



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.

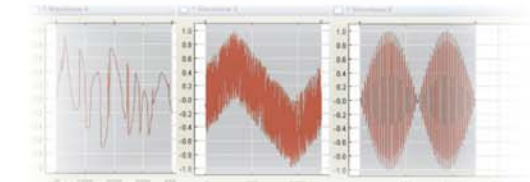
Pulse Generation

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.



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 μ Hz to 50MHz	
	Amplitude	0.1dB(<100KHz)	
	Flatness (Relative to 1KHz)	0.15dB(<5MHz) 0.3dB(<20MHz) 0.5dB(<50MHz)	
	Harmonic distortion ⁽¹⁾⁽³⁾ (unit: dBc)	DC to 20 KHz	-70(<1Vpp) -70(\geq 1Vpp)
		20 KHz to 100 KHz	-65(<1Vpp) -60(\geq 1Vpp)
		100 KHz to 1 MHz	-50(<1Vpp) -45(\geq 1Vpp)
		1 MHz to 20 MHz	-40 (<1Vpp) -35 (\geq 1Vpp)
	Total Harmonic distortion ⁽¹⁾⁽³⁾	DC to 20 MHz	-35 (<1Vpp) -30 (\geq 1Vpp)
		DC to 20 KHz, Output \geq 0.5Vpp	THD+N \leq 0.06%
	Spurious ⁽²⁾⁽³⁾ (non-harmonic)	DC to 1 MHz	-70 dBc
1 MHz to 50 MHz		-70 dBc + 6 dB/octave	
Phase Noise (10KHz Offset)		-115 dBc/Hz, typical when f \geq 1MHz, V \geq 0.1Vpp	
Square	Frequency	1 μ Hz 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 \geq 1MHz, V \geq 0.1Vpp	
Ramp, Triangle	Frequency	1 μ Hz to 200 KHz	
	Linearity	< 0.1% of peak output	
	Symmetry	0.0% - 100.0%	
Pulse	Frequency	500 μ Hz to 10 MHz	
	Pulse width	20 ns minimum 10 ns res. (period \leq 10s)	
	Variable Edge Time	< 10 ns to 100 ns	
	Overshoot	< 2%	
	Jitter (RMS)		200 ps when f \geq 50KHz, V \geq 0.1Vpp
Noise	Bandwidth	20 MHz typical	
	Frequency	1 μ Hz to 10 MHz	
	Length	2 to 256 K	
	Resolution	14 bits (including sign)	
Arbitrary	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 \pm 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, IUL61010-1
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-1983, IEEE-488.2	Accessory	M3500-ep04-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	1 μ Hz
Amplitude	Range	10mVpp to 10Vpp in 500
	Accuracy ⁽¹⁾ (at 100Hz)	20mVpp to 20Vpp in Hz-Z \pm 1% of setting \pm 1mVpp
	Units	Vpp, Vrms, dBm
DC Offset	Resolution	4 digits
	Range (Peak AC +DC)	\pm 5V in 500
	Accuracy ⁽¹⁾	\pm 10V in Hz-Z
	Resolution	12% of offset setting +0.5% of amplitude setting \pm 2mV
Main Output	Impedance	4 digits 50 Ω typical
	Isolation	42 Vpk maximum to earth
	Protection	short-circuit protected; overload automatically disables main output
Internal Frequency Reference Accuracy		\pm 10ppm in 90 days \pm 20ppm in 1 year
	Standard Option	Standard
External Frequency reference	Lock Range	10 MHz \pm 500 Hz
	Level	100mVpp -50Vpp
External Frequency Input	Impedance	1K Ω typical, AC coupled
	Lock Time	< 2 Sec
External Frequency Output	Lock Range	10 MHz
	Level	63mVpp (0dBm), typical
	Impedance	50 Ω typical, AC coupled
Phase Offset	Range	-360° to +360°
	Resolution	0.001°
	Accuracy	bits

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
FM	Depth	0.0% - 120.0%
	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
PM	Frequency (Internal)	2mHz to 20KHz
	Deviation	DC - 25MHz
	Carrier	Sine, Square, Ramp, Arb
	Source	Internal / external
Pulse	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 20KHz
	Deviation	0% - 100% of pulse width
	Carrier	Sine, Square, Ramp, Arb
FSK	Source	Internal / external
	Internal Modulation	Sine, Square, Ramp, Triangle, Noise, Arb
	Frequency (Internal)	2mHz to 100KHz
	Deviation	50% duty cycle Square
External Modulation Input ⁽¹⁾	Voltage Range	\pm 5V full scale
	Input Resistance	8.7K Ω typical
	Bandwidth	DC to 20KHz
	Waveforms	Sine, Square, Ramp, Arb
SWEEP	Type	Linear or logarithmic
	Direction	up or down
	Sweep Time	1 ms - 500 Sec
	Marker	falling edge of sync signal (programmable frequency)
BURST ⁽¹⁾	Waveforms	Sine, Square, Ramp, Triangle, Noise, Arb
	Type	Counted (1 to 50,000 cycles), Infinite, Gated
	Start/Stop Phase	-360° to +360°
	Internal Period Gated Source	External trigger
Trigger Input	Trigger Source	Internal, External or Manual
	Level	TTL compatible
	Slope	Rising or Falling (Selectable)
	Impedance	> 10 Ω
Trigger Output	Latency	> 10K Ω , DC coupled < 500 ns
	Level	TTL compatible into \geq 1 K Ω
	Pulse width	> 400 ns
	Output Impedance	50 Ω typical
Pattern Mode CHARACTERISTIC	Maximum rate	1MHz
	Fail-out	\leq 4 Picosec G5100As
Pattern Mode CHARACTERISTIC	Maximum rate	50MHz
	Level	TTL compatible into \geq 2 K Ω
	Output Impedance	110 Ω typical
	Length	2 to 256 K

Area Agency Information:

