



VPO
Visual Persistence Oscilloscope

GDS-2000A Series

FEATURES

- 300/200/100/70MHz Bandwidth, 2 or 4 Input Channels
- 2GSa/s Real-Time Sampling Rate and 100GSa/s Equivalent Time Sampling Rate
- 2Mega Points Memory Depth
- VPO Technology to Display Less-Frequently-Occurred Signals
- Fastest Update Rate of 80,000 Waveform Per Second
- Segmented Memory Acquisition and Waveform Search Function
- Optional 8 or 16 Additional Digital Channels with Logic Analyzer (MSO) & Serial Bus I²C/SPI/UART Trigger and Decode Software
- Optional Function Generator
- Flexible Remote Control Connectivity (Standard : USB ; Optional : LAN/ GPIB)

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.

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.



Front



Rear Panel

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	Channels	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT
	Bandwidth Rise Time Bandwidth Limit	DC~70MHz(-3dB) 5ns 20MHz		DC~100MHz(-3dB) 3.5ns 20MHz		DC~200MHz(-3dB) 1.75ns 20M/100MHz		DC~300MHz(-3dB) 1.17ns 20M/100M/200MHz	
	Vertical Resolution Input Coupling Input Impedance DC Gain Accuracy (^{typ})	8 bits@1M : 1mV*~10V (*: When the vertical scale is set to 1mV/div, the bandwidth limit will be set to 20MHz automatically) AC, DC, GND 1M Ω // 16pF approx. ±(5% X Readout + 0.1div + 1mV) when 1mV/div is selected; ±(3% X Readout + 0.1div + 1mV) when 2mV/div or greater is selected (**): The measurement type is average of ≥16 waveforms with vertical position at zero)							
	Polarity Maximum Input Voltage Offset Position Range Waveform Signal Process	Normal, Invert 300V (DC+AC Peak), CAT I 1mV/div ~ 20mV/div : ±0.5V; 50mV/div ~ 200mV/div : ±5V; 500mV/div ~ 2V/div : ±25V; 5V/div~10V/div : ±250V +, -, X, ∞, FFT, FFTms 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 Trigger Mode Trigger Type	Ch1, CH2, CH3*, CH4*, Line, EXT, D0-D15** (*: four channel models only. **Logic analyzer option only. Auto (Supports Roll Mode for 100 ms/div and slower), Normal, Single Edge, Pulse Width, Video, Pulse Runt, Rise & Fall, Alternate, Time out, Event-Delay(1~65,535 events), Time-Delay(10ns~10s), Logic*, Bus*, *with DS2-08LA option							
	Trigger Holdoff Range Coupling Coupling Sensitivity	10ns ~ 10s AC, DC, LF rej., HF rej., Noise rej. AC, DC, LF rej., HF rej., Noise rej. DC ~ 100MHz Approx. 1div or 1.0mV; 100MHz ~ 200MHz Approx. 1.5div or 15mV; 200MHz ~ 300MHz Approx. 2div or 20mV							
EXT TRIGGER	Range Sensitivity	±15V DC ~ 100MHz Approx. 100mV 100MHz ~ 200MHz Approx. 150mV; 200MHz ~ 300MHz Approx. 150mV							
	Input Impedance	1M Ω ±3%, -16pF							
HORIZONTAL	Time Base Range Pre-trigger Post-trigger Accuracy	1ns/div ~ 100s/div (1-2-5 increments); ROLL: 100ms/div ~ 100s/div 10 div maximum 1,000 div max (depend on time base) ±20 ppm over any ≥ 1 ms time interval							
	Real Time Sample Rate ET Sample Rate Record Length Acquisition Mode Peak Detection Average	Max.: 2GSa/s 100GSa/s maximum for all models Max.: 2Mpts Normal, Average, Peak Detect, Single 2ns (typical) Selectable from 2 to 256							
X-Y MODE	X-Axis Input Y-Axis Input Phase Shift	Channel 1; Channel 3* (*: four channel models only) Channel 2; Channel 4* (*: four channel models only) ±3° at 100kHz							
	Cursors AND MEASUREMENT	Amplitude, Time, Gating Available; Unit: Seconds(S), Hz(1/S), Phase (Degrees), Ratio(%) 36 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, *Edges, *Edges, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase Cursors measurement 6 digits, range from 2Hz minimum to the rated bandwidth Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo Autoset 20set 24set							
DISPLAY SYSTEM	TFT LCD Type Display Resolution Interpolation Waveform Display Waveform Update Rate Display Graticule	8" TFT LCD SVGA color display(LED Back-light) 800 horizontal x 600 vertical pixels (SVGA) Sin(x)/x & Equivalent time sampling Dots, Vectors, Variable persistence(16ms~10s), Infinite persistence 80,000 waveforms per second, maximum 8 x 10 divisions							
	INTERFACE	RS-232C USB Port Ethernet Port SVGA Video Port GPIO Go/NoGo BNC Kensington Style Lock DB-9 male connector 2 sets USB 2.0 high-speed host port ;1 set USB high-speed 2.0 device port RJ-45 connector, 10/100Mbps with HP Auto-MDIX (option) SVGA output (optional) GPIO module (Optional) 5V Max/10mA TTL open collector output Rear-panel security slot connects to standard Kensington-style lock							
LOGIC ANALYZER (OPTION)	Sample Rate Bandwidth Record Length Input Channels Trigger Type Thresholds Threshold Selections User-defined Threshold Range Maximum Input Voltage Minimum Voltage Swing Vertical Resolution	500MSa/s 200MHz 2M max 16 Digital (D15 - D0) or 8 Digital (D7-D0) Edge, Pattern, Pulse Width, Serial bus (I ² C, SPI, UART), Parallel Quad-D0 - D3, D4 - D7, ...; Thresholds D8-D11*, D12-D15* (*: DS2-16LA only) TTL, CMOS, ECL, PECL, User Defined ±10V ±40V ±500mV 1 bit							
	POWER SOURCE MISCELLANEOUS	Line Voltage Range: AC 100V ~ 240V, 48Hz ~ 63Hz, auto selection Multi-Language Menu Available On-Line Help Available 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.

DS-2000AGD1DH

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-GPIB	GPIB Interface
DS2-FGN	DDS Function Generator
DS2-8LA	8-Channel Logic Analyzer : includes 8-Channel Logic Analyzer Card (GLA-08) and 8-Channel Logic Analyzer Probe (GTL-08LA)
DS2-16LA	16-Channel Logic Analyzer includes 16 Channel Logic Analyzer Card (GLA-16) and 16-Channel Logic Analyzer Probe (GTL-16LA)

OPTION ACCESSORIES

GTL-08LA	8-Channel Logic Analyzer Testing Probe
GTL-16LA	16-Channel Logic Analyzer Testing Probe
GLA-08	8-Channel Logic Analyzer Card
GLA-16	16-Channel Logic Analyzer Card

FREE DOWNLOAD

PC Software	FreeWave software	Driver	USB driver; LabView driver
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