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[1][2] (Relative to 1K)	0.1dB(<100KHz) 0.15dB(<5MHz) 0.3dB(<20MHz) 0.5dB(<50MHz)
	Harmonic distortion[2][3] (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[2][3]	DC to 20 KHz, Output≥0.5Vpp THD+N≤0.06%
	Spurious[2][4] (non-harmonic)	DC to1 MHz -70 dBc 1 MHz to 50 MHz -70 dBc + 6 dB/octave
	Phase Noise (10K 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	200 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

COMMON CHARACTERISTIC

Frequency	Resolution	1μHz
Amplitude	Range Accuracy[1][2] (at 1KHz) Units Resolution	10mVpp to 10Vpp in 50Ω 20mVpp to 20Vpp in Hi-Z ±1% 0f setting ± 1mVpp Vpp, Vrms, dBm 4 digits
DC Offset	Range (Peak AC +DC) Accuracy[1][2] Resolution	±5V in 50Ω ±10V in Hi-Z ±2% of offset setting ±0.5% of amplitude setting 4 digits
Main Output	Impedance Isolation Protection	50 Ω typical 42 Vpk maximum to earth 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 Level Impedance Lock Time	10 MHz ± 500 Hz 100mVpp ~5Vpp 1KΩ typical, AC coupled < 2 Sec
External Frequency Output	Lock Range Level Impedance	10 MHz 632mVpp (0dBm), typical 50Ω typical, AC coupled
Phase Offset	Range Resolution Accuracy	-360° to +360° 0.001° 8ns

Modulation

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

Pattern Mode CHARACTERISTIC

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

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 6 MHz are allowed only with an "infinite" burst count

Area Agency Information:

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

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PICOTEST®

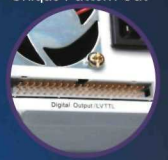
G5100A

50 MHz Function / Arbitrary Waveform Generator

Features:

- 50 MHz Sine, 25 MHz Square & 10 MHz arbitrary Waveforms
- 1 μ Hz 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 (PSK), 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

Unique Pattern Out



Great Time Base

http://www.picotest.com.tw

PICOTEST®

G5100A

Easy-to-use Functions

Users can easily use the following functions.

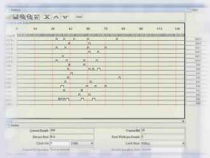
- Internal modulations of AM, FM, PM (PSK), FSK & PWM for waveform adjustment.
- Built-in linear and logarithmic sweeps from 1 ms to 500 s.
- The burst mode with selectable numbers of cycles per period of time.
- The remote control via USB, LAN or Opt. GPIB interface.
- The programmability by SCPI commands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

Friendly Operation

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

Data Transmission via Pattern Out

The WavePatt software adheres to the waveform editor. It allows users creating and storing 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 rear panel.



Great Functions and Waveforms

The G5100 can create stable, precision , clean and low distortion sine waves by DDS (Direct Digital Synthesis) Technology. With fast rise and fall times up to 25 MHz of square waves and linear ramp waves up to 200KHz, the G5100A also can reach users' demand on waveforms.

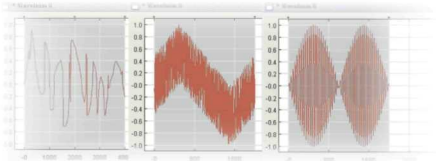
Pulse Generation

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

Custom Waveform Generation

The G5100A can generate complex custom waveforms. With 14-bit resolution, and 125 MSa/s sampling rate, the G5100A offers users to flexibly 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.

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



Support External Frequency Synchronization

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