GDS-1000A Series

150MHz/100MHz/60MHz Digital Storage Oscilloscope

FEATURES

- 150/100/60 MHz Bandwidth
- 1GSa/s Real-Time Sampling Rate Maximum, 25GSa/s Equivalent-Time
- 2Mega Points Record Length
- 2mV ~ 10V Vertical Scale
- 1ns ~ 50s Horizontal Range
- Up to 27 Auto Measurements
- Versatile Math Function + , –, x , FFT , FFTrms
- 5.6" TFT LCD Display
- USB Interface & SD Memory Card Supported
- Multi-Language Support on Operation Menu and On-Screen Help
- Limited Lifetime Warranty

GW INSTEK
Made to Measure Since 1975

PANEL INTRODUCTION

1. Stunning Display

The 5.6" TFT color LCD greatly enhances the GDS-1000A display performance letting you see the waveform details clearly from a broad range of view-angle.

2. Vertical Controls

Control knob per vertical channel design provides simple and fast operation. No more need to share one set of vertical control of both of channels.

3. Advance Triggers

Quick setting to capture any signal of interest with Normal, Single, Force, Pulse Width and Video line selectable triggers.

4. Memory and Interface

Up to 17 waveforms on the screen could be saved into the internal memory for later recall and comparison. SD card mass storage and USB device port are supported to provide a safe environment for data storage/transfer of measurement results and remote control for diversified solutions.

5. Autoset Enable/ Disable

The GDS-1000A series can disable the Autoset function, enabling students to manually operate oscilloscope functions to further enrich their learning experience.

6. Enhanced CAL signal output

GDS-1000A series has an enhanced 1kHz calibration signal. Its output frequency is adjustable from 1 kHz to 100 kHz as well as the duty cycle adjustable by 5%–95%.

SELECTION GUIDE

MODEL	GDS-1062A	GDS-1102A	GDS-1152A
BANDWIDTH	60MHz	100MHz	150MHz
CHANNELS	2		
SAMPLE RATE	1GSa/s(Real-time) 25GSa/s(Equivaleut-time)		
RECORD LENGTH	2 Mega Points		
DISPLAY DEVICE	5.6" TFT Color LCD		
SD Card Slot USB Device Calibration Output	Standard		

150/100/60 MHz Digital Storage Oscilloscope

GDS-1000A Series

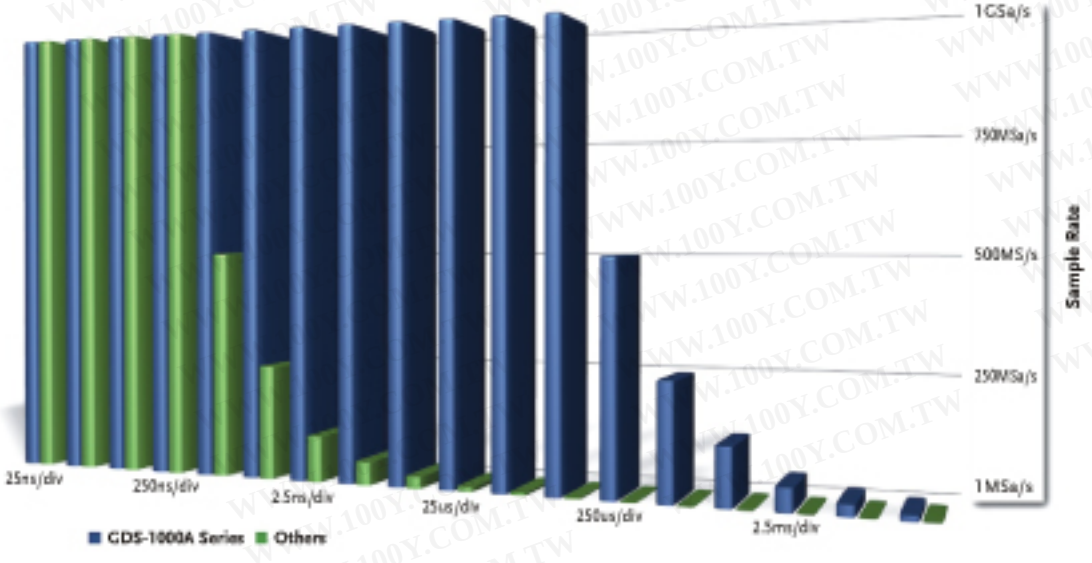
Discover Deep Memory Performance. With GDS-1000A Series

The GDS-1000A 150/100/60MHz dual-channel digital storage oscilloscope series inherit the passionate design and strong value traditional to GW Instek DSOs. The series feature 1GS/s real-time sampling rate, 2M memory length, USB remote interface, high resolution color TFT display, SD flash drive support and GW Instek's user-friendly interface. Quality design and powerful features combine to create a powerful tool for waveform capture and analysis.

It's all about the memory

With the increasing complexity of signals, traditional digital storage oscilloscopes don't have the capability of displaying an input signal completely or comparing the relative relationship between signals accurately due to memory constraints. After all, the waveform record length and the sample rate of a DSO are tied to memory depth, and only the combination of high sample rate and long record length makes the detailed waveform analysis possible. Assuming a constant sample rate, the more memory a DSO has , the longer the signal can be displayed. Conversely , assuming a limited memory depth, the faster the sample rate, the shorter the time a signal can be observed. In order to fully utilize the advantage of 2M point memory without sacrificing the waveform update speed, GDS-1000A adopts the MemoryPrime technology MemoryPrime , which installs a high speed signal processor to work in parallel with CPU to exceedingly raise up the waveform reconstruction speed. With this high speed signal processor and 2M point memory, GDS-1000A is able to run at 1GSa/s maximum sampling speed under a wide range of Time Base selections (100us/div ~ 25ns/div). This unparalleled performance creates a significant differentiation among all other economic DSO products available in the market today.

The sample rate of a DSO is closely related to memory size. Shallow memory digital storage oscilloscopes compromise the sample rate over a larger Time Base range, as there is not enough memory to display the signal on the screen at the maximum sample rate. For example, a digital storage oscilloscope with a sample rate of 1GSa and a 2.5k point memory length can operate with a horizontal sweep speed below 20ns/div but only by reducing the sampling rate accordingly. When the sample rate is reduced, there is a greater possibility that critical details get omitted. However with a larger memory depth, a high sampling rate can be maintained over a wider horizontal range.

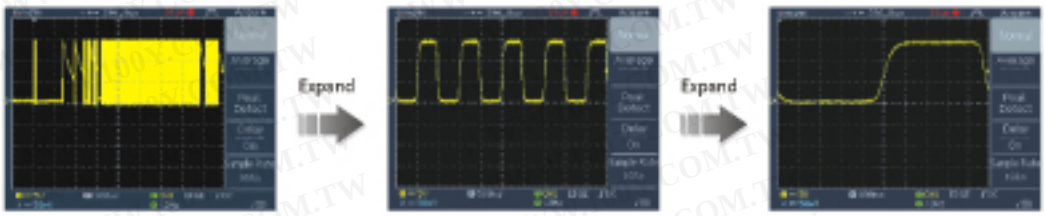


As illustrated, the GDS-1000A series are able to maintain a sampling rate of 1Ga/S over 12 horizontal ranges, superior to that of other oscilloscopes with a 2.5k memory depth. Utilizing a greater memory depth, the GDS-1000A Series allow you to design and debug your projects more effectively.

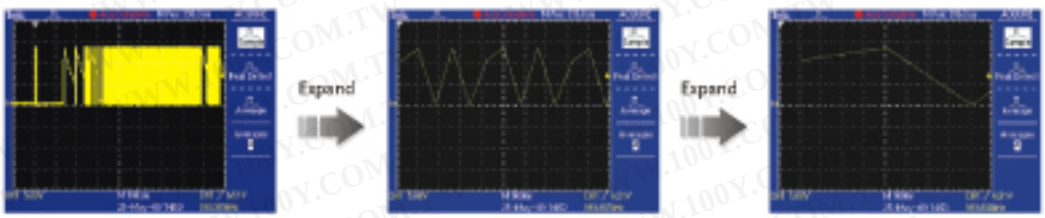
A. ABOUT MemoryPrime TECHNOLOGY

Single-Shot Waveform Capture

GDS-1000A
2Mega Memory
Waveform Display



Conventional DSO
2.5k Memory
Waveform Display

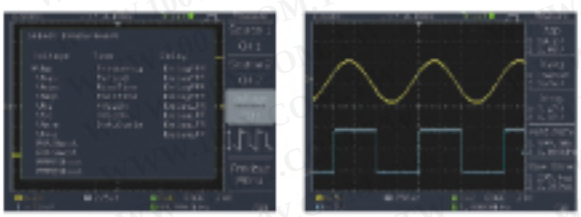


What is the single feature lacking from most digital storage oscilloscopes? Adequate memory depth. Is the memory depth of your DSO large enough?

With 2M points of memory, the GDS-1000A has the capability to acquire far more waveform data compared to other DSOs in the same performance range.

The 1GSa/s sampling rate and 2M point memory plays an extremely powerful role for single-shot waveform capture. Properly set the trigger conditions to baby-sit the expected waveform. When the single-shot waveform is triggered and captured, you are able to check and see the single-shot event without losing any detailed information. A DSO, with high sampling rate but short memory, can't do the job of single-shot waveform capture as good as what GDS-1000A can do.

B. EASY TO USE

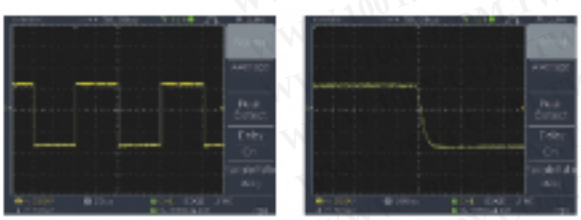


27 Automatic Measurement Functions

FFT Function

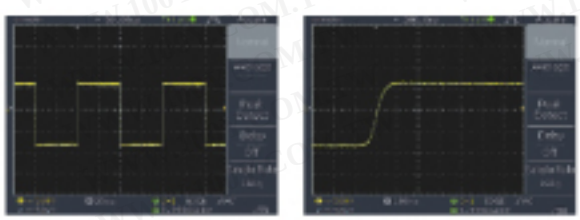
Full-featured acquisition mode and 27 auto measurement functions help users to measure the parameters of captured waveforms accurately. The advanced Auto-Set function enables GDS-1000 Series to catch waveform automatically and display waveform quickly. With Arithmetic functions, +, -, x and FFT, GDS-1000A Series keep users being aware of the measurement results by updating values immediately. Without almost extra calculation, GDS-1000A can provide sufficient information of testing.

C. CONVENIENT TOOLS FOR WAVEFORM OBSERVATION-DELAY ON/OFF



Delay On

With Delay On, the waveform scale expansion is centered on the center of the screen

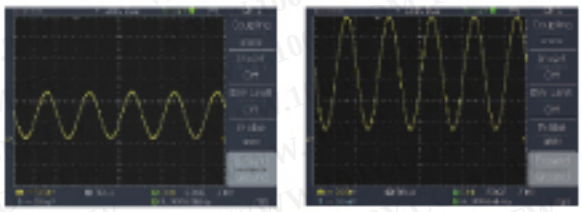


Delay Off

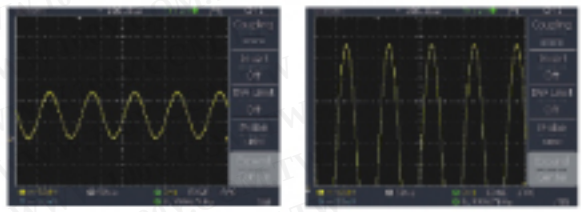
With Delay Off, the waveform scale expansion is centered on the trigger point

For the convenience of waveform observation and analysis, the GDS-1000A includes Delay On/Off functions usually seen only in the higher end products. With Delay On, a signal can be observed from an offset of the trigger point. With this feature, the horizontal scale, so as the waveform scale, can be expanded and centered on the delay point, but not the trigger point. This allows a signal to be observed in detail where needed.

D. CONVENIENT TOOLS FOR WAVEFORM OBSERVATION-EXPAND BY GROUND/CENTER



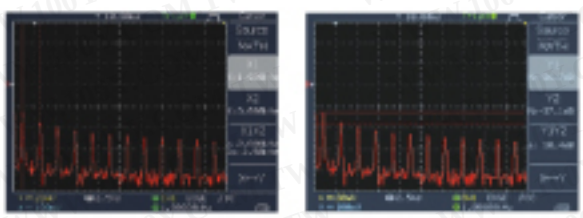
Expand by Ground



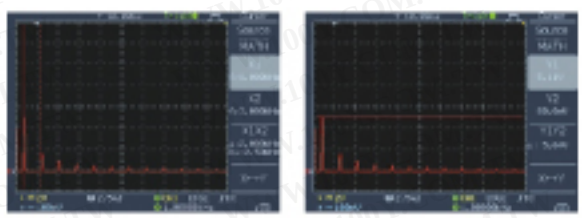
Expand by Center

In a DSO, "AC Coupling" is normally used to isolate the AC components of a signal by blocking the DC components. This is useful to see a signal with a small AC component that is offset with a large DC voltage. With AC coupling to block the DC voltage, small AC waveforms can be observed from the center of the screen for measurement or examination. However, capacitive loading under AC coupling mode may cause waveform distortion as low frequency components may become degraded, which must be avoided in frequency critical applications. The Expand by Ground and Center functions are convenient tools to expand a waveform vertically. With this feature, the vertical scale of a waveform can be expanded either from the ground reference or from the center of the screen without causing capacitive loading.

E. FFT & FFTrms



FFT Measurement



FFT rms Measurement

To observe the fundamental and harmonic components of a signal, the FFT math function on a digital storage oscilloscope is often used.
Typically the traditional unit of the FFT is a decibel (dB).

However using dB, it is difficult to identify the fundamental frequency of a signal from a noisy spectrum sometimes. With the FFTrms function, the GDS-1000A series can clearly display the fundamental frequency of an acquired waveform.

F. PC REMOTE CONTROL SOFTWARE

Microsoft® Excel & Word add-ins Supported.

Using a USB port coupled with FreeWave remote monitoring software is the easiest and most convenient way to capture data from the GDS-1000A. With FreeWave, a screenshot can be saved as an image file (.bmp/.jpg),waveform data(.csv)can be logged and movie files(.wmv) can be recorded in real-time. Not only can FreeWave monitor and record waveforms over a long period of time, but previously recorded waveforms can also be observed. Instrument settings can even be configured without the need to learn incomprehensible command line syntax. With the simple user interface and robust features, FreeWave allows you to get the most out of the GDS-1000A with little effort. When a test report is needed you no longer have to copy and paste data into your documents. With the Microsoft ®Excel or Word Add-ins, you only need to click the Add-in icon to import your test data, saving you time and effort.

G. GUARANTEED PROTECTION

Buy GDS-1000A Series, get a limited lifetime warranty.

By providing the Global Lifetime Warranty Program for the GDS-1000A digital storage oscilloscope series, we believe you can have the same confidence we do in the quality of each GDS-1000A DSO. By purchasing a GDS-1000A you can be assured of a highly economical, low maintenance, quality DSO backed with the protection of the LifeTime Warranty program.
The Lifetime Warranty Program guarantees customers will be supported regardless of their location. Customers will receive at least 5 years of full support even after production has ceased.
For more details and applicable conditions regarding the LifeTime Service program, please visit the GW Instek website or consult your nearest distributor.

SPECIFICATIONS

		GDS-1062A	GDS-1102A	GDS-1152A
VERTICAL	Channels	2	2	2
	Bandwidth	DC–60MHz(-3dB)	DC–100MHz(-3dB)	DC–150MHz(-3dB)
	Rise Time	<5.8ns Approx.	<3.5ns Approx.	<2.3ns Approx.
	Sensitivity	2mV/div – 10V/div (1-2-5 increments)		
	Accuracy	± (3% x |Readout| + 0.1 div + 1mV)		
	Input Coupling	AC, DC & Ground		
	Input Impedance	1MΩ± 2%, ~15pF		
	Polarity	Normal & Invert		
	Maximum Input	300V (DC+AC peak), CATII		
	Waveform Signal Process	+, −, x, FFT, FFTrms		
	Offset Range	2mV/div – 50mV/div : ±0.4V ; 100mV/div – 500mV/div : ±4V ; 1V/div – 5V/div : ±40V; 10V/div : ±300V		
	Bandwidth Limit	20MHz (- 3dB)		
TRIGGER	Source	CH1 , CH2 , Line , EXT		
	Mode	AUTO, NORMAL, SINGLE, TV, Edge, Pulse width		
	Coupling	AC , DC , LF rej. , HF rej. , Noise rej.		
	Sensitivity	DC ~ 25MHz: Approx. 0.5div or 5mV; 25MHz ~ 60/100/150MHz: Approx. 1.5div or 15mV		
EXT TRIGGER	Range	DC : ±15V, AC :±2V		
	Sensitivity	DC – 25MHz : – 50mV ; 25MHz – 60/100/150MHz : –100mV		
	Input Impedance	1MΩ ±2% , – 15pF		
	Maximum Input	300V (DC + AC peak) , CATII		
HORIZONTAL	Range	1ns/div – 50s/div (1-2-5 increments); ROLL : 250ms/div – 50s/div		
	Modes	MAIN, WINDOW, WINDOW ZOOM, ROLL, X-Y		
	Accuracy	±0.01%		
	Pre-Trigger	10 div maximum		
	Post-Trigger	1000 div		
X-Y MODE	X-Axis Input	Channel 1		
	Y-Axis Input	Channel 2		
	Phase Shift	±3°at 100kHz		
SIGNAL ACQUISITION	Real-Time Sample Rate	1GSa/s maximum		
	Equivalent Sample Rate	25GSa/s maximum		
	Vertical Resolution	8 Bits		
	Record Length	2Mega Points maximum		
	Acquisition Mode	Normal, Peak Detect, Average		
	Peak Detection	10ns/500ns/div – 50s/div)		
	Average	2 , 4 , 8 , 16 , 32 , 64 , 128 , 256		
CURSORS AND MEASUREMENT	Voltage Measurement	V_{pp} , V_{amp} , V_{avg} , V_{rms} , V_{hi} , V_{lo} , V_{max} , V_{min} , Rise Preshoot/Overshoot, Fall Preshoot/Overshoot		
	Time Measurement	Freq , Period , Rise Time , Fall Time , Positive Width , Negative Width , Duty Cycle		
	Delay Measurement	Eight different delay measurement		
	Cursors Measurement	Voltage difference between cursors (ΔV) Time difference between cursors (ΔT)		
	Auto Counter	Resolution : 6 digits, Range : 2Hz ~ bandwidth Accuracy : ±2% Signal Source: All available trigger source except the Video trigger mode		
PROBE COMPENSATION SIGNAL	Frequency Range	1kHz ~ 100kHz, adjustable 1kHz/STEP		
	Duty Cycle Range	5% ~ 95% adjustable, 5%/STEP		
CONTROL PANEL FUNCTION	Autoset	Adjust Vertical VOLT/DIV, Horizontal TIME/DIV, and Trigger levelautomatically		
	Save Setup	15 sets of measurement conditions		
	Save Waveform	15 sets of waveform		
DISPLAY	TFT LCD Type	5.6 inch		
	Display Resolution	320 (Horizontally) x 234 (Vertically) Dots		
	Display Graticule	8 x 10 divisions		
	Display Brightness	Adjustable		
INTERFACE	USB Device	USB1.1 & 2.0 full speed compatible (printers and flash disk not supported)		
	SD Card Slot	Image (BMP) waveform data (CSV) and setup (SET)		
POWER SOURCE	Line Voltage Range	AC 100V – 240V , 48Hz – 63Hz , Auto selection		
MISCELLANEOUS	Multi-Language Menu	Available		
	Online Help	Available		
DIMENSIONS & WEIGHT	310(W) x 142 (H) x 140(D)mm, Approx. 2.5kg			

The specifications apply when the oscilloscope is powered on for at least 30 minutes under +20°C~+30°C .

Specifications subject to change without notice. DS-1000MCD1BH

ORDERING INFORMATION

GDS-1062A 60MHz, 2 channel, 1GSa/s & 2Mega Memory DSO
GDS-1102A 100MHz, 2 channel, 1GSa/s & 2Mega Memory DSO
GDS-1152A 150MHz, 2 channel, 1GSa/s & 2Mega Memory DSO

ACCESSORIES

User manual x1, Power cord x1,
Probe GTP-060A-4 or equivalent : 60MHz (10:1/ 1:1) Switchable passive probe for GDS-1062A (one per channel)
Probe GTP-100A-4 or equivalent : 100MHz (10:1/ 1:1) Switchable passive probe for GDS-1102A (one per channel)
Probe GTP-150A-2 or equivalent : 150MHz (10:1/ 1:1) Switchable passive probe for GDS-1152A (one per channel)

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