



VPO
Visual Persistence Oscilloscope

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.

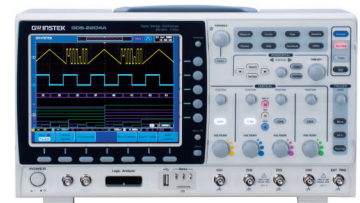
The optional logic analyzer function allows the signal acquisition through logic triggering and enables the logic waveforms and the analog waveforms to be shown on the same screen for comparison and time correlation analysis. This Mixed Signal Oscilloscope (MSO) function is field-installable with a plug-in 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.

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
- 2Mpoints Maximum Record length
- 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
- Upgradeable CAN/LIN, DVM, H-expansion, Datalog and Advanced Logic Functionality
- Optional Function Generator
- Flexible Remote Control Connectivity (Standard : USB ; Optional : LAN/ GPIB)



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

SPECIAL FEATURES		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)	
	Rise Time	5ns		3.5ns		1.75ns		1.17ns	
	Bandwidth Limit	20MHz		20MHz		20M/100MHz		20M/100M/200MHz	
	Vertical Resolution	8 bits @1M : 1mV*~10V (*: When the vertical scale is set to 1mV/div, the bandwidth limit will be set to 20MHz automatically)							
	Input Coupling	AC, DC, GND							
TRIGGER	Input Impedance	1MΩ// 16pF approx.							
	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							
	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							
	Waveform Signal Process	+ , - , × , ÷ , 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.							
EXT TRIGGER	Source	Ch1 ,CH2, CH3*, CH4* , Line, EXT, 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 Type	Edge, Pulse Width(Glitch) , Video, Pulse Runt, Rise & Fall(Slope), Alternate, Time out, Event-Delay(1~65,535 events) , Time-Delay(Duration;10ns~10s), Logic* , Bus* , *with DS2-08LA or DS2-16LA option							
X-Y MODE	Trigger Holdoff Range	10ns ~ 10s							
	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							
HORIZONTAL	Range	±15V							
	Sensitivity	DC ~ 100MHz Approx. 100mV 100MHz ~ 200MHz Approx. 150mV ; 200MHz ~ 300MHz Approx. 150mV							
	Input Impedance	1MΩ ±3% , ~16pF							
CURSORS AND MEASUREMENT	Time Base Range	1ns/div ~ 100s/div (1-2.5 increments); ROLL : 100ms/div ~ 100s/div							
	Pre-trigger	10 div maximum							
	Post-trigger	1,000 div max (depend on time base)							
	Time Base Accuracy	±20 ppm over any ≥ 1 ms time interval							
	Real Time Sample Rate	Max. : 2GSa/s							
	ET Sample Rate	100GSa/s maximum for all models							
	Record Length	Max. : 2Mpts							
	Acquisition Mode	Normal, Average, Peak Detect, Single Sequence							
	Peak Detection	2ns (typical)							
	Average	Selectable from 2 to 256							
DISPLAY SYSTEM	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							
INTERFACE	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 RMS, Area, 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 measurement								
	Control Panel Function								
	Auto Counter	6 digits, range from 2Hz minimum to the rated bandwidth							
	Autoset	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo Autoset							
LOGIC ANALYZER (OPTION)	Save Setup	20set							
	Save Waveform	24set							
	TFT LCD Type	8" TFT LCD SVGA color display(LED Back-light)							
	Display Resolution	800 horizontal x 600 vertical pixels (SVGA)							
	Interpolation	Sin(x)/x & Equivalent time sampling							
	Waveform Display	Dots, Vectors, Variable persistence(16ms~10s), Infinite persistence							
POWER SOURCE MISCELLANEOUS	Waveform Update Rate	80,000 waveforms per second, maximum							
	Display	Display mode : YT ; XY							
	Display Graticule	8 x 10 divisions							
	RS-232C	DB-9 male connector							
	USB Port	USB 2.0 Full-speed host port, USB 2.0 Full-speed device port							
	Ethernet Port (LAN)	RJ-45 connector, 10/100Mbps with HP Auto-MDIX (option)							
DIMENSIONS & WEIGHT	SVGA Video Port	SVGA output (option)							
	GPIO	GPIO module (option)							
	Go/NoGo BNC	5V Max/10mA TTL open collector output							
	Kensington Style Lock	Rear-panel security slot connects to standard Kensington-style lock							
	Sample Rate	500MSa/s							
	Bandwidth	200MHz							
DIMENSIONS & WEIGHT	Record Length	2M max							
	Input Channels	16 Digital (D15 - D0) or 8 Digital (D7~D0)							
	Trigger Type	Edge, Pattern, Pulse Width, Serial bus (I²C, SPI, UART), Parallel							
	Thresholds	Quad-D0 ~ D3, D4 ~ D7. . . . Thresholds D8~D11*, D12~D15* (*: DS2-16LA only)							
	Threshold Selections	TTL, CMOS, ECL, PECL, User Defined							
	Threshold Accuracy	±100mV							
DIMENSIONS & WEIGHT	User-defined Threshold Range	±10V							
	Maximum Input Voltage	±40V							
	Minimum Voltage Swing	±500mV							
	Input Impedance	101KΩ probe loading 8 pF							
	Vertical Resolution	1 bit							
	Line Voltage Range	AC 100V ~ 240V, 48Hz ~ 63Hz, auto selection							
DIMENSIONS & WEIGHT	Multi-Language Menu	Available							
	On-Line Help	Available							
	Time clock	Time and date, provide the date/time for saved data							
	Operation Environment	Temperature: 0°C to 50°C. Relative Humidity: ≤80%, 40°C or below; ≤45%, 41°C ~ 50°C							
	380(W) X 220(H) X 145(D)mm, Approx. 4.2 kg								

Specifications subject to change without notice. DS-2000AGD2BH

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 x1, Power cord x1

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 Probe	GRA-420	Rack Adapter Panel
GTL-16LA	16-Channel Logic Analyzer Probe	GAK-003	50Ω Impedance Adapter
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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GW INSTEK

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