G5100A: 50 MHz Arbitrary Function Generator

Key Features

- **50 MHz Sine Wave**
- **25 MHz Square Wave**
- **Pulse, Ramp, Triangle, Noise, and DC waveforms**
- **AM, FM, PM, FSK, and PWM modulation types**
- **Linear & logarithmic sweeps and burst operation**
- **Connect via USB, LAN and GPIB (Option)**
- **Graph mode for visual verification of signal settings**

General Description

The G5100A is a versatile arbitrary function generator with many features all available at a cost effective price. It offers a 50 MHz sinewave and 25 MHz squarewave. Also included is a 14 bit, 125 MS/s, 256k point Arbitrary Waveform. AM/FM/PM/FSK/Noise and DC modulation can be added to the waveform. Linear and Log sweeps are also available.

The specifications for the G5100A are shown on the next page.

G5100A SPECIFICATIONS

Specification Parameter	Specification
Sine Wave Output	
Frequency	1 uHz to 50 MHz
Resolution	1 µHz
Amplitude Flatness	0.1dB(<100KHz) 0.15dB(<5MHz) 0.3dB(<20MHz) 0.5dB(<50MHz)
Harmonic distortion	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	DC to 20 kHz, Output ≥ 0.5Vpp THD+N ≤ 0.06%
Spurious (non-harmonic)	DC to 1 MHz: -70 dBc
	1 MHz to 50 MHz: -70 dBc + 6 dB/octave
Phase Noise (10K Offset)	-115/dBC/Hz, typical
Square Wave Output	
Frequency	1 µHz to 25 MHz
Resolution	1 µHz
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
Triangle and Ramp Output	
Frequency	1 µHz to 200 kHz
Resolution	1 µHz
Linearity	< 0.1% of peak output
Symmetry	0.0% ~ 100.0%
Pulse Output	
Frequency	500 µHz to 10 MHz
Resolution	1 µHz

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
Bandwidth	20 MHz typical
Arbitrary Waveform Output	
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	
Amplitude	
Range	10mVpp to 10Vpp in 50Ω
Accuracy (at 1KHz)	±1% 0f setting ± 1mVpp
Units	Vpp, Vrms, dBm
Resolution	4 digits
DC Offset	
Range (Peak AC +DC)	±5V in 50Ω, ±10V in Hi-Z
Accuracy	±2% of offset setting ±0.5% of amplitude setting
Resolution	4 digits
Main Output	
Impedance	50 Ω typical
Isolation	42 Vpk maximum to earth
Protection	short-circuit protected, overload automatically disables main output
Timebase	
Internal Frequency reference Accuracy	±10ppm in 90 days ±20ppm in 1 year
External Frequency Reference Input	
Lock Range	10 MHz ± 500 Hz
Level	100mVpp ~5Vpp
Impedance	1KΩ typical, AC coupled
Lock Time	< 2 Sec

External Frequency Output	
Frequency	**10 MHz (same as external input)**
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	
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	
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)

Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice (090209)