

## GDS-3000A Specifications

The specifications apply when the GDS-3000A series is powered on for at least 30 minutes under +20°C~+30°C.

GDS-3352A	Channels	2 + Ext
	Bandwidth	DC ~ 350MHz (-3dB) @50Ω/1MΩ input impedance
	Rise Time	1ns (calculated)
	Bandwidth Limit	20MHz/100MHz/200MHz*
GDS-3652A	Channels	2 + Ext
	Bandwidth	DC ~ 650MHz (-3dB) @50Ω input impedance DC ~ 500MHz (-3dB) @1MΩ input impedance
	Rise Time	535ps (calculated)
	Bandwidth Limit	20MHz/100MHz/200MHz/300MHz*

\* The tolerance of bandwidth limit is ±10%.

Vertical Sensitivity	Resolution	8 bits (Max.12bits with Hi Res) For 1MΩ input impedance: 1mV*~10V/div For 50Ω input impedance: 1mV*~1V/div	
	Input Coupling	AC, DC, GND	
	Input Impedance	1MΩ// 22pF approx.	
	DC Gain Accuracy	1mV: ±5% full scale ≥2mV: ±3% full scale	
	Polarity	Normal & Invert	
	Maximum Input Voltage	For 1MΩ input impedance: 300Vrms, CAT II For 50Ω input impedance: 5Vrms max.	
	Offset Position Range	For 1MΩ input impedance: 1mV/div ~ 20mV/div :±1V; 50mV/div ~ 500mV/div: ±10V 1V/div ~ 5V/div : ±100V; 10V/div : ±1000V For 50Ω input impedance: 1mV/div ~ 50mV/div:±1V; 100mV/div ~ 1V/div : ±10V	
	Waveform Signal Process	+, -, x, ÷, FFT, User Defined Expression FFT: Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning or Blackman.	
	Trigger	Source	CH1, CH2, Line, EXT
		Trigger Mode	Auto (supports Roll Mode for 100ms/div and slower), Normal, Single
Trigger Type		Edge, Pulse Width(Glitch), Video, Pulse Runt, Rise & Fall(Slope), Timeout, Alternate, Event-Delay(1~65535 events), Time-Delay(Duration, 4ns~10s), Bus (UART, I2C, CAN, LIN)	
Holdoff range		4ns to 10s	
Coupling		AC, DC, LF rej., HF rej., Noise rej.	
Sensitivity		1div	
External Trigger	Range	±20V	
	Sensitivity	DC ~ 100MHz Approx. 100mV 100MHz ~ 350MHz Approx. 150mV	
	Input Impedance	1MΩ±3%~22pF	
*: The bandwidth is limited to 20MHz at 1mV/div and 2mV/div.			
Horizontal	Time base Range	1ns/div ~ 1000s/div (1-2-5 increments) ROLL: 100ms/div ~ 1000s/div	
	Pre-trigger	10 div maximum	
	Post-trigger	10,000,000 div maximum.	
	Time base Accuracy	±5 ppm, about ±2ppm increase in error per year	
Signal Acquisition	Real Time Sample Rate	5GSa/s one channel; 2.5GSa/s dual channels	
	Record Length	Max. 200Mpts /CH	
	Acquisition Mode	Normal, Average, High Resolution, Peak Detect, Single	
	Peak Detection	400ps (typical)	
	Average	Selectable from 2 to 256	
	Number of Segments	1 to 490,000 maximum	
X-Y Mode	X-Axis Input	Channel 1	
	Y-Axis Input	Channel 2	
	Phase Shift	±3° at 100kHz	

Cursors and Measurement	Cursors	Amplitude, Time, Gating available; Unit: Seconds(s), Hz (1/s), Phase (degree), Ratio (%).	
	Automatic Measurement	38 sets with indicator: Pk-Pk, Max, Min, Amplitude, High, Low, Mean, Cycle Mean, RMS, Cycle RMS, Area, Cycle Area, ROVShoot, FOVShoot, RPRESshoot, FPRESshoot, Frequency, Period, RiseTime, FallTime, +Width, -Width, Duty Cycle, +Pulses, -Pulses, +Edges, -Edges, %Flicker, Flicker Idx, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF, Phase.	
	Cursors measurement	Voltage difference between cursors( $\Delta V$ ) Time difference between cursors( $\Delta T$ )	
	Auto counter	6 digits, range from 2Hz minimum to the rated bandwidth	
Control Panel Function	Autoset	Single-button, automatic setup of all channels for vertical, horizontal and trigger systems, with "Undo Autoset", "Fit Screen"/ "AC Priority" mode, and "Fine Scale" functions.	
	Save Setup	20 sets	
	Save Waveform	20 sets	
	Save Reference Waveform	4 sets	
Power Measurement (Option)	Power Quality, Harmonics, Ripple, In-rush current, Switching Loss, Modulation, SOA, Transient, B-H curve, Control Loop Response, Efficiency, PSRR, Turn On/Off		
AWG	<b>General</b>		
	Channels	2	
	Sample Rate	200MSa/s	
	Vertical Resolution	14 bits	
	Max. Frequency	25 MHz	
	Waveforms	Sine, Square, Pulse, Ramp, DC, Noise Sinc, Gaussian, Lorentz, Exponential Rise, Exponential Fall, Haversine, Cardiac	
	Output Range	20 mVpp to 5 Vpp, HighZ; 10 mVpp to 2.5 Vpp, 50 $\Omega$	
	Output Resolution	1mV	
	Output Accuracy	2% (1 kHz)	
	Offset Range	$\pm 2.5$ V, HighZ; $\pm 1.25$ V, 50 $\Omega$	
	Offset Resolution	1mV	
	<b>Sine</b>		
	Frequency Range	100 mHz to 25 MHz	
	Flatness (relative to 1 kHz)	$\pm 0.5$ dB < 15MHz; $\pm 1$ dB 15MHz~25MHz	
	Harmonic Distortion	-40 dBc	
	Stray (Non-harmonic)	-40 dBc	
	Total Harmonic Distortion	1%	
	S/N Ratio	40 dB	
	<b>Square/Pulse</b>		
	Frequency Range	Square: 100 mHz to 15 MHz	
	Rise/Fall Time	< 15ns	
	Overshoot	< 3 %	
	Duty Cycle	Square: 50% Pulse: 0.4% to 99.6%	
	Min. Pulse Width	30ns	
	Jitter	500 ps	
	<b>Ramp</b>		
	Frequency Range	100 mHz to 1MHz	
	Linearity	1%	
	Symmetry	0 to 100%	
	Spectrum Analyzer	Frequency Range	DC~2.5GHz Max, dual channel with spectrogram (based on Advanced FFT). Notice: Frequency which exceeds analog front end bandwidth is uncalibrated
		Span	1kHz~2.5GHz (Max.)
		Resolution Bandwidth	1Hz~2.5MHz (Max.)
		Reference Level	-80dBm to +40dBm in steps of 5dBm

	Vertical Units	dBV RMS; Linear RMS; dBm
	Vertical Position	-12divs to +12divs
	Vertical Scale	1dB/div to 20dB/div in a 1-2-5 Sequence
	Displayed Average Noise Level	1V/div $\leftarrow$ -40dBm, Avg :16 100mV/div $\leftarrow$ -60dBm, Avg :16 10mV/div $\leftarrow$ -80dBm, Avg :16
	Spurious Response	2nd harmonic distortion < 35dBc 3rd harmonic distortion < 40dBc
	Frequency Domain Trace Types	Normal; Max Hold; Min Hold; Average (2 ~ 256)
	Detection Methods	Sample; +Peak; -Peak; Average
	FFT Windows	FFT Factor: Hanning 1.44 Rectangular 0.89 Hamming 1.30 Blackman 1.68
Logic Analyzer (Option)	Sample Rate	1GSa/s
	Bandwidth	200MHz
	Record Length	Per Channel 10M points (max)
	Input Channels	16 Digital (D15 - D0)
	Trigger type	Edge, Pattern, Pulse Width, Serial bus (I2C,SPI, UART, CAN, LIN), Parallel Bus
	Thresholds Quad	Settable thresholds for: D0-D3, D4-D7, D8-11, D12-15
	Threshold selections User-defined	TTL, CMOS(5V,3.3V,2.5V), ECL, PECL,0V ,User Defined $\pm 5V$
	Threshold Range	
	Maximum Input Voltage	$\pm 40 V$
	Minimum Voltage Swing	$\pm 250 mV$
		Vertical Resolution
Frequency Response Analyzer	Frequency Range	20Hz to 25MHz
	Input and Output Sources	Channel 1 ~ 2
	Number of Test Points	10, 15, 30, 45, 90 points per decade selectable for logarithm scale; 2 ~ 1000 points selectable for linear scale
	Dynamic Range	> 80dB (typical)
	Test Amplitude	10mVpp to 2.5Vpp into 50 $\Omega$ , 20mVpp to 5Vpp into High-Z, Fixed test amplitude or custom amplitude for each decade.
	Test Results	Logarithmic or linear overlaid gain and phase plot, may also overlay with reference plots for cross comparison. Test results saved in csv format for offline analysis.
	Manual Measurements	Tracking gain and phase markers
	Plot Scaling	Auto-scaled during test
	Display	TFT LCD Type
Display Resolution		800 horizontal $\times$ 480 vertical pixels (WVGA)
Interpolation		Sin(x)/x
Waveform Display		Dots, vectors, variable persistence (16ms~4s), infinite persistence, gray or color waveforms.
Waveform Update Rate		200,000 waveforms per second, maximum
Display Graticule		8 x 10 divisions
Interface	Display Mode	YT, XY
	USB Port	USB 2.0 High-speed host port X1, USB High-speed 2.0 device port X1
	Ethernet Port (LAN)	RJ-45 connector X1, 10/100Mbps with HP Auto-MDIX
	Go-NoGo BNC	5V Max/10mA open collector output X1
	Power Supply	$\pm 12V / 600mA$ for current probe use.
	Receptacles	Two sets of power supply receptacles.
	RS232C	DB-9 male connector X1
	VGA Video Port	DB-15 female connector X1, monitor output for display on VGA monitor
	Optional GPIB Module	Fully programmable with IEEE488-2 compliance

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	Kensington Style Lock	Rear-panel security slot connects to standard Kensington-style lock.
Miscellaneous	Multi-language menu	Available
	Operation Environment	Temperature: 0°C to 50°C. Relative Humidity ≤ 80% at 40°C or below; ≤ 45% at 41°C ~ 50°C.
	On-screen help	Available
	Time clock	Time and Date, Provide the Date/Time for saved data
	Internal Flash Disk	800M bytes Single-Level Cell flash memory
	Installed APP	Go/NoGo, DVM, DataLog, Digital Filter, Frequency Response Analyzer, Mask, Mount Remote Disk, Demo
	User Define Key	User can select one of the several different preset functions as shortcut key.
	Line Voltage range	AC 100V ~ 240V, 50Hz ~ 60Hz, auto selection. power consumption:100W
	Weight	Approx. 4.6kg
	Dimensions	420mm(W)X 253mm(H)X 113.8mm(D)

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