



VPO
Visual Persistence Oscilloscope

GDS-2000A Series

FEATURES

- 300/200/100/70MHz Bandwidth, 2 or 4 Input Channels
- 2GSa/s Maximum Real-Time Sampling Rate and 100GSa/s Equivalent Time Sampling Rate
- 2M points Maximum Record length
- VPO Technology to Display Less-Frequently-Occurred Signals
- Fast Update Rate of 80,000 Waveform Per Second
- Segmented Memory Acquisition and Waveform Search Function
- Standard Model Provides I²C, UART, SPI Serial Bus Trigger and Analysis Functionality
- Optional 8 or 16 Additional Digital Channels with Logic Analyzer(MSO)
- Upgradable CAN/LIN Bus, DVM, H-Expansion, Data Log and Advanced Logic Functionality
- Optional 5MHz & 25MHz Function Generator
- Flexible Remote Control Connectivity (Standard : USB ; Optional : LAN/GPIB)



Front



Rear Panel

The GDS-2000A Series DSO comes along with a high-value design framework, including 2G Sa/s sampling rate, 2M points record length, 2 or 4 input channels and a large screen color LCD display, to perform very fast waveform acquisition and procession at 80,000 wfms/s update rate utilizing VPO (Visual Persistence Oscilloscope) technology.

The GDS-2000A Series, carrying bandwidths of 300MHz, 200MHz, 100MHz and 70MHz and inputs of 2 and 4 channels, makes up a family of 8 in the whole series. The 2M points record length not only enables the long time waveform storage but also plays the role as a huge database of the input signals for the post-storage waveform analysis. Two powerful functions, Waveform Search and Segmented Memory are available of the GDS-2000A Series to facilitate the search the event of interest from the long record length. Waveform search defines the waveform types for the search whereas segmented memory divides the whole record length into a number of segments. Therefore, the process of searching particular waveforms can be easier and faster.

The ping-pong waveform acquisition design and the advanced VPO-technology-based waveform procession system, greatly enhance the speed and the quality of waveform display of GDS-2000A Series at a very fast update rate of 80,000 waveforms per second, GDS-2000A also provides I²C, UART, SPI serial bus trigger and decoding functionalities free of charge. Users via GDS-2000A not only to measure basic waveform but also available to analysis the low speed serial bus.

The optional logic analyzer function allows the signal acquisition through logic triggering and enables the logic waveforms and the analog waveforms to be shown on the same screen for comparison and time correlation analysis. This Mixed Signal Oscilloscope (MSO) function is field-installable with a plug-in module, containing either 8 or 16 input channels, at the rear panel. The MSO function supports the I²C / SPI / UART serial bus trigger and decoding.

The GDS-2000A Series is equipped with all the features that a high-tech DSO should have today. The RS-232C interface, USB ports, and Go-NoGo output are provided as standard, and the Ethernet port, SVGA Video output and GPIB port are available as options for user's free selection. At a moderate cost, GDS-2000A Series is a DSO to provide high customer-value with innovative design.

APPLICATIONS

- Industrial and Educational R&D Labs
- Product Testing and Quality Assurance
- Embedded System and Mix Signal Design
- System Integration & Debugging
- Maintenance & Repair Service

SPECIFICATIONS

		GDS-2072A	GDS-2074A	GDS-2102A	GDS-2104A	GDS-2202A	GDS-2204A	GDS-2302A	GDS-2304A
VERTICAL SENSITIVITY	Channels	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT
	Bandwidth	DC~70MHz(-3dB)		DC~100MHz(-3dB)		DC~200MHz(-3dB)		DC~300MHz(-3dB)	
VERTICAL RESOLUTION	Rise Time	5ns		3.5ns		1.75ns		1.17ns	
	Bandwidth Limit	20MHz		20MHz		20M/100MHz		20M/100M/200MHz	
VERTICAL RESOLUTION	Input Coupling	8 bits@1M : 1mV*-10V (* : When the vertical scale is set to 1mV/div, the bandwidth limit will be set to 20MHz automatically)							
	Input Impedance	AC, DC, GND 1MΩ // 16pF approx.							
VERTICAL RESOLUTION	DC Gain Accuracy(**)	±(3% X Readout + 0.1div + 1mV) when 2mV/div or greater is selected ; ±(5% X Readout + 0.1div + 1mV) when 1mV/div is selected (* ** : The measurement type is average of ≥16 waveforms with vertical position at zero)							
	Polarity	Normal , Invert							
VERTICAL RESOLUTION	Maximum Input Voltage	300Vrms , CAT I (300Vrms CAT II with GTP-150A-2/250A-2/350A-2 10:1 probe)							
	Offset Position Range	1mV/div ~ 20mV/div : ±0.5V ; 50mV/div ~ 200mV/div : ±5V ; 500mV/div ~ 2V/div : ±25V ; 5V/div~10V/div : ±250V							
VERTICAL RESOLUTION	Waveform Signal Process	+ , - , x , ÷ , FFT , FFTrms , d/dt(Differentiation*) , ∫ dt (Integration*) , √							
		FFT : Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning, or Blackman-Harris.							
TRIGGER	Source	Ch1 ,CH2, CH3*, CH4* , Line, EXT, D0-D7 or D0-D15** ; *four channel models only. **Logic analyzer option only.							
	Trigger Mode	Auto (Supports Roll Mode for 100 ms/div and slower), Normal, Single Sequence							
TRIGGER	Trigger Type	Edge, Pulse Width(Glitch), Video, Pulse Runt, Rise & Fall(Slope), Alternate, Glitch Trigger, Duration Trigger, Slope Trigger, Time out, Event-Delay(1~65,535 events), Time-Delay(Duration;10ns~10s), Logic*, Bus*, *with DS2-08LA or DS2-16LA option							
	Trigger Holdoff Range	10ns ~ 10s							
TRIGGER	Coupling	AC, DC, LF rej. , HF rej. , Noise rej.							
	Sensitivity	DC ~ 100MHz Approx. 1div or 1.0mV ; 100MHz ~ 200MHz Approx. 1.5div or 15mV ; 200MHz ~ 300MHz Approx. 2div or 20mV							
EXT TRIGGER	Range	±15V							
	Sensitivity	DC ~ 100MHz Approx. 100mV 100MHz ~ 200MHz Approx. 150mV ; 200MHz ~ 300MHz Approx. 150mV							
EXT TRIGGER	Input Impedance	1MΩ ±3% , ~16pF							
	Time Base Range	1ns/div ~ 100s/div (1-2-5 increments); ROLL : 100ms/div ~ 100s/div							
HORIZONTAL	Pre-trigger	10 div maximum							
	Post-trigger	1,000 div max (depend on time base)							
HORIZONTAL	Time Base Accuracy	±20 ppm over any ≥ 1 ms time interval							
	Real Time Sample Rate	Max. : 2GSa/s							
HORIZONTAL	ET Sample Rate	100GSa/s maximum for all models							
	Record Length	Max. : 2Mpts							
HORIZONTAL	Acquisition Mode	Normal, Average, Peak Detect, Single Sequence							
	Peak Detection	2ns (typical)							
HORIZONTAL	Average	Selectable from 2 to 256							
	X-Axis Input	Channel 1 ; Channel 3* (* : four channel models only)							
X-Y MODE	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 (Degrees), Ratio(%)							
	Automatic Measurement	36 sets: Pk-Pk, Max, Min, Amplitude, High, Low, Mean, Cycle Mean, RMS, Cycle Area, ROVShoot, FOVShoot, RPREShoot, FPREShoot, Frequency, Period, RiseTime, FallTime, +Width, -Width, Duty Cycle, +Pulses, -Pulses, +Edges, -Edges, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase							
CURSORS AND MEASUREMENT	Control Panel Function	Cursors measurement							
	Auto Counter	6 digits, range from 2Hz minimum to the rated bandwidth							
CURSORS AND MEASUREMENT	Autoset	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo Autoset							
	Save Setup	20set							
CURSORS AND MEASUREMENT	Save Waveform	24set							
	TFT LCD Type	8" TFT LCD SVGA color display(LED Back-light)							
DISPLAY SYSTEM	Display Resolution	800 horizontal x 600 vertical pixels (SVGA)							
	Interpolation	Sin(x)/x & Equivalent time sampling							
DISPLAY SYSTEM	Waveform Display	Dots, Vectors, Variable persistence(16ms~10s), Infinite persistence							
	Waveform Update Rate	80,000 waveforms per second, maximum							
DISPLAY SYSTEM	Display	Display mode : YT ; XY							
	Display Graticule	8 x 10 divisions							
INTERFACE	RS-232C	DB-9 male connector							
	USB Port	USB 2.0 Full-speed host port, USB 2.0 Full-speed device port							
INTERFACE	Ethernet Port (LAN)	RJ-45 connector, 10/100Mbps with HP Auto-MDIX (option)							
	SVGA Video Port	SVGA output (option)							
INTERFACE	GPIB	GPIB module (option)							
	Go/NoGo BNC	5V Max/10mA TTL open collector output							
INTERFACE	Kensington Style Lock	Rear-panel security slot connects to standard Kensington-style lock							
	Sample Rate	500MSa/s							
LOGIC ANALYZER (OPTION)	Bandwidth	200MHz							
	Record Length	2M max							
LOGIC ANALYZER (OPTION)	Input Channels	16 Digital (D15 - D0) or 8 Digital (D7-D0)							
	Trigger Type	Edge, Pattern, Pulse Width, Serial bus (I ² C, SPI, UART), Parallel							
LOGIC ANALYZER (OPTION)	Thresholds	Quad-D0 ~ D3, D4 ~ D7. . . Thresholds D8-D11* , D12-D15* (*: DS2-16LA only)							
	Threshold Selections	TTL, CMOS, ECL, PECL, User Defined							
LOGIC ANALYZER (OPTION)	Threshold Accuracy	±100mV							
	User-defined Threshold Range	±10V							
LOGIC ANALYZER (OPTION)	Maximum Input Voltage	±40V							
	Minimum Voltage Swing	±500mV							
LOGIC ANALYZER (OPTION)	Input Impedance	101KΩ probe loading 8 pF							
	Vertical Resolution	1 bit							
OPERATING ENVIRONMENT	Temperature	0°C ~ 50°C, Relative Humidity ≤80% at 40°C or below ; ≤45% at 41°C~50°C							
	Line Voltage Range	AC 100V ~ 240V, 48Hz ~ 63Hz, auto selection							
POWER SOURCE MISCELLANEOUS	Multi-Language Menu	Available							
	On-Line Help	Available							
POWER SOURCE MISCELLANEOUS	Time clock	Time and date, provide the date/time for saved data							
	DIMENSIONS & WEIGHT	380(W) X 220(H) X 145(D)mm, Approx. 4.2 kg							

Note : Three-year warranty, excluding probes & LCD display panel.

Specifications subject to change without notice. BH-2000AGD4BH

ORDERING INFORMATION

GDS-2304A	300MHz, 4-Channel, Digital Storage Oscilloscope
GDS-2302A	300MHz, 2-Channel, Digital Storage Oscilloscope
GDS-2204A	200MHz, 4-Channel, Digital Storage Oscilloscope
GDS-2202A	200MHz, 2-Channel, Digital Storage Oscilloscope
GDS-2104A	100MHz, 4-Channel, Digital Storage Oscilloscope
GDS-2102A	100MHz, 2-Channel, Digital Storage Oscilloscope
GDS-2074A	70MHz, 4-Channel, Digital Storage Oscilloscope
GDS-2072A	70MHz, 2-Channel, Digital Storage Oscilloscope

ACCESSORIES

Quick start guide , User manual CD x 1, Power cord x 1	
GTP-070A-4 :70MHz (10:1/1:1)	Switchable passive probe for GDS-2072A/2074A(one per channel)
GTP-150A-2 :150MHz (10:1/1:1)	Switchable passive probe for GDS-2102A/2104A(one per channel)
GTP-250A-2 :250MHz (10:1/1:1)	Switchable passive probe for GDS-2202A/2204A(one per channel)
GTP-350A-2 :350MHz (10:1/1:1)	Switchable passive probe for GDS-2302A/2304A(one per channel)

OPTION

DS2-LAN	Ethernet & SVGA output	DS2-16LA	16-Channel Logic Analyzer includes
DS2-GPIB	GPIB Interface	DS2-08LA	8-Channel Logic Analyzer includes
DS2-FGN	DDS Function Generator		
AFG-125	25MHz Single channel USB Modular Arbitrary Function Generator		
AFG-225	25MHz Dual channel USB Modular Arbitrary Function Generator		

OPTION ACCESSORIES

GTL-08LA	8-Channel Logic Analyzer Probe	GDB-03	Oscilloscope Education & Training Kit
GTL-16LA	16-Channel Logic Analyzer Probe	GCP-005	Current Probe, 40Hz ~ 14kHz, 5A, Current Probe
GLA-08	8-Channel Logic Analyzer Card	GCP-020	Current Probe, DC ~ 100kHz, 10A, Current Probe
GLA-16	16-Channel Logic Analyzer Card	GCP-100	Current Probe, 40Hz ~ 10kHz, 20A, Current Probe
GAK-003	50Ω Impedance Adapter	GCP-1030	Current Probe, DC ~ 100MHz, 30Arms, Current Probe
DS2-FH1	Module extension bay & USB Type A to Type A/B cable	GCP-206P	Current Probe - Power Supply, 2 Channel Power Supply for GCP-530/1030
GSC-008	Soft Carrying Case	GCP-530	Current Probe, DC ~ 50MHz, 30Arms, Current Probe
GTL-232	RS-232C Cable, 9-pin, F-F Type, null modem, 2000mm	GDP-025	Differential Probe, 25M High Voltage Differential Probe
GTL-246	USB Cable, USB 2.0, A-B Type, 1200mm	GDP-050	Differential Probe, 50M High Voltage Differential Probe
GTL-248	GPIB Cable, Double Shielded, 2000mm	GDP-100	Differential Probe, 100M High Voltage Differential Probe
GTL-251	USB-GPIB Adapter, GPIB-USB-HS, USB 2.0, Hi-Speed USB compliance, 2000mm	GTP-033A	Oscilloscope Probe, 35MHz 1:1 Passive Probe, BNC(P/M)

FREE DOWNLOAD

PC Software	FreeWave software	Driver	USB driver ; LabView driver
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