

## 350MHz/250MHz/150MHz DIGITAL STORAGE OSCILLOSCOPE



**VPO**  
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 350MHz, 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.

### Convenient platform

With 5GSa/s sampling and Visual Persistence Oscilloscope (VPO) technology, GDS-3000 displays waveforms truthfully and captures less-frequently-appeared signals, like glitches or runts, 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.

## GDS-3000 Series

### FEATURES

- 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-Appared Signals
- 8" 800 x 600 High Resolution TFT LCD Display
- Unique Split Screen System with Independent Setting for Each Signal Channel
- Three Input Impedance Selection: 50Ω /75Ω /1MΩ
- Optional Power Measurement Software for Power Supply Measurement and Analysis
- Optional Serial BUS Triggering, Decoding Software Supporting I<sup>2</sup>C, SPI and UART



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

1.800.561.8187

GDS-3000 Series

www.itm.com

information@itm.com

Made to Measure Since 1975

## SPECIFICATIONS

		GDS-3152	GDS-3154	GDS-3252	GDS-3254	GDS-3352	GDS-3354
<b>VERTICAL</b>	<b>Channels</b>	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT
	<b>Bandwidth</b>	DC~150MHz(-3dB)	DC~150MHz(-3dB)	DC~250MHz(-3dB)	DC~250MHz(-3dB)	DC~350MHz(-3dB)	DC~350MHz(-3dB)
<b>VERTICAL</b>	<b>Rise Time</b>	2.3ns	2.3ns	1.4ns	1.4ns	1ns	1ns
	<b>Vertical Resolution</b>	8 bits					
	<b>Vertical Resolution(1M<math>\Omega</math>)</b>	2mV~5V/div					
	<b>Vertical Resolution(50/75<math>\Omega</math>)</b>	2mV~1V/div					
	<b>Input Coupling</b>	AC, DC, GND					
	<b>Input Impedance</b>	1M $\Omega$ // 16pF					
	<b>DC Gain Accuracy</b>	$\pm(3\% \times  \text{Readout}  + 0.1\text{div} + 1\text{mV})$					
	<b>Polarity</b>	Normal, Invert					
	<b>Maximum Input Voltage(1M<math>\Omega</math>)</b>	300V (DC+AC Peak), CAT I					
	<b>Maximum Input Voltage(50/75<math>\Omega</math>)</b>	5 Vrms max, CAT I					
	<b>Offset Position Range</b>	2mV/div ~ 100mV/div : $\pm 0.5\text{V}$ ; 200mV/div ~ 5V/div : $\pm 25\text{V}$					
	<b>Bandwidth Limit</b>	20MHz/100MHz/200MHz (-3dB)					
	<b>Waveform Signal Process</b>	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.					
<b>TRIGGER</b>	<b>Source</b>	CH1, CH2, Line, EXT					
	<b>Trigger Mode</b>	Auto (supports Roll Mode for 100 ms/div and slower), Normal, Single Edge, Pulse Width, Video, Runt, Rise & Fall, Alternate,					
	<b>Trigger Type</b>	Event-Delay(1~65,535 events), Time-Delay(10ns~10s) (for 4-channel models only), I <sup>2</sup> C, SPI, UART(optional)					
	<b>Trigger Holdoff Range</b>	10ns ~ 10s					
	<b>Coupling Sensitivity</b>	AC, DC, LF rej., Hf rej., Noise rej. DC~30MHz Approx. 0.5div or 5mV; 30MHz~150MHz Approx. 1.5div or 15mV; 150MHz~350MHz Approx. 2div or 20mV					
<b>EXT TRIGGER</b>	<b>Range</b>	$\pm 15\text{V}$					
	<b>Sensitivity</b>	DC ~ 30MHz Approx. 50mV; 30MHz ~ 150MHz Approx. 100mV 150MHz ~ 250MHz Approx. 150mV; 250MHz ~ 350MHz Approx. 150mV					
<b>HORIZONTAL</b>	<b>Input Impedance</b>	1M $\Omega$ $\pm 3\%$ , ~16pF					
	<b>Range</b>	1ns/div ~ 50s/div (1-2-5 increments); ROLL : 100ms/div ~ 100s/div					
	<b>Pre-trigger Accuracy</b>	10 div maximum 1,000 div $\pm 20$ ppm over any $\geq 1$ ms time interval					
<b>X-Y MODE</b>	<b>X-Axis Input/Y-Axis Input Phase Shift</b>	Channel 1; Channel 3/Channel 2; Channel 4 $\pm 3^\circ$ at 100kHz					
<b>SIGNAL ACQUISITION</b>	<b>Real Time Sample Rate</b>	2.5GSa/s	5GSa/s	2.5GSa/s	5GSa/s	5GSa/s	5GSa/s
	<b>ET Sample Rate</b>	100GSa/s maximum for all models					
	<b>Record Length</b>	25k points					
	<b>Acquisition Mode</b>	Normal, Average, Peak Detect, High Resolution, Single					
<b>CURSORS AND MEASUREMENT</b>	<b>Peak Detection</b>	2ns (Max.) Normal: Acquire sampled values; Average: From 2 ~ 256 waveforms included in average; Peak Detect: Captures glitches as narrow as 2 ns at all sweep speeds; Hi Res: Real-time boxcar averaging reduces random noise and increases vertical resolution.					
	<b>Cursors</b>	Amplitude, Time, Gating available 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)					
<b>POWER MEASUREMENTS (OPTION)</b>	<b>Cursors measurement Auto counter</b>	Voltage difference between cursors ( $\Delta\text{V}$ ) Time difference between cursors ( $\Delta\text{T}$ ) 6 digits, range from 2Hz minimum to the rated bandwidth					
	<b>Power Quality Measurements Harmonics</b>	VRMS, VCrest Factor, Frequency, IRMS, ICrest Factor, TruePower, Apparent Power, Reactive Power, Power Factor, Phase Angle. Freq, Mag, Mag rms, Phase, THD-F, THD-R, RMS V ripple, I ripple First peak, second peak					
<b>CONTROL PANEL FUNCTION</b>	<b>Ripple Measurements In-rush current</b>	First peak, second peak					
	<b>Autoset</b>	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with undo autoset					
<b>DISPLAY SYSTEM</b>	<b>Auto-Range</b>	Allow users to quickly move from test point to test point without having to reset the oscilloscope for each test point					
	<b>Save Setup</b>	20set					
	<b>Save Waveform</b>	24set					
<b>INTERFACE</b>	<b>TFT LCD Type</b>	8" TFT LCD SVGA color display(LED Back-light)					
	<b>Display Resolution</b>	800 horizontal x 600 vertical pixels (SVGA)					
	<b>Interpolation</b>	Sin(x)/x & Equivalent Time Sampling					
	<b>Waveform Display</b>	Dots, vectors, variable persistence, infinite persistence					
	<b>Display Graticul</b>	8 x 10 divisions Adjustable					
<b>POWER SOURCE MISCELLANEOUS</b>	<b>RS-232C</b>	DB-9 male connector					
	<b>USB Port</b>	2 sets USB 2.0 High-speed host port; 1 set USB High-speed 2.0 device port					
	<b>Ethernet Port</b>	RJ-45 connector, 10/100Mbps					
	<b>SVGA Video Port</b>	DB-15 female connector, monitor output for display on SVGA monitors					
	<b>CPIB</b>	USB-to-GPIB converter (Option)					
	<b>Go/NoGo BNC</b>	5V Max/10mA TTL Open collector output					
	<b>Internal Flash Disk</b>	64MB					
<b>POWER SOURCE MISCELLANEOUS</b>	<b>Kensington Style Lock</b>	Rear-panel security slot connects to standard Kensington-style lock					
	<b>Line Output</b>	3.5mm stereo jack for Go/NoGo audio alarm					
<b>POWER SOURCE MISCELLANEOUS</b>	<b>Line Voltage Range</b>	AC 100V ~ 240V, 48Hz ~ 63Hz, Auto selection					
<b>POWER SOURCE MISCELLANEOUS</b>	<b>Multi-Language Menu</b>	Available					
	<b>On-Line Help</b>	Available					
	<b>Time clock</b>	Time and Data, Provide the Data/Time for saved data					
<b>DIMENSIONS &amp; WEIGHT</b>	400(W) X 200(H) X 130(D)mm, Approx. 4 kg						

Specifications subject to change without notice.

DS-3000GD1DH

## ORDERING INFORMATION

<b>GDS-3352</b>	350MHz, 2-Channel, Visual Persistence DSO
<b>GDS-3354</b>	350MHz, 4-Channel, Visual Persistence DSO
<b>GDS-3252</b>	250MHz, 2-Channel, Visual Persistence DSO
<b>GDS-3254</b>	250MHz, 4-Channel, Visual Persistence DSO
<b>GDS-3152</b>	150MHz, 2-Channel, Visual Persistence DSO
<b>GDS-3154</b>	150MHz, 4-Channel, Visual Persistence DSO

## ACCESSORIES

User manual x 1, Power cord x 1  
 GTP-151R:150MHz(10:1/1:1) Switchable Passive Probe for GDS-3152/3154(one per channel)  
 GTP-251R:250 MHz(10:1/1:1) Switchable Passive Probe for GDS-3252/3254(one per channel)  
 GTP-351R:350MHz(10:1/1:1) Switchable Passive Probe for GDS-3252/3254(one per channel)

## OPTION

**DS3-PWR** Power analysis software: Power quality/Harmonic/Ripple/In-rush current measurements  
**DS3-SBD** Series Bus analysis software: I<sup>2</sup>C/SPI/UART/RS-232/422/485(for 4-channel models only)  
**Opt.01** GPIB to USB Converter

## OPTIONAL ACCESSORIES

<b>GDP-025</b>	25MHz high voltage differential probe
<b>GDP-050</b>	50MHz high voltage differential probe
<b>GDP-100</b>	100MHz high voltage differential probe
<b>GCP-530</b>	50MHz/30A Current probe
<b>GCP-1030</b>	100MHz/30A Current probe
<b>GCP-206P</b>	Power supply for current probe (2 input channel)
<b>GCP-425P</b>	Power supply for current probe (4 input channel)

## FREE DOWNLOAD

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