/I²C/SPI/CAN/LIN 五種協議解碼 與 1M 點 FFT 頻域分析 ，能精確排除通訊錯誤與 EMI 干擾 。同時整合 43 種自動量測、DVM 及計頻器 ，提供全方位的系統驗證功能 。

隨身攜帶的實驗室(支援 Type-C 供電)
重量僅約 3.2 公斤的輕量化機身，打破傳統示波器只能困在實驗桌的限制。支援 Type-C 供電，讓您只需帶著行動電源，就能輕鬆完成汽車道路實測、戶外機電設備維護或工業現場的機動性量測。

智慧 Android 系統，重塑數位教學場景
搭載流暢的安卓系統，讓示波器不僅是量測工具，更是強大的教學與簡報中心：內建 WPS Office 與多媒體播放功能，可直接處理各類文件、影音與 PDF；其具備多點觸控與多國語言介面，並支援螢幕錄影、鍵盤滑鼠操作及 Web Control 遠端遙控，大幅提升教學與研發效率 。

旗艦進階：HG 機種(內建任意波形產生器)
針對需要完整激勵與響應測試的進階應用，HG 機種為您提供更全面的解決方案：本設備內建 50 MHz 任意波形產生器，提供 28 種常用波形與一鍵複製功能，可重製真實異常訊號進行壓力測試；同時具備 FRA 頻率響應分析，能直觀生成波德圖以驗證電源與濾波電路的系統穩定性。

Catalog

產品操作影片　最新活動訊息　產品綜合目錄

規　格

MODEL	GDS-2254HD/HG	GDS-2354HD/HG	GDS-2504HD/HG
Bandwidth	250 MHz	350 MHz	500 MHz [1]
Channels	4 Ch + EXT	4 Ch + EXT	4 Ch + EXT
Bandwidth Limit	20 MHz	20 MHz	20 MHz
Calculated Rise Time	1.75 ns	1 ns	0.7 ns
VERTICAL SENSITIVITY			
Resolution	12 bit ; 1 MΩ : 500 µV/div to 10 V/div ; 50 Ω : 500 µV/div to 1 V/div [2]		
Input Coupling	AC, DC, GND		
Input Impedance	1 MΩ ± 2 % ; in parallel with 15 pF ± 5 pF ; 50 Ω ± 2 %		
DC Gain Accuracy	≤ 1 mV ± 3 % ; 2 mV ± 2 % ; ≥ 5 mV ± 1.5 %		
Polarity	Normal & Invert		
Maximum Input Voltage	1 MΩ ≤ 300 Vrms, CAT II ; 50 Ω ≤ 5 Vrms		
Offset Position Range	For 1 MΩ input impedance : 500 µV/div to 50 mV/div : ± 2 V ; 100 mV/div to 500 mV/div : ± 20 V ; 1 V/div to 10 V/div : ± 200 V For 50 Ω input impedance : 500 µV/div to 50 mV/div : ± 2 V ; 100 mV/div to 1 V/div : ± 5 V		
Waveform Signal Process	+, -, ×, ÷, FFT, User Defined Expression, FFT : 1 Mpts ; FFT : Spectral magnitude, Set FFT Vertical Scale to Vrms, dBVrms, Radians or Degrees, FFT Window Displays : Rectangle, Hamming, Hanning, Blackman, Bartlett or Kaiser		
TRIGGER			
Source	CH1, CH2, CH3, CH4, EXT TRIG, AC Lines		
Trigger Mode	Auto、Normal、Single		
Trigger Type	Edge, Pulse Width(Glitch), Video, Pulse Runt, Rise & Fall(Slope), Windows, Nth Edge, Logic, Time out, Bus(I²C, SPI, RS232/UART, CAN, LIN)		
Holdoff Range	100 ns to 10 s		
Coupling	AC, DC, HF		
Sensitivity	0.3 div to 10 div		
EXT TRIGGER			
Range	EXT ±2 V ; EXT/5 ±10 V		
Sensitivity	DC to 5 MHz EXT : 150 mV ; DC to 5 MHz EXT/5 : 750 mV		
Input Impedance	1 MΩ ± 2 % ; in parallel with 15 pF ± 5 pF		
HORIZONTAL			
Time Base Range	500 ps/div to 1000 s/div (1-2-5 increments)		
Pre-trigger	10 div maximum		
Post-trigger	80,000,000 div maximum		
Time Base Accuracy	± 2 ppm , about ± 1 ppm increase in error per year		
Peak Detection	0.8 ns (typical)		
SIGNAL ACQUISITION			
Real Time Sample Rate	2.5 GSa/s (half channels) [3] ; 1.25 GSa/s (all channels)		
Record Length	Max. 500 Mpts / CH [4]		
Acquisition Mode	Sample, Peak, High Res, Average, Segmentation		
Average	4, 16, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384, 32768, 65536 selectable		
X-Y MODE			
X-Axis Input	User defined		
Y-Axis Input	User defined		
Phase Shift	±3 degrees at 100 kHz		
CURSORS AND MEASUREMENT			
Cursors	Amplitude, Time, Gating available ; FFT [5] ; Unit : Seconds(s), Hz (1/s), Phase(degree), Ratio(%), FFT Vrms(V), FFTdBVrms(dB), FFT Radians(RAD), FFT Degrees(°)		
Automatic Measurement	43 sets : Period, Frequency, +Width, -Width, Rise Time, Fall Time, Scr Duty, +Duty, -Duty, Vavg, Vpp, VRMS, Overshoot, Vmax, Vmin, Vtop, CycRms, Vbase, Vamp, Preshoot, Std Dev, +Pulse Cnt, -Pulse Cnt, Rise Cnt, Fall Cnt, Area, Cyc Area, Delay(A ↑ -B ↑), Delay(A ↑ -B ↓), Delay(A ↓ -B ↑), Delay(A ↓ -B ↓), Phase(A ↑ -B ↑), Phase(A ↑ -B ↓), Phase(A ↓ -B ↑), Phase(A ↓ -B ↓), FRR(A ↑ -B ↑), FRF(A ↑ -B ↓), FFR(A ↓ -B ↑), FFF(A ↓ -B ↓), LRR(A ↑ -B ↑), LRF(A ↑ -B ↓), LFR(A ↓ -B ↑), LFF(A ↓ -B ↓)		
Cursors Measurement	Manual mode : Voltage difference between cursors(ΔV) Time difference between cursors(ΔT) Tracing mode : The voltage value and time value of the X waveform point are tracked by fixing the Y-axis The fixed X-axis tracks the voltage value and time value of the Y waveform point		
Auto Counter	6 digits, range from 2 Hz 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"		
Save Setup	10 sets		
Save Waveform	Maximum 3 GB of available internal storage space [6]		
Save Reference Waveform	100 sets		
AFG SPECIFICATIONS (GDS-2000HG series)			
Channel	2		
Sample Rate	160 MSa/s		
Vertical Resolution	14 bit		
Max. Frequency	50 MHz		
Waveforms	Sine wave, square wave, ramp wave, pulse wave, Noise wave, Butterworth, X∧2 and EOG etc 28 built-in waveforms		
Output Range	High Z : 2 mVpp to 10 Vpp (≤ 10 MHz) ; 2 mVpp to 5 Vpp (≤ 50 MHz)		
Output Resolution	1 mVpp or 5 bits		
Output Accuracy	± (1 % of setting + 1 mVpp) （typical 1 kHz sine, 0 V offset ）		
Offset Range	High Z : ± 5 Vpk – Amplitude Vpp/2 (≤10 MHz) ; ± 2.5 Vpk – Amplitude Vpp/2 (≤50 MHz)		
Offset Resolution	1 mVpp		

規　格

MODEL	GDS-2254HD/HG	GDS-2354HD/HG	GDS-2504HD/HG
SINE			
Frequency Range	1 μHz to 50 MHz		
Flatness	≤ 10 MHz : ± 0.3 dB ; ≤ 50 MHz : ± 0.5 dB		
Harmonic Distortion	Typical value (0 dBm) ; DC to 1 MHz: < –65 dBc ; 1 MHz to 50 MHz: < –50 dBc		
Stray (Non-harmonic)	Typical value (0 dBm) ; ≤ 10 MHz : < –70 dBc ; > 10 MHz : < –70 dBc + 6 dBC/octave		
Total Harmonic Distortion	< 0.2 %, 10 Hz to 20 kHz, 1 Vpp		
S/N Ratio	40 dB [7]		
SQUARE/PULSE			
Frequency Range	Square : 1 μHz to 20 MHz ; Pulse : 1 μHz to 10 MHz		
Rise/Fall Time	< 15 ns		
Overshoot	< 5 %		
Duty Cycle	Square : 50 % ; Pulse : 0.1 % to 99.9 %		
Min. Pulse Width	≥ 64 ns		
Jitter	200 ps +25 ppm		
RAMP			
Frequency Range	1 μHz to 1 MHz		
Linearity	< the 1 % of maximum output (typical value 1 kHz, 1 Vpp, symmetry 50 %)		
Symmetry	0 % to 100 %		
DISPLAY			
TFT LCD Type	10.1 inch , LCD		
Display Resolution	1024 horizontal × 600 vertical pixels		
Interpolation	Auto, Sin(x)/x, x		
Waveform Display	Dots, vectors, variable persistence (1 s、2 s、5 s), infinite persistence		
Waveform Capture Rate	Real-time acquire : 50,000 wfms/s ; Segment acquire : 500,000 wfms/s [8]		
Display Graticule	10 x 18 divisions		
Display Mode	YT, XY		
INTERFACE			
USB port	USB 2.0 High speed host port X3, USB 2.0 High speed device port X1		
Ethernet Port (LAN)	RJ45 connector X1, 10/100 Mbps with HP Auto MDIX		
Power Supply	Type-C power supply interface [9]		
MISCELLANEOUS			
Multi-language Menu	Available		
Operation Environment	Working Temperature : 0 °C to 40 °C ; Storage temperature: -20 °C to 60 °C ; Relative Humidity ≤ 90 %		
Line Voltage Range	Power Supply : AC 100 V to 240 VACRMS, 50 Hz to 60 Hz ; Power Consumption : Without generator <35 W, With generator <50 W		
Dimensions & Weight	325 mm(W) × 209.5 mm(H) × 111.5 mm(D) ; Approx. 3.2 kg		

NOTE : [1] 500 MHz bandwidth is available in the following cases: only one channel is enabled in each channel pair (CH1/CH2 and CH3/CH4).
[2] 500 μV/div is a digital magnification of 1 mV/div.
[3] Limited to four-channel models, the maximum real-time sampling rate of two channels should meet one of the following conditions: only one channel of CH1 and CH2 can be turned on, and only one channel of CH3 and CH4 can be turned on.
[4] Bandwidth 350 MHz and 500 MHz : up to 500 Mpts in single-channel mode, 250 Mpts in dual-channel mode ; Bandwidth 250 MHz: up to 100 Mpts.
[5] The measurement function supports cursors, available in the measurement menu settings.
[6] Waveform data up to 100 MB memory length can be stored in internal memory. Waveform data exceeding 100 MB memory length must be saved to an external USB drive or external hard drive.
[7] Tested under 10 MHz, 0 dBm conditions.
[8] Test conditions: single channel, 1 k memory depth.
[9] The adapter or battery should support the 12 V handshake protocol, with a power requirement of 48 W.

規格若有局部變更，恕不另行通知！ DS-2000HD/HGCD1DS

訂購資訊

GDS-2254HD	**250 MHz, 4-Channel, Digital Storage Oscilloscope**
GDS-2354HD	**350 MHz, 4-Channel, Digital Storage Oscilloscope**
GDS-2504HD	**500 MHz, 4-Channel, Digital Storage Oscilloscope**
GDS-2254HG	**250 MHz, 4-Channel, Digital Storage Oscilloscope + 50MHz, Arbitrary Function Generator**
GDS-2354HG	**350 MHz, 4-Channel, Digital Storage Oscilloscope + 50MHz, Arbitrary Function Generator**
GDS-2504HG	**500 MHz, 4-Channel, Digital Storage Oscilloscope + 50MHz, Arbitrary Function Generator**

標準配件

Power cord x 1, USB Cable x 1, BNC Cable x 1 (GDS-2254HG, GDS-2354HG, GDS-2504HG), Passive Probe (one probe per channel 250 MHz and 350 MHz models provided 350 MHz probes; 500 MHz models provided 500 MHz probes)

選購配件

GCP-300	300 kHz / 200 A Current probe	**GTL-110**	Test lead, BNC to BNC connector
GCP-500	500 kHz / 150 A Current probe	**GTL-246**	USB 2.0 cable, A-B type,1800 mm
GCP-530	50 MHz / 50 A Current probe	**GTP-033A**	35 MHz 1:1 Passive probe
GCP-0275	2 MHz / 750 A Current probe	**GTP-350A-2**	350 MHz (10:1/1:1) Switching passive probe, BNC(P/M)
GCP-0550	5 MHz / 500 A Current probe		
GCP-1000	1 MHz / 70 A Current probe		
GCP-1030	100 MHz / 50 A Current probe		
GCP-2525	25 MHz / 250 A Current probe		
GDP-025	25 MHz High voltage differential probe		
GDP-050	50 MHz High voltage differential probe		
GDP-100	100 MHz High voltage differential probe		
GDP-1020P	1 GHz High frequency differential probe		
GDP-2035H	200 MHz High voltage differential probe		

選購附件

PC Software OpenWave software　　**Driver** LabView driver

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