GW INSTEK

300/200/100/70 MHz Digital Storage Oscilloscope

GDS-2000A Series

VPO
Visual Persistence Oscilloscope

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

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		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 SENSITIVITY	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
	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.
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 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
	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
	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	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
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 (Degrees), Ratio(%)
	Automatic Measurement	36sets: Pk-Pk, Max, Min, Amplitude, High, Low, Mean, CycleMean, RMS, CycleRMS, Area, CycleArea, ROVShoot, FOVShoot, RPREShoot, FPREShoot, Frequency, Period, RiseTime, FallTime, +Width, -Width, DutyCycle, +Pulses, -Pulses, +Edges, -Edges, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase
	Control Panel Function	Cursors measurement
	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
	Save Setup	20set
	Save Waveform	24set
DISPLAY SYSTEM	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
	Waveform Update Rate	80,000 waveforms per second, maximum
	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
	Ethernet Port (LAN)	RJ-45 connector, 10/100Mbps with HP Auto-MDIX (option)
	SVGA Video Port	SVGA output (option)
	GPIB	GPIB 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
LOGIC ANALYZER (OPTION)	Sample Rate	500MSa/s
	Bandwidth	200MHz
	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
	User-defined Threshold Range	10V
	Maximum Input Voltage	40V
	Minimum Voltage Swing	500mV
	Input Impedance	101KΩ probe loading 8 pF
	Vertical Resolution	1 bit
OPERATING ENVIRONMENT	Temperature	0°C ~ 50°C, Relative Humidity ≤80% at 40 ℃ or below ; ≤45% at 41 ℃~50 ℃
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.

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-070B-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
AFG-125 25MHz Single channel USB Modular Arbitrary Function Generator
AFG-225 25MHz Dual channel USB Modular Arbitrary Function Generator

DS2-16LA 16-Channel Logic Analyzer includes
16 Channel Logic Analyzer Card(GLA-16)
16-Channel Logic Analyzer Probe(GTL-16LA)
DS2-08LA 8-Channel Logic Analyzer : includes
8-Channel Logic Analyzer Card(GLA-08)
8-Channel Logic Analyzer Probe(GTL-08LA)

OPTION ACCESSORIES

GTL-08LA 8-Channel Logic Analyzer Probe
GTL-16LA 16-Channel Logic Analyzer Probe
GLA-08 8-Channel Logic Analyzer Card
GLA-16 16-Channel Logic Analyzer Card
GRA-420 Rack Adapter Panel
GAK-003 5Ω Impedance Adapter
DS2-FH1 Module extension bay & USB Type A to Type A/B cable
GSC-008 Soft Carrying Case
GTL-232 RS-232C Cable, 9-pin, F-F Type, null modem, 2000mm
GTL-246 USB Cable, USB 2.0, A-B Type, 1200mm
GTL-248 GPIB Cable, Double Shielded, 2000mm
GTL-251 USB-GPIB Adapter, GPIB-USB-HS, USB 2.0, Hi-Speed USB compliance, 2000mm

GDB-03 Oscilloscope Education & Training Kit
GCP-005 Current Probe, 40Hz ~ 1kHz, 5A, Current Probe
GCP-020 Current Probe, DC ~ 100KHz, 10A, Current Probe
GCP-100 Current Probe, 40Hz ~ 10KHz, 20A, Current Probe
GCP-1030 Current Probe, DC ~ 100MHz, 30Arms, current probe
GCP-206P Current Probe - Power Supply, 2 Channel Power Supply for GCP-530/1030
GCP-245P Current Probe - Power Supply, 4 Channel Power Supply for GCP-530/1030
GCP-530 Current Probe, DC ~ 50MHz, 30Arms, Current Probe
GDP-025 Differential Probe, 25M High Voltage Differntial Probe
GDP-050 Differential Probe, 50M High Voltage Differntial Probe
GDP-100 Differential Probe, 100M High Voltage Differntial Probe
GTP-033A Oscilloscope Probe, 35MHz 1:1 Passive Probe, BNC(P/M)

FREE DOWNLOAD

PC Software   FreeWave software   **Driver** USB driver ; LabView driver