G5100A Specification List

Display	Graph mode for visual verification of signal settings	
Capability	Standard waveforms	Sine, Square, Ramp, Triangle, Pulse, Noise, DC
	Built-in arbitrary waveforms	Exponential Rise and Fall, Negative ramp, Sin(x)/x, Cardiac

WAVEFORM CHARACTERISTIC

Sine	Frequency	1 µHz to 50MHz
	Amplitude Flatness (Relative to 1KHz)[1][2][3]	0.1dB(<100KHz)
		0.15dB(<5MHz)
		0.3dB(<20MHz)
		0.5dB(<50MHz)
	Harmonic distortion[4][5][6] (unit: dBc)	DC to 20 KHz -70(<1Vpp) -70(≥1Vpp)
		20 KHz to 100 KHz -65(<1Vpp) -60(≥1Vpp)
		100 KHz to 1 MHz -50(< 1Vpp) -45 (≥1Vpp)
		1 MHz to 20 MHz -40 (< 1Vpp) -35 (≥1Vpp)
		20 MHz to 50 MHz -35 (< 1Vpp) -30 (≥1Vpp)
	Total Harmonic distortion[4][5][6]	DC to 20 KHz, Output≥0.5Vpp THD+N≤0.06%
	Spurious[4][5][6] (non-harmonic)	DC to1 MHz -70 dBc
		1 MHz to 50 MHz -70 dBc + 6 dB/octave
	Phase Noise (10KHz Offset)	-115 dBc/Hz, typical when f ≥1MHz, V≥0.1Vpp
Square	Frequency	1 µHz to 25 MHz
	Rise/Fall time	< 10 ns
	Overshoot	< 2%
	Variable Duty Cycle	20% to 80% (to 10 MHz)
		40% to 60% (to 25 MHz)
	Asymmetry	1% of period + 5 ns (@ 50% duty)
	Jitter (RMS)	200 ps when f ≥ 1MHz, V ≥ 0.1Vpp
Ramp, Triangle	Frequency	1 µHz to 200 KHz
	Linearity	< 0.1% of peak output
	Symmetry	0.0% ~ 100.0%
Pulse	Frequency	500 µHz to 10 MHz
	Pulse width	20 ns minimum
		10 ns res, (period ≤ 10s)
	Variable Edge Time	< 10 ns to 100 ns
	Overshoot	< 2%
	Jitter (RMS)	200 ps when f ≥ 50KHz, V ≥ 0.1Vpp
Noise	Bandwidth	20 MHz typical
Arbitrary	Frequency	1 µHz to 10 MHz
	Length	2 to 256 K
	Resolution	14 bits (including sign)
	Sample Rate	125 MSa/s
	Min Rise/Fall Time	30ns typical
	Linearity	< 0.1% of peak output
	Settling Time	< 250ns to 0.5% of final value
	Jitter(RMS)	6ns + 30ppm
	Non-volatile Memory	4 waveforms * 256K Points

GENERAL

Power Supply	CAT II 110 ~ 240V AC ±10%	Dimensions	107 (H) x 224 (W) x 380 (D) mm
Power Cord Freq.	50Hz to 60Hz	Weight	4.08 Kg
Power Consumption	50VA max	Safety Designed to	IEC61010-1,EN61010-1,UL61010-1
Operating Environment	0°C to 55°C	EMC Tested to	EN61326, IEC61000-3, IEC61000-4
Storage Temperature	-30°C to 70°C	Warm-up Time	1 hour
Interface	(Standard) USB, LAN. (Optional) GPIB	Warranty	1 Year
Language	SCPI-1993, IEEE-488.2	Accessory	M3500-opt04 GPIB Card

[1] Add 1/10th of output amplitude and offset spec per °C for operation outside the range of 18°C to 28°C
[2] Autorange enabled
[3] DC offset set to 0V
[4] Spurious output at low amplitude is -75 dBm typical
[5] Add 1 ppm/°C average for operation outside the range of 18°C to 28°C
[6] FSK uses trigger input (1 MHz maximum)
[7] Sine and square waveforms above 10 MHz are allowed only with an "infinite" burst count

COMMON CHARACTERISTIC

Frequency	Resolution	1µHz
Amplitude	Range	10mVpp to 10Vpp in 50Ω
		20mVpp to 20Vpp in Hi-Z
	Accuracy[1][2][3] (at 1KHz)	±1% of setting ± 1mVpp
	Units	Vpp, Vrms, dBm
	Resolution	4 digits
DC Offset	Range (Peak AC +DC)	±5V in 50Ω
		±10V in Hi-Z
	Accuracy[1][2][3]	±2% of offset setting ±0.5% of amplitude setting ±2mv
	Resolution	4 digits
Main Output	Impedance	50 Ω typical
	Isolation	42 Vpk maximum to earth
	Protection	short-circuit protected; overload automatically disables main output
Internal Frequency Reference Accuracy[1]		±10ppm in 90 days
		±20ppm in 1 year
External Frequency reference	Standard /Option	Standard
External Frequency Input	Lock Range	10 MHz ± 500 Hz
	Level	100mVpp ~5Vpp
	Impedance	1KΩ typical, AC coupled
	Lock Time	< 2 Sec
External Frequency Output	Lock Range	10 MHz
	Level	632mVpp (0dBm), typical
	Impedance	50Ω typical, AC coupled
Phase Offset	Range	-360° to +360°
	Resolution	0.001°
	Accuracy	8ns

MODULATION

Modulation Type	AM, FM, PM, FSK, PWM, Sweep and Burst	
AM	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 20KHz
	Depth	0.0% ~ 120.0%
FM	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 20KHz
	Deviation	DC ~ 25MHz
PM	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 20KHz
	Deviation	0.0° to 360°
PWM	Carrier	Pulse
	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 20KHz
	Deviation	0% ~ 100% of pulse width
FSK	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
	Internal Modulation	50% duty cycle Square
	Frequency (Internal)	2mHz to 100KHz
External Modulation Input[6]	Voltage Range	±5V full scale
	Input Resistance	8.7KΩ typical
	Bandwidth	DC to 20KHz
SWEEP	Waveforms	Sine, Square, Ramp, Arb
	Type	Linear or logarithmic
	Direction	up or down
	Sweep Time	1 ms ~ 500 Sec
	Trigger	Internal, External or Manual
	Marker	falling edge of sync signal (programmable frequency)
BURST[7]	Waveforms	Sine, Square, Ramp, Triangle, Noise, Arb
	Type	Counted (1 to 50,000 cycles), Infinite, Gated
	Start/Stop Phase	-360° to +360°
	Internal Period	1µS ~ 500Sec
	Gated Source	External trigger
	Trigger Source	Internal, External or Manual
Trigger Input	Level	TTL compatible
	Slope	Rising or Falling (Selectable)
	Pulse width	> 100 ns
	Impedance	> 10KΩ, DC coupled
	Latency	< 500 ns
Trigger Output	Level	TTL compatible into ≥ 1 KΩ
	Pulse width	> 400 ns
	Output Impedance	50 Ω typical
	Maximum rate	1MHz
	Fan-out	≤ 4 Picotest G5100As

PATTERN MODE CHARACTERISTIC

Clock	Maximum rate	50MHz
Output	Level	TTL compatible into ≥ 2 KΩ
	Output Impedance	110 Ω typical
Pattern	Length	2 to 256 K

Area Agency Information:

OSCOMP GmbH

Am Bogen 40 • 85521 Ottobrunn
Tel. +49 89 609 98 43 • Fax. +49 89 609 54 75
Email: info@oscomp.de • www.oscomp.de

PICOTEST®

Note: Specifications are subject to change without notice due to design improvements.

Printed Date: 2008/04

PICOTEST®

G5100A

50 MHz Function / Arbitrary Waveform Generator

Features:

- 50 MHz Sine, 25 MHz Square & 10 MHz Arbitrary Waveforms
- 1 µHz Frequency Resolution
- 14-bit, 125 MSa/s, 256 K-point Arbitrary Waveform
- Pulse, Ramp, Triangle, Noise & DC Waveforms
- Linear & Logarithmic Sweeps & Burst Operation
- AM, FM, PM , FSK & PWM Modulation Types
- Amplitude Range, 20 mVpp to 20 Vpp into Open Circuit
- Remote Control via USB, LAN or Opt. GPIB
- Graph Mode for Visual Verification of Signal Settings
- 16-bit Data Output via Pattern Out
- Free Waveform Editor Software

Pattern Out

Great Time Base

http://www.picotest.com.tw

PICOTEST®

G5100A

Easy-to-use Functions

Users can easily use the following functions.

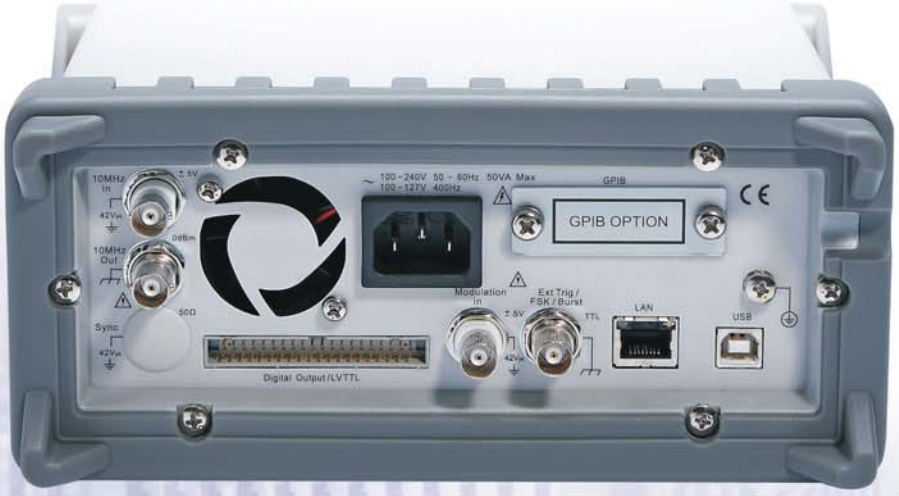
- Internal modulations of AM, FM, PM, FSK & PWM for waveform adjustment.
- Built-in linear and logarithmic sweeps from 1 ms to 500 s.
- The burst mode has a selectable number of cycles per period of time.
- The remote control via USB, LAN or opt. GPIB interface.
- The programmability by SCPI commands under the remote control connection.
- Precise phase adjustments and calibrations can be done from the front panel or via a PC.

User Friendly Operation

The G5100A' s front-panel operation is simple and user friendly. Users can enter all functions with a single key or two, and use the knob or the numeric keypad to adjust frequency, amplitude, offset and other parameters. They can even directly input voltage values in Vpp, Vrms, dBm or high & low levels. Timing parameters can be entered in Hertz (Hz) or second.

Data Transmission via Pattern Out

The WavePatt software adheres to the waveform editor. It allows users to create and store 16-bit data in the G5100A' s nonvolatile or volatile memory. Then, according to application purposes, users can transmit data via Pattern Out, located in the rear panel.



Functions and Waveforms

The G5100A can create stable, precise, clean and low distortion sine waves by using DDS (Direct Digital Synthesis) Technology. With fast rise and fall times up to 25 MHz for square waves and 200KHz for linear ramp waves, the G5100A can meet users demand on waveforms.

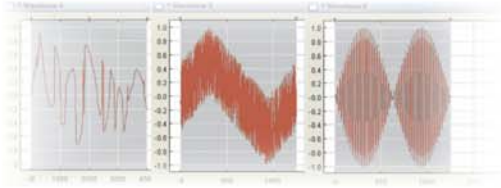
Pulse Generation

The G5100A can generate variable-edge-time pulses up to 10MHz. With variable period, pulse width and amplitude; the G5100A is perfectly suited to applications requiring a flexible pulse signal.

Custom Waveform Generation

The G5100A can generate complex custom waveforms. With 14-bit resolution, and a 125 MSa/s sampling rate, the G5100A gives users the flexibility to create waveforms. It also allows users to store up to 5 waveforms, 4 (4 x 256K Points) in nonvolatile memory and 1 in volatile memory.

The G5100A's Waveform Editor Software allows users to create, edit and download complex waveforms. In addition, by using the software, users can retrieve waveforms from Agilent MSO 8104 Oscilloscope.



Support External Freq. Synchronization

The G5100A's external frequency reference allows users to synchronize an external 10 MHz clock to another G5100A, or to any other unit which can support 10-MHz-frequency-input function.