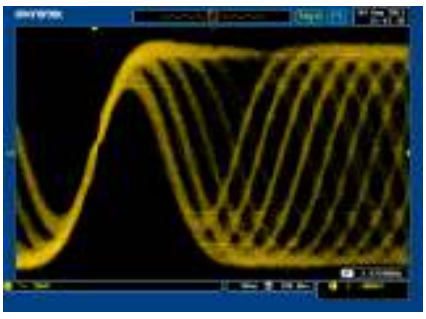
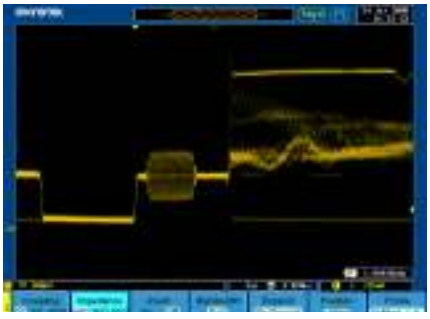
GDS-3000 Series DSO New Product Announcement

INSTEK AMERICA is announcing its new GDS-3000 Series Digital Storage Oscilloscopes, which creates a new benchmark of DSO value in the field. With 5GSa/s sampling and Visual Persistence Oscilloscope (VPO) technology, GDS-3000 displays waveforms truthfully and captures less-frequently-occurred signals, like glitches or runts, simultaneously without missing any spot of waveform information. A 100GSa/s ET sampling rate (10ps pt-pt resolution) is provided to accurately reconstruct repetitive waveforms avoiding software interpolation distortion. The 5GSa/s real-time sampling combined with a good variety of trigger selections enable the capture of fast and complex signals and display waveforms with Sinc interpolation. The 8" LCD with SVGA (800 x 600) resolution provides an ample display space to accommodate multiple waveform signals, on-screen menu, setting status and associated measurement information, giving all-at-a-glance convenience. 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 the GDS-3000 Series as a multi-scope-in-one DSO.

5GSa/s Sampling & VPO Technology

The GDS-3000 Series adopts VPO (Visual Persistence Oscilloscope) signal processing technology to enhance the performance of multi-gray-scale waveform display. The FPGA parallel processing, instead of conventional microprocessor architecture, is applied in GDS-3000 Series design to significantly increase the data processing speed and therefore increase the waveform update rate. This technology allows the GDS-3000 Series to display waveforms with various gray scales based on the occurrence frequencies, a fashion analogous to the analog oscilloscope display. As the visual persistence oscilloscope contains 3-dimension waveform data, including amplitude, time and intensity, for each waveform spot, it provides more useful signal information than a normal digital storage

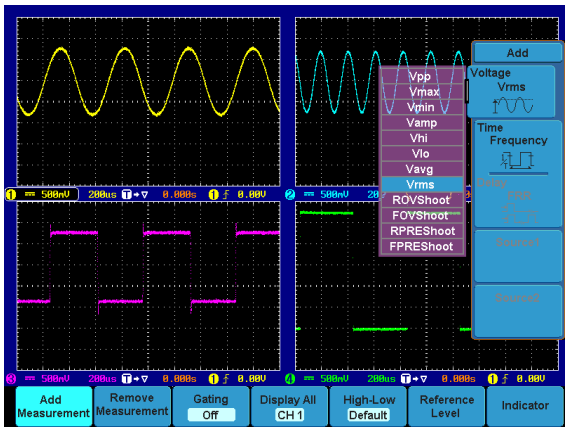




oscilloscope can do. The high-speed data processing of VPO technology enables the signal analysis of rapid events such as video, jitter, glitch and runt.

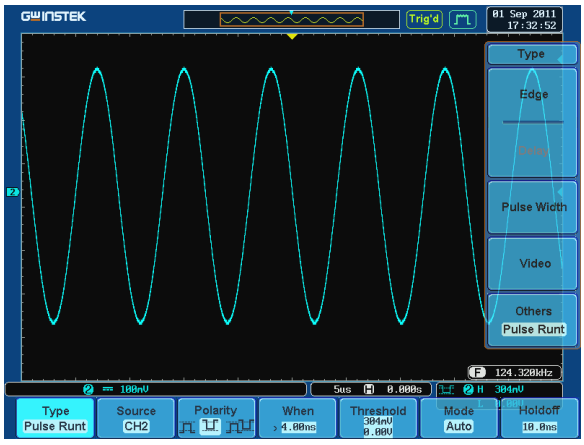
The GDS-3000 Series features a maximum real-time sampling rate of 5GSa/s, which is superior to most of the equivalent oscilloscopes available in the market today. (2.5GSa/s maximum sampling rate for GDS-3152 & GDS-3252). The series is also equipped with an equivalent- time sampling rate of 100 GSa/s, providing an economic solution for the waveform acquisition and reconstruction of very high-speed repetitive signals. The fast-acquisition capability along with VPO signal processing technology, make GDS-3000 a very handy tool for observing occasionally-occurred signals such as transient and inrush events. With powerful technology, GDS-3000 Series gives you full confidence in every acquisition of complex waveform that adheres to high-speed circuit design of modern products.

Unique Split Screen Function



The unique split screen feature of GDS-3000 Series allows each input channel to be operated independently with respective setting and waveform display. The time base, the vertical sensitivity, and the trigger selections can be done by each channel separately, and the waveform of each input signal can be shown on the individual part of the screen. This nearly four-DSO-in-one feature is very useful for the applications that need to simultaneously see the details of multiple waveforms with very different characteristics. The 8-inch high resolution 800x600 LCD display makes the split screen a pleasant observation environment to view the details of complex signals.

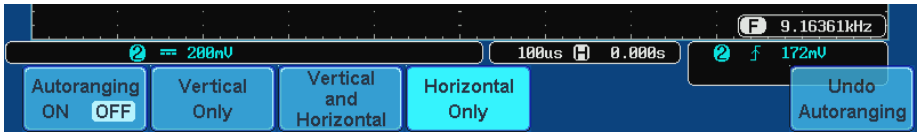
Complete Set of Trigger Functions



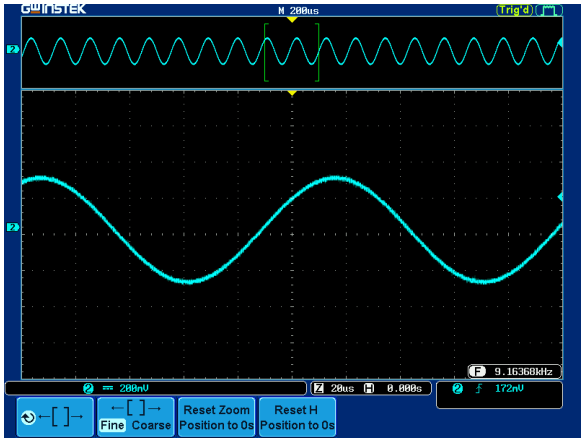
Besides Edge trigger, the GDS-3000 Series also offers various trigger functions, including Video, Pulse Width, Runt, Rise Time & Fall Time(specific time length), Alternate, Delay by Time, Delay by Event, and Hold-Off. The high sampling rate, the VPO signal processing & display, and the flexible trigger function all together make the GDS-3000 Series a powerful tool for waveform capture and display of various types of signals.

Auto Range for Both Time Base and Vertical Scale

The Auto Range function automatically adjusts the time base and/or the vertical scale of displayed waveform when the frequency and/or the amplitude of input signal changed. This function gives user the convenience to have DSO always display waveform in a proper fashion on the screen tracking the frequency and amplitude changes of the input signal. It is especially useful when the user needs to alternately probe and test multiple circuit points containing signals with different frequencies and amplitudes.

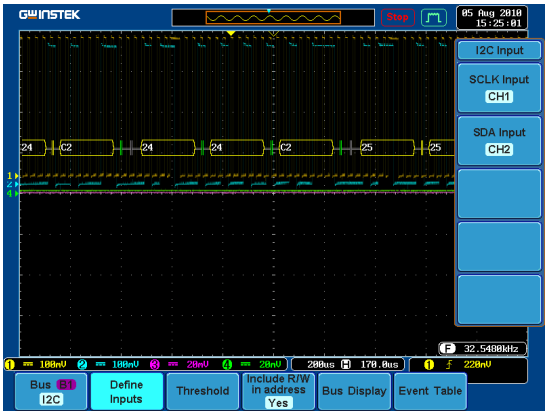


Dual Display Window Zoom



The GDS-3000 Series Window Zoom function provides dual display mode to show the main waveform and the magnified section of zoomed-in waveform at the same time. Under “Zoom” mode, the width and the position of zoom-in window over the main waveform can be selected to get the magnified waveform as needed for detailed observation. To quickly and accurately move the zoom-in window to the expected position, the “Coarse” mode helps move the window to the needed position immediately and the “Fine” mode provides fine adjustment to precisely place the window in the exact position.

Serial Bus Triggering and Decoding (Optional)



With serial bus technology being widely used in embedded applications, the proper triggering and analysis of flowing data, control signal and associated pulse waveforms in serial bus communication has been a difficult job and challenge to design engineers. The Serial Bus Analysis software of GDS-3000 Series carries complete analysis tools for triggering and decoding of commonly used serial bus interfaces, including I^2C, SPI and UART. Without spending time to study serial bus regulation details, the user only needs to set the trigger condition on GDS-3000 to get the data slots of interest.

Power Analysis Software for Power Supply Measurements (Optional)

The Power Analysis software contains four measurement functions, including Power Quality, Harmonics, Ripple and Inrush Current. The Power Quality analysis function allows the measurements of Voltage, Current, Frequency, Power and other quality related parameters for power source efficiency improvement. The Harmonics analysis function performs evaluation of power waveform distortion and gives harmonic test data for power source design and quality check. This function is complied with IEC 61000-3-2 standard. The Ripple measurement function, acquiring the ripple and noise overriding the DC waveform, is used to evaluate the DC power source quality. The Inrush Current measurement function is used to measure the power-on surge current, which may cause the damage of the device circuit.

Extendable Application Software

The GDS-3000 Series allows future installation of additional application software at the user site. This provides an open environment for optional software upgrade and additional feature built-in whenever the GDS-3000 user has the need. The flexibility of software installation platform keeps the DSO being in use always up-to-date.

Various Interfaces Support

Two high-speed USB 2.0 Host ports located in both front panel and rear panel are used for easy access of stored data. In the rear panel, a USB Device port is available for remote control and hardcopy print-out through a Pictbridge compatible printer. RS-232 and LAN interfaces are provided as standard for system communication & ATE applications. A SVGA video output port allows the transfer of DSO screen image to an external projector or monitor for remote monitoring or big screen observation. A GPIB to USB adaptor is available as an option for interface conversion though the USB Device port in the front panel.

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A New Platform of High Technology.

The GDS-3000 Series is a new platform of 4-input channels, 350MHz bandwidth, 5GSa/s sampling rate, and VPO waveform display. The split screen feature has been designed to meet the requirements of multi-window & multi-signal tests in the research and the manufacturing fields. The optional power analysis software and the optional serial bus analysis software are available to facilitate the engineer's tasks in testing and manufacturing of the associated products. Three new differential probes, GDP-025, GDP-050 & GDP-100, and two new current probes, GCP-530 & GCP-1030, are coming along with the GDS-3000 Series to provide total solutions for a wide variety of applications in the industry, service and education market sectors. The GDS-3000 Series, a high-tech platform carrying thoughtful features, brings very high customer value to both general purpose market and professional market.

GDS-3000 Series 4ch model

GDS-3000 Series 2ch model

GDS-3000 Series product description

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

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Model	GDS-3152	GDS-3154	GDS-3252	GDS-3254	GDS-3352	GDS-3354
Bandwidth	150MHz	150MHz	250MHz	250MHz	350MHz	350MHz
Channels	2	4	2	4	2	4
Memory depth	25k/Per Channel					
Real-time sample rate	2.5 GSa/s	5 GSa/s	2.5 GSa/s	5 GSa/s	5 GSa/s	5 GSa/s
Equivalent-time sample rate	100GSa/s(Maximum)					

GDS-3000 Features and Functions

• 2 and 4 channel models available with bandwidth up to 350 MHz.

• 5GSa/s real-time sample rate and 100GSa/s equivalent-time sample rate to accurately re-construct waveforms

• VPO waveform processing to capture and display abnormal signals

• Large 8" 800 * 600 high-resolution screen allows the observation of complex signal details.

• Unique split screen function enables independent setting and display of each waveform channel.

• Extendable application software to make future extensions / upgrades easy

•Three input impedances (50Ω/75Ω/1MΩ) selectable to meet different test requirements.

•Optional Power Analysis software for the power quality evaluation of a power source

•Optional Serial Bus analysis software for I^2C, SPI and UART serial signal triggering and decoding

GDS-3000 Product Position

The GDS-3000 Series is the first product, with which GW Instek migrates into high-tech DSO arena. This flagship product establishes a new position for GW DSO in the market.

1. Catch up with the leading brands in overall DSO performance
2. Set a new total-value benchmark for an advanced DSO
3. Create a strong differentiation of GW DSO against quite a lot of low cost products in the market today
4. GW DSO starts to penetrate mid-range industrial and research lab market
5. From the overall performance perspective, the GDS-3000 Series position is laid between TDS3000 Series and DPO2000 Series.

Target Markets and Associated Features

1. Industrial R&D Labs & Educational Research Labs (4 Channels, 5GSa/s sampling, VPO, and 8" LCD Display)
2. Product Testing and Quality Assurance (4 Channels, 5GSa/s sampling, VPO, Split Screen, and SVGA Video Port)
3. Power Supply and Serial Bus Design (5GSa/s sampling, 8" LCD Display, optional Power Analysis software & optional Serial Bus Analysis software)

4. System Integration & Debugging (4 Channels, 5GSa/s sampling, Compact & Light Weight)
5. Maintenance & Repair Service (350MHz, 5GSa/s sampling, Compact & Light Weight, and Affordable Price)

Competition

	GW Instek GDS-3000	Tektronix TDS3000	LeCroy WaveJet	Tektronix DPO2000
Bandwidth	150/ 250/ 350MHz	100/ 300/ 500MHz	100/ 200/ 350/ 500MHz	100/ 200MHz
Sampling rate	GDS-3152: 2.5G (1.25G per ch) GDS-3154: 5G (1.25G per ch) GDS-3252: 2.5G (1.25G per ch) GDS-3254: 5G (1.25G per ch) GDS-3352: 5G (2.5G per ch) GDS-3354: 5G (1.25G per ch)	100M model: 1.25G per ch 300M model: 2.5G per ch 500M model: 5G per ch	All model: 2G (1G per ch)	100M model: 1G per ch 200M model: 2G per ch
Record length	25kpts per ch	10kpts per ch	500kpts per ch	1Mpts per ch
Input channels	2/ 4	2/ 4	2/ 4	2/ 4
Display	8"(800*600)	6.5"(640*480)	7"(480*234)	7"(480*234)
Vertical Resolution	8 bit	9 bit	8 bit	8 bit
Split Windows	Provide	Nil	Nil	Nil
Power Measurement	Opt.	Opt.	Nil	Nil
Serial BUS Measurement	Opt.	Nil	Nil	Opt. DPO2AUTO DPO2COMP DPO2EMBD
Interface	Std. RS232/ USB/ LAN/ VGA Opt. GPIB	Std. USB Opt. RS232/ GPIB/ VGA	Std. USB Opt. GPIB Opt. LAN	Std. USB Opt GPIB Opt. LAN/ VGA
Warranty	3 yr	3 yr	1 yr	3 yr

Product Strength

1. GDS-3000 series offers 5GSa/s high speed sampling rate, VPO waveform display technology, and the unique split-screen feature to enhance the high-tech platform value.
2. GDS-3000 is a lot more affordable than its competition (15% ~ 35% less)
3. Optional Power Analysis software and Serial Bus Analysis software
4. GDS-3000 provides measurement solutions with new differential probes, including GDP-025, GDP-050 & GDP-100, and new current probes, including GCP-530 & GCP-1030.

Service Policy

1. **3 year warranty.** The GDS-3000 Series Oscilloscope with SMD design is a highly reliable product that carries a 3-year warranty, except the LCD Display panel which, carries 1 year warranty.
2. **Service Support.** The service instructions in the Service Manual will help distributors repair defective units promptly. Should the board replacement is necessary to fix the defective unit, the board swapping service support is provided by Instek America to facilitate the repair jobs done at the distributor's site.
3. **Firmware upgrade through Website**. GW Instek continues to provide the after sales support through its website. The most updated version of firmware and PC software of GDS-3000 series

will be posted on the distributor zone of GW Instek Website at http://www.gwinstek.com

Should you have any questions on the GDS-3000 Series announcement, please don't hesitate to contact us

Sincerely Yours;

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Specification

Specifications						
	GDS-3152	GDS-3154	GDS-3252	GDS-3254	GDS-3352	GDS-3354
Vertical						
Input Channels	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT	2Ch+EXT	4Ch+EXT
Bandwidth	DC~150MHz(-3dB)		DC~250MHz(-3dB)		DC~350MHz(-3dB)	
Rise Time	2.3ns		1.4ns		1ns	
Vertical Resolution	8 bits					
Vertical Resolution @ 1MΩ	2mV~5V/div					
Vertical Resolution @ 50/75Ω	2mV~1V/div					
Input Coupling	AC, DC, GND					
Input Impedance	1MΩ// 16pF					
DC Gain Accuracy	±(3% X |Readout| + 0.1div + 1mV)					
Polarity	Normal, Invert					
Maximum Input Voltage @1MΩ	300V (DC+AC Peak), CAT I					
Maximum Input Voltage @50/75Ω	5 VRMS max, CAT I					
Offset Position Range	2mV/div ~ 100mV/div : ±0.5V 200mV/div ~ 5V/div : ±25V					
Bandwidth Limit	20MHz/100MHz/200MHz (-3dB)					
Waveform Signal Process	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.					
Trigger						
Source	2 CH model: CH1, CH2, Line, EXT 4 CH model: CH1, CH2, CH3, CH4, Line, EXT					
Trigger Mode	Auto (supports Roll Mode for 100 ms/div and slower), Normal, Single					
Trigger Type	Edge, Pulse Width, Video, Runt, Rise & Fall, Alternate, Event-Delay(1~65,535 events), Time-Delay(10ns~10s), I²C, SPI, UART(optional)					
	Runt: Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.					
	I²C (optional) Trigger on Start, Repeated Start, Stop, Missing ACK, Address (7 or 10 bit), Data, or Address and Data on I²C buses					
	SPI (optional) Trigger on SS, MOSI, MISO, or MOSI and MISO on SPI buses					
	UART (optional) Trigger on Tx Start Bit, Rx Start Bit, Tx End of Packet, Rx End of Packet, Tx Data, Rx Data, Tx Parity Error, and Rx Parity Error					
Trigger Holdoff Range	10ns~10s					
Coupling	AC, DC, LF rej., Hf rej., Noise rej.					
Sensitivity	DC ~ 50MHz Approx. 1div or 10mV 50MHz ~ 350MHz Approx. 1.5div or 15Mv					

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EXT Trigger						
Range	±15V					
Sensitivity	DC ~ 150MHz Approx. 100mV 150MHz ~ 250MHz Approx. 150mV 250MHz ~ 350MHz Approx. 150mV					
Input Impedance	1MΩ±3%, ~16pF					
Horizontal						
Range	1ns/div ~ 100s/div (1-2-5 increments); ROLL : 100ms/div ~ 100s/div					
Pre-trigger	10 div maximum					
Post-trigger	1,000 div					
Accuracy	±20 ppm over any ≧1 ms time interval					
X-Y Mode						
X-Axis Input	Channel 1; Channel 3					
Y-Axis Input	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
ET Sample Rate	100GSa/s maximum for all models					
Record Length	25k points					
Acquisition Mode	Normal, Average, Peak detect, High resolution, Single					
	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.					
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 angle, 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	V ripple ,I ripple					
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 set					
Save Waveform	24 set					
Display System						
TFT LCD Type	8" TFT LCD SVGA color display					
Display Resolution	800 horizontal × 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
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	RJ-45 connector, 10/100Mbps
SVGA Video Port	DB-15 female connector, monitor output for display on SVGA monitors
GPIB	GPIB to USB Adapter (Option)
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
Miscellaneous	
Multi-language menu	Available
On-line help	Available
Time clock	Time and Data, Provide the Data/Time for saved data
Dimensions & Weight	400(W) X 200(H) X 130(D)mm, approx 4 kg

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ORDERING INFORMATION

GDS-3354	350MHz, 4channel, Visual Persistence DSO
GDS-3352	350MHz, 2channel, Visual Persistence DSO
GDS-3254	250MHz, 4channel, Visual Persistence DSO
GDS-3252	250MHz, 2channel, Visual Persistence DSO
GDS-3154	150MHz, 4channel, Visual Persistence DSO
GDS-3152	150MHz, 2channel, Visual Persistence DSO

INCLUDED ACCESSORIES

User manual*1 , Power cord*1

GTP-351R	350MHz (10:1) Passive Probe for GDS-3352/ 3354 (one per channel)
GTP-251R	250 MHz (10:1) Passive Probe for GDS-3252/ 3254 (one per channel)
GTP-151R	150MHz (10:1) Passive Probe for GDS-3152/ 3154 (one per channel)

OPTION

DS3-SBD	Serial Bus analysis software: I^2C/ SPI/ UART (for 4-channel models only)
DS3-PWR	Power analysis software: Power Quality/ Harmonics/ Ripple/ In-rush current Measurements
GUG-001	GPIB to USB Adapter

OPTIONAL ACCESSORIES

GTC-001	Instruments Cart, 450(W) x 430(D)mm(120V input Socket)
GTC-002	Instruments Cart, 330(W) x 430(D)mm(120V input Socket)
GSC-008	Soft Carrying Case
GTL-110	test lead, BNC to BNC heads
GTL-232	RS-232C Cable, 9-pin Female to 9-pin female ,Null modem for computer
GTL-246	USB 2.0 cable, A-B type cable 4P, 1800mm
Differential Probe	GDP-025: 25MHz High voltage Differential Probe GDP-050: 50MHz High voltage Differential Probe GDP-100: 100MHz High voltage Differential Probe
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)
Passive Probe	GTP-033A: 35MHz 1:1 Passive Probe