3 MHz DDS Function Generator

SFG-1003/1013

FEATURES

- DDS Technology and FPGA Design
- Frequency Range : 0. 1Hz ~ 3MHz
- High Frequency Accuracy : ±20ppm
- High Frequency Stability : ±20ppm
- Max. Frequency Resolution : 100 mHz
- Low Distrortion Sine Wave : -55dBc, 0. 1Hz~200 kHz
- Voltage Display (Only SFG-1013)

APPLICATIONS

- Automatic Controls Training Schools
- Vibration Testing
- Testing and Adjustment of Electronic Devices

Direct Digital Synthesis Signal Generator

SFG-1000 Series, an economic function generator with high accuracy and high stability output, is designed based on the DDS (Direct Digital Synthesis) technology embedded in a large scale FPGA. The frequency range of 3MHz and the output waveform selection as Sine, Square, Triangle and TTL of SFG-1000 Series adequately provide the fundamental features to ensure high confidence for the test results. The DDS technology at an affordable price gives a high-value solution to the users who need a signal source for accurate but unsophisticated measurement applications.

Stable Signal Source

The frequency drift and the amplitude instability of conventional signal sources are fatal uncertainties to the high-accuracy measurements. SFG-1000 Series employs PLL (Phase-Locked Loop) circuitry to generate a stable waveform at ±20ppm accuracy & stability covering the frequency range from 0.1Hz up to 3MHz. When SFG-1000 Series is utilized to conduct experiments in the laboratory, it secures the signal source reliability, which is beyond the reach of any traditional signal generators.

Low Distortion

To most of the test engineers, it is always an annoyance trying to get rid of the ringing coming from the signal source being used to stimulate the DUT. The high precision measurements need to employ a signal source without the existence of harmonic components, which adhere to the oscillator of conventional signal generator circuit. SFG-1000 Series, built over a DDS platform, generates the waveform through high-performance DAC and high-speed comparator to effectively avoid the generation of harmonic components. Utilizing direct digital synthesis technology, SFG-1000 Series provides an output waveform with 55dBc low distortion ranging from 2mVpp to 10Vpp output level. At the press of a button, you get a stable and high purity output signal from SFG-1000 Series right away.

User-Friendly Human Interface

The thoughtful human interface of SFG-1000 Series gives users a friendly operation environment. There is no need to go through a long and tedious learning curve to get used to the operations of the product. The key operation functions and the output on/off control are the advanced features that could only be seen on the high-end devices. You could enjoy all these conveniences at a very affordable cost.

All-Around Functionality

A signal output with selectable waveform among Sine, Square and Triangle, and an additional signal output at TTL level are included in SFG-1000 Series. The output control features include frequency adjustment, +/-5V DC offset and 40dB attenuation. All the fundamental features of a signal generator are well equipped on SFG-1000 Series with high accuracy and stability. Combining convenience, accuracy and economic cost, SFG-1000 Series 3 represents the beauty of GW Instek's design.

SPECIFICAYIONS

MAIN	**Output Function**	Sine, Square, Triangle, TTL
	Frequency Range(For Sine, Square)	0.1Hz ~ 3MHz
	Frequency Range(For Triangle)	0.1Hz ~ 1MHz
	Resolution	0.1Hz maximum
	Stability	±20ppm
	Accuracy	±20ppm
	Aging	±5ppm/year
	Amplitude Range	10Vp-p (into 50Ω load)
	Amplitude Accuracy	±20% at maximum position (only SFG-1013)
	Impedance	50Ω±10%
	Attenuator	-40dB±1dBx1
	DC Offset	＜-5V ~ ＞5V (into 50Ω load)
	Duty Control Range	25% ~ 75% below 1MHz (for square wave only)
	Display	6-digit LED display
	Output Control	ON/OFF selector
SINE WAVE	**Harmonics Distortion**	From Amplitude control at maximum position without any attenuation to its 1/10 of any combination setting, TTL OFF ≧ -55dBc, 0.1Hz ~ 200kHz ≧ -40dBc, 0.2MHz ~ 2MHz ≧ -35dBc, 2MHz ~ 3MHz
	Flatness (at maximum amplitude relative to 1kHz)	＜±0.3dB, 0.1Hz ~ 1MHz ＜±0.5dB, 1MHz ~ 2MHz ＜± 1dB, 2MHz ~ 3MHz
TRIANGLE WAVE	**Linear**	≧98%, 0.1Hz to 100kHz ; ≧95%, 100kHz to 1MHz
SQUARE WAVE	**Symmetry**	5% of period 4ns ~ 0.1Hz ~ 100kHz
TTL OUTPUT	**Rise or Fall Time**	≦ 100ns at maximum output. (into 50Ω load)
	Level	≧ 3Vp-p
	Fan Out	20 TTL load
	Rise or Fall Time	≦ 25ns
GENERAL	**Power Source**	AC 240V,220V,110V 10%, 50/60Hz
	Operation Environment	Indoor use, altitude up ~ 2000m Ambient Temperature 0℃ ~ 40℃ Relative Humidity: Up to 80% at 0℃ ~ 40℃ Up to 70% at 35℃ ~ 40℃ Installation category II Pollution Degree 2
STORAGE TEMPERATURE	**Humidity**	-10℃ ~ 70℃, 70% (Maximum).
ACCESSORIES	GTL-101x1, User manualx1, Power cord	
DIMENSION & WEIGHT	251(W) x 91(H) x 291(D) m/m, Approx. 2.1kg	

The Specifications are subject to change without notice. Refer to Goodwill Instrument Co., LTD. For latest specifications.

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Ordering Information

SFG-1003 **3 MHz DDS Function Generator**
SFG-1013 **3 MHz DDS Function Generator with Voltage Display**

Standard Accessories

Probe-GTL-101 x 1

SELECTION GUIDE

MODEL / MAIN FUNCTION	Frequency	Offset	TTL Output	-40dB Attention	Voltage display
SFG-1003	**3 MHz**	✓	✓	✓	—
SFG-1013	**3 MHz**	✓	✓	✓	✓

Global Headquarters
GOOD WILL INSTRUMENT CO., LTD.
No. 7-1, Jhongsing Road, Tucheng City, Taipei County 236, Taiwan
T +886-2-2268-0389 **F** +886-2-2268-0639
E-mail: marketing@goodwill.com.tw

China Subsidiary
GOOD WILL Instrument (Shanghai) Co., Ltd.
8F, of NO.2 Building, No.889 Yishan Road, Shanghai China
T +86-21-6485-3399 **F** +86-21-5450-0789
E-mail: marketing@instek.com.cn

U.S.A. Subsidiary
INSTEK AMERICA CORP.
3661 Walnut Avenue Chino, CA 91710, U.S.A.
T +1-909-5918358 **F** +1-909-5912280
E-mail: sales@instek.com

Malaysia Subsidiary
GOOD WILL INSTRUMENT (M) SDN. BHD.
27, Persiaran Mahsuri 1/1, Sunway Tunas,
11900 Bayan Lepas, Penang, Malaysia.
T +604-6309988 **F** +604-6309989
E-mail: ettan@goodwill.com.my

www.gwinstek.com.tw