

## GDS-3000 Series

## FEATURES

- 500/350/250/150MHz Bandwidth
- Dual Sampling Modes: 5GSa/s Real-Time Sampling Rate and 100GSa/s Equivalent Time Sampling Rate
- 25k Points Memory for Each Input Channel
- VPO (Visual Persistence Oscilloscope) Technology to Display Less-Frequently-Occurred Signals
- 8" 800 x 600 High Resolution TFT LCD Display
- Unique Split Screen System with Independent Setting for Each Input Channel
- Three Input Impedance Selections: 50Ω / 75Ω / 1MΩ
- Optional Power Measurement Software for Power Supply Measurement and Analysis
- Optional Serial BUS Triggering and Decoding Software Supporting I<sup>2</sup>C, SPI and UART
- Support GW APP Software-Easy Upgrade of Feature New Function



Front



Rear Panel

## APPLICATIONS

- Industrial and Educational R&D Labs
- Product Testing and Quality Assurance
- Power Supply and Serial BUS Design
- System Integration & Debugging
- Maintenance & Repair Service



Visual Persistence Oscilloscope

The GDS-3000 Series digital storage oscilloscope is a full-featured and powerful tool that allows you to tackle complex measurement issues with ease.

The GDS-3000 Series, carrying a maximum bandwidth of 500MHz, is equipped with a real-time sampling rate up to 5GSa/s and an equivalent-time sampling rate of 100GSa/s. The large 8-inch SVGA TFT LCD screen, combined with the advanced digital signal processing technology – VPO, provides meticulous detail and clarity for the displayed waveforms. The GDS-3000 Series gives you confidence not to miss any part of the test signal in the product verification and debugging stages and allows you to speed up your task without hesitation.

## Rich Features

With widespread applications of embedded system using serial bus communications, resolving unexpected issues, such as propagation delay and bus contention, is often a challenge to design and testing engineers. The GDS-3000 Series provides (optional) design and testing engineers with powerful tools for the communication analysis and debugging of the most popular serial interface projects including I<sup>2</sup>C, SPI and UART.

To fulfill the increasing power measurement demands, as a green energy trend, GDS-3000 provides an embedded power-measurement software (optional), which includes measurements of Power Quality, Harmonics, Ripple and Inrush Current, meeting requirements of most power measurement standards.

## Hi-tech Platform

With 5GSa/s sampling and Visual Persistence Oscilloscope (VPO) technology, GDS-3000 displays waveforms truthfully and captures less-frequently-occurred signals, like glitches or runs, simultaneously without missing any spot of waveform information. A unique Split-screen feature allows each input channel to be operated independently with respective setting and waveform display. This gives users flexibility to use GDS-3000 Series as a multi-scope-in-one DSO.

To alleviate the burden of manual operation and to reduce human error, additional features such as auto range are used to automatically adjust the horizontal and vertical scale of a displayed signal so that waveforms are displayed with the best possible viewing ratio.

The I/O Interfaces give you a good range of choices and convenience. In the front panel, a USB host port is used for easy data access. And in the rear panel, another USB port can be used for remote control or for screen printout directly from PictBridge compatible printers. In addition, RS-232 and LAN interfaces provide the flexibility supporting broad range of applications. The SVGA video output port allows you to display the screen on an external projector or monitor for information sharing and discussion.

## Unique Signal Processing -VPO

The GDS-3000 VPO (Visual Persistence Oscilloscope) technology adopts a very unique signal-processing design. To significantly increase the data processing speed and the waveform capture rate, GDS-3000 uses FPGA platform to replace conventional serial microprocessor architecture. This unique technology allows the GDS-3000 Series to show waveforms in a fashion like that of an analog oscilloscope. The VPO three dimension waveform display, containing the information of amplitude, time and intensity, provides more useful signal contents for the analysis of rapid-changed events, such as video, jitter and infrequent signals.

SPECIFICATIONS								
	GDS-3152	GDS-3154	GDS-3252	GDS-3254	GDS-3352	GDS-3354	GDS-3502	GDS-3504
VERTICAL SENSITIVITY								
Channels	2Ch+EXT		4Ch+EXT		2Ch+EXT		4Ch+EXT	
Bandwidth	DC~150MHz(-3dB)		DC~250MHz(-3dB)		DC~350MHz(-3dB)		DC~500MHz(-3dB)	
Rise Time	2.3ns		1.4ns		1ns		700ps	
Bandwidth Limit	20MHz		20M/100MHz		20M/100M/200MHz		20M/100M/200/350MHz	
Vertical Resolution	The bandwidth of the 75Ω input impedance is limited to 150MHz only 8 bits 2mV~5V/div 2mV~1V/div AC, DC, GND 1MΩ// 15pF approx. ±(3% X  Readout  + 0.1div + 1mV) Normal , Invert 300Vrms , CAT I 5 Vrms , CAT I 2mV/div ~ 100mV/div : ±0.5V ; 200mV/div ~ 5V/div : ±25V Add, Subtract, Multiply, and Divide waveforms, FFT, FFTrms ; FFT : Spectral magnitude. Set FFT vertical scale to Linear RMS or dBV RMS, and FFT window to Rectangular, Hamming, Hanning or Blackman-Harris, Integration, Differentiation: App installation required							
Vertical Resolution(1MΩ)								
Vertical Resolution(50/75Ω)								
Input Coupling								
Input Impedance								
DC Gain Accuracy								
Polarity								
Maximum Input Voltage (1MΩ)								
Maximum Input Voltage (50/75Ω)								
Offset Position Range								
Waveform Signal Process								
Trigger Mode								
Trigger Type	Edge, Pulse Width(Glitch), Video, Runt, Rise & Fall(Slope), Alternate, Event-Delay(1~65,535 events), Time-Delay(Duration;10ns~10s), I <sup>2</sup> C, SPI, UART(optional)							
Trigger Holdoff Range	10ns ~ 10s							
Coupling	AC, DC, LF rej. , HF rej. , Noise rej.							
Sensitivity	DC~30MHz Approx. 1div or 10mV; 50MHz~150MHz Approx. 1.5div or 15mV; 150MHz~350MHz Approx. 2div or 20mV; 350MHz~500MHz Approx. 2.5div or 25mV							
EXT TRIGGER								
Range	±15V							
Sensitivity	DC ~ 150MHz Approx. 100mV							
Input Impedance	150MHz ~ 250MHz Approx. 150mV;250MHz ~ 350MHz Approx. 150mV;350MHz~500MHz Approx. 200mV							
	1MΩ±3%, ~16pF							
HORIZONTAL								
Time Base Range	1ns/div ~ 100s/div (1-2-5 increments; GDS-3502/3504 1-2.5-5 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							
X-Y MODE								
X-Axis Input/Y-Axis Input	Channel 1; Channel 3/Channel 2; Channel 4							
Phase Shift	±3°at 100kHz							
SIGNAL ACQUISITION								
Real Time Sample Rate	2.5GSa/s	5GSa/s	2.5GSa/s	5GSa/s	5GSa/s	5GSa/s	4GSa/s	4GSa/s
ET Sample Rate	100GSa/s maximum for all models							
Memory Depth	25k points							
Acquisition Mode	Normal, Average, Peak detect, High resolution, Single Sequence							
	Average: 2 ~ 256 waveforms ; Peak detect: 2ns							
CURSORS AND MEASUREMENT								
Cursors	Amplitude, Time, Gating available							
Automatic Measurement	28 sets: Vpp , Vamp , Vavg , Vrms , Vhi , Vlo , Vmax , Vmin , Rise Preshoot/ Overshoot , Fall Preshoot/Overshoot, Freq , Period , Rise time , Fall time , Positive width , Negative width , Duty cycle, Phase, and eight different delay measurements (FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF)							
Cursors Measurement	Voltage difference between cursors (ΔV) Time difference between cursors (ΔT)							
Auto Counter	6 digits, range from 2Hz minimum to the rated bandwidth							
POWER MEASUREMENTS(OPTION)								
Power Quality Measurements	VRMS, VCrest factor, Frequency, IRMS, ICrest factor, True power, Apparent power, Reactive power, Power factor, Phase angle.							
Harmonics	Freq, Mag, Mag rms, Phase, THD-F, THD-R, RMS							
Ripple Measurements	Vripple ,Iripple							
In-rush current	First peak, second peak							
CONTROL PANEL FUNCTION								
Autoset	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo autoset							
Auto-range	Allow automatically adjusts the time base and/or the vertical scale of displayed waveform when the frequency and/or the amplitude of input signal changed.							
Save Setup	20 sets							
Save Waveform	24 sets							
DISPLAY SYSTEM								
Display	Display mode : YT ; XY							
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, Infinite persistence							
Display Graticule	8 x 10 divisions							
Display Brightness	Adjustable							
Waveform Capture Rate	3500 waveform /sec real time							
INTERFACE								
RS-232C	DB-9 male connector							
USB Port	2 sets USB 2.0 high-speed host port ;1 set USB high-speed 2.0 device port							
Ethernet Port (LAN)	RJ-45 connector, 10/100Mbps; Interface: LAN added to Ethernet Port							
SVGA Video Port	DB-15 female connector, monitor output for display on SVGA monitors							
GPIO	GPIOB-to-USB Adapter (Optional)							
Go/NoGo BNC	5V Max/10mA TTL open collector output							
Internal Flash Disk	64MB							
Kensington Style Lock	Rear-panel security slot connects to standard Kensington-style lock							
Line Output	3.5mm stereo jack for Go/NoGo audio alarm							
POWER SOURCE								
Line Voltage Range	AC 100V ~ 240V, 48Hz ~ 63Hz, auto selection							
Operation Environment	Temperature: 0°C to 50°C. Relative Humidity : ≤ 80%, 40°C or below; ≤ 45%, 41°C ~ 50°C							
MISCELLANEOUS								
Multi-Language Menu	Available							
On-Line Help	Available							
Time Clock	Time and date, provide the date/time for saved data							
DIMENSIONS & WEIGHT								
400(W) X 200(H) X 130(D)mm, Approx. 4 kg								

\* Three-year warranty, excluding probes & LCD display panel.

Specifications subject to change without notice. DS-3000GD2DH

ORDERING INFORMATION	
GDS-3502	500MHz, 2-Channel, Visual Persistence DSO
GDS-3504	500MHz, 4-Channel, Visual Persistence DSO
GDS-3352	350MHz, 2-Channel, Visual Persistence DSO
GDS-3354	350MHz, 4-Channel, Visual Persistence DSO
GDS-3252	250MHz, 2-Channel, Visual Persistence DSO
GDS-3254	250MHz, 4-Channel, Visual Persistence DSO
GDS-3152	150MHz, 2-Channel, Visual Persistence DSO
GDS-3154	150MHz, 4-Channel, Visual Persistence DSO
ACCESSORIES	
User manual x 1 ,Power cord x 1	
GTP-151R : 150MHz 10:1 passive probe for GDS-3152/3154 (one per channel)	
GTP-251R : 250MHz 10:1 passive probe for GDS-3252/3254 (one per channel)	
GTP-351R : 350MHz 10:1 passive probe for GDS-3352/3354 (one per channel)	
GTP-501R : 500MHz 10:1 passive probe for GDS-3502/35054 (one per channel)	

OPTION	
DS3-PWR	Power analysis software: Power quality/Harmonic/Ripple/In-rush current measurements
DS3-SBD	Serial Bus analysis software: I <sup>2</sup> C/SPI/UART (only 4-channel models support SPI function)
GUG-001	GPIOB to USB adapter
OPTIONAL ACCESSORIES	
GDP-025	25MHz High voltage differential probe
GDP-050	50MHz High voltage differential probe
GDP-100	100MHz High voltage differential probe
GCP-005	1kHz/5A Current probe
GCP-020	10kHz/200A Current probe
GCP-100	100kHz/100A Current probe
GCP-530	50MHz/30A Current probe
GCP-1030	100MHz/30A Current probe
GCP-206P	Power supply for current probe(2 input channel)
GCP-425P	Power supply for current probe(4 input channel)
GTP-033A	35MHz 1:1 Passive probe
GTP-352R	350MHz 20:1 Passive probe
GTC-001	Instrument cart 450(W)x430(D)mm(120V input socket)
GTC-002	Instrument cart 330(W)x430(D)mm(120V input socket)
GSC-008	Soft Carrying Case
GTL-110	Test lead, BNC to BNC connector
GTL-232	RS-232C cable, 9-pin female to 9-pin female,
	Null Modern for computer
GTL-246	USB 2.0 cable, A-B type cable 4P, 1800mm
GRA-411	Rack Adapter Panel
GDB-03	Oscilloscope Education and Training Kit
GKT-100	Deskew fixture
FREE DOWNLOAD	
PC Software	FreeWave software
Driver	USB driver ; LabView driver

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