



50 MHz Arbitrary Waveform Generator The LXI interface makes easier for the test system!

Function Generator



The FGA5050 is a function generator that equips with the arbitrary waveform function. In addition to Sine waveform, Square waveform, Ramp waveform of those custom waveform generation function, the FGA5050 offers to realize high precision waveform with 1 μ Hz of resolution and 50 MHz of wideband frequency. The FGA5050 can be used in wide application such as "Voltage variation test for Automotive Electronic Components", "ECU false signal source", "Charge-Discharge test for the rechargeable battery", "Ripple super-impose test" and it can be used as the trigger signal for the various type of test system. Further more, three types of interface, LAN / USB / GPIB* are equipped with the FGA5050 as standard feature, it applies for automated test along with manual operation.

Wide band frequency

- Sine waveform : 1 μHz to 50 MHz, Square waveform : 1 μHz to 25 MHz
- Sine waveform, Square waveform, Ramp waveform, Triangle waveform, Pulse waveform, Noise waveform, DC, Arbitrary waveform output
- Waveform editor application software "WAVEPATT" is included as standard
- Various modulation types AM, FM, PM, FSK, PWM, Frequency sweep, Burst, External Modulation Input
- I6 bits / up to 50 MHz pattern out
- 14 bits / 256 k-point, 125 MSs/s
- 10 MHz clock in and out
- Trigger Input and Trigger output (TTL compatible)
- Interface : LAN / USB / GPIB* standard

*Only available in Model FGA5050GC

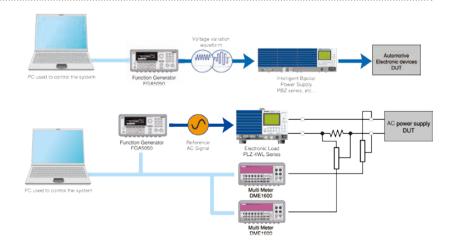
Application

Voltage variation test for Automotive Electronic devices

The system combined with the FGA5050 and the Bipolar power supply, it can be used as the "Signal Source" for the "Voltage variation test of the automotive electronic components" complied to the ISO standard and other manufacturer's standard.

Measurement of the output impedance of the power supply

The system combined with the FGA5050, electronic load, and multi-meter, it can be used as the "Reference AC Signal" for the "Impedance measurement of power supply output".



Specifications

	acteristics Standard waveforms	Sine square ramp	triangle pulse p	pise and DC	
Waveforms		Sine, square, ramp, triangle, pulse, noise, and DC Exponential rising wave, exponential falling wave, reverse ramp			
	Arbitrary waveforms		ardiac electrogram wave)		
	Frequency	1 µHz to 50 MHz			
	Amplitude	Less than 100 kHz		0.1 dB	
	flatness *1 *2	Less than 5 MHz		0.15 dB	
	(relative to 1 kHz)	Less than 20 MHz		0.3 dB	
		Less than 50 MHz		0.5 dB	
	Harmonic distortion *2 *3	DC to 20 kHz 20 kHz to 100 kHz	Less than 1 Vpp 1 Vpp or more	-70 dBc -70 dBc	
			Less than 1 Vpp	-65 dBc	
			1 Vpp or more	-60 dBc	
Sine waves		100 kHz to 1 MHz	Less than 1 Vpp	-50 dBc	
			1 Vpp or more	-45 dBc	
			Less than 1 Vpp	-40 dBc	
			1 Vpp or more	-35 dBc	
		20 MHz to 50 MHz	Less than 1 Vpp	-35 dBc	
			1 Vpp or more	-30 dBc	
	Total harmonic distortion	DC to 20 kHz	0.5 Vpp or more	0.06 % or less	
	Spurious *2 *4	DC to 1 MHz		-70 dBc	
	(non-harmonic)	1 MHz to 50 MHz		-70 dBc + 6 dB/octave	
	Phase noise (10 kHz offset)		Typically -115 dBc/Hz		
	Frequency Rising, falling time	1 µHz to 25 MHz Less than 10 ns			
	Overshoot	Less than 10 ns			
Square waves		Less than 10 MHz		20 % to 80 %	
oquare waves	Variable duty cycle	Less than 25 MHz		40 % to 60 %	
	Asymmetry	50 % duty cycle		1 % of period + 5 ns	
	Jitter (RMS)	0.1 Vpp or more, 1	MHz or more	200 ps	
_	Frequency	1 µHz to 200 kHz			
Ramp and triangle waves	Linearity	Less than 0.1 % of	the peak output		
	Symmetry	0.0 % to 100.0 %			
	Frequency	500 µHz to 10 MHz			
Pulse wave	Pulse width	20 ns minimum			
		Resolution (period ≤ 10 s) 10 ns			
	Variable edge time	Less than 10 ns to 100 ns			
	Overshoot	Less than 2 %			
Noise waves	Jitter (RMS) Bandwidth	0.1 Vpp or more, 50 kHz or more 200 ps			
NOISE WAVES	Frequency	Typically 20 MHz 1 µHz to 10 MHz			
	Wavelength	2 to 256 K points			
	Resolution	14 bits (including the sign)			
	Sampling rate	125 megasamples per second			
Arbitrary waveforms	Minimum rising or falling time				
waveloinis	Linearity	Less than 0.1 % of	the peak output		
	Cattling times	Up to 0.5 % of the f	final value	1 11 0 20	
	Settling time		6 ns + 30 ppm		
	Jitter (RMS)	6 ns + 30 ppm		Less than 250 ns	
	Jitter (RMS) Non-volatile memory		<pre>< points per wavef</pre>		
	Jitter (RMS) Non-volatile memory form characteristics	6 ns + 30 ppm 4 waveforms, 256 k	<pre>< points per wavefo</pre>		
	Jitter (RMS) Non-volatile memory	6 ns + 30 ppm 4 waveforms, 256 k 1 μHz	<pre>< points per wavefe</pre>	orm	
	Jitter (RMS) Non-volatile memory form characteristics	6 ns + 30 ppm 4 waveforms, 256 k 1 μHz 50 Ω termination	<pre>< points per wavefe</pre>	orm 10 mVpp to 10 Vpp	
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Frequency	Jitter (RMS) Non-volatile memory form characteristics Resolution Range	6 ns + 30 ppm 4 waveforms, 256 k 1 μHz 50 Ω termination No termination At 1 kHz Vpp, Vrms, and dBd		10 mVpp to 10 Vpp 20 mVpp to 20 Vpp	
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Add 1/10th to the output amplitude and DC offset specifications per 1 °C for operations out-side the range of *1 18 °C to 28 °C. When autoranging is enabled DC offset set to 0 V

*2 *3

3 DLC offset set to 0 V
 4 Spurious output at low amplitudes is typically -75 dBm.
 5 Add 1 ppm/1 °C (average) for operations outside the range of 18 °C to 28 °C.
 76 FSK modulation uses the Trig In/Out, FSK/Burst connector (the maximum frequency is 1 MHz).
 7 Sine and square waveforms above 10 MHz are can only be used with an infinite burst count.

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Carrier wave Sine, square, ramp, or arbitrary Modulation signal Internal or external Internal modulation signal Sine, square, ramp, triangle, noise, or arbitrary FM Carrier wave Sine, square, ramp, triangle, noise, or arbitrary Modulation signal Internal modulation signal Sine, square, ramp, or arbitrary Internal modulation signal Internal or external Internal modulation signal Internal modulation signal DC to 25 MHz DC to 25 MHz PM Carrier wave Sine, square, ramp, or arbitrary Internal modulation signal Internal or external Modulation signal Internal or external Internal modulation signal Internal or external Modulation signal Internal or external Internal modulation signal Internal or external Internal modulation signal	lodulation	AM, FM, PM. F	FSK, PWM. s	weep, and burst		
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Input frequency range 50 Hz/60 Hz, 400 Hz						
Operating temperature range 0 °C to 55 °C (80 %rh or less, no condensation)						
				· · ·		
Operating altitude Up to 2000 m	0 1 0					
			253W × 107H × 381D mm (9.96W × 4.21H × 15.0D inch)/ Approx. 4 kg(8.8 lb)			
Interfaces LAN, USB, GPIB (factory option)	iterfaces					
Accessories "Power cord" 1 pc. (with three-pronged plug). "Pattern generator cat "USB cable" 1pc., "CD-R" 1pc., "Packing list,safety precautions" 1 I Japanese, "China RoHS disclosure report" 1pc.	Accessories "USB cable		"USB cable"	1pc., "CD-R"* 1pc., "Packing list, safety precautions" 1 English, 1		
Electromagnetic compatibility Complies with the requirements of the following directive and standa EMC Directive 2014/30/EU, EN 61326-1(Class A), EN 55011(Class A)	Electromagnetic compatibility Complies		Complies wi EMC Directi	th the requirements of the following directive and standard. ve 2014/30/EU, EN 61326-1(Class A), EN 55011(Class A, Group		
Complies with the requirements of the following directive and standa	- (-)		EN 61000-3-2, EN 61000-3-3 Complies with the requirements of the following directive and standard			
Safety Low Voltage Directive 2014/35/EU, EN 61010-1(Class I, Pollution de	Safety					

*including the "Operation Manual" and "Communication Interface Manual"

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