

20 MHz/10MHz/7MHz/4MHz DDS FUNCTION GENERATOR



SFG-2100 Series (20/10/7/4 MHz)



SFG-2000 Series (20/10/7/4 MHz)



FEATURES

- * DDS Technology and FPGA Chip Design
- * Frequency Range:0.1Hz~4/7/10/20 MHz
- * High Frequency Accuracy : ± 20 ppm
- * High Frequency Stability : ± 20 ppm
- * Frequency Resolution : 100mHz
- * Low Distortion Sine Wave : -55dBc, 0.1Hz ~ 200kHz
- * Front Panel Setting Save/Recall with 10 Groups of Setting Memories
- * Built-in 9 Digits, 150MHz/High Resolution Counter (SFG-2100 Series Only)
- * INT/EXT AM/FM Modulation (SFG-2100 Series Only)
- * LIN/LOG Sweep Mode (SFG-2100 Series Only)

Based on the Direct Digital Synthesized (DDS) technology and unique FPGA design, the SFG-2000/2100 Series Function Generators are built with exceptionally high performance far exceeding that of any conventional function generators at a very competitive price. Stable output frequency, low distortion, and fine frequency resolution are the most remarkable characteristics of this product series.

The SFG-2000/2100 Series include four members in each family at 4MHz, 7MHz, 10MHz and 20MHz bandwidth(perivd), The SFG-2100 Series have additional functions of Sweep, AM/FM modulation, and External Counter. As a result of the ± 20 ppm stability level and output waveform accuracy, The SFG-2000/2100 Series well fit into a wide variety of applications, such as signal generator for experiment labs, reference signal for PLL (Phase Locked Loop), and calibration and adjustment source for electronic devices.

SPECIFICATIONS		SFG-2000 Series				SFG-2100 Series			
MAIN		SFG-2004	SFG-2007	SFG-2010	SFG-2020	SFG-2104	SFG-2107	SFG-2110	SFG-2120
Frequency Range(For Sine, Square) Range(For Triangle) Resolution Stability Accuracy Aging Output Function Amplitude Range Impedance Attenuator DC Offset Duty Control Range Resolution Display		0.1Hz~4MHz	0.1Hz~7MHz	0.1Hz~10MHz	1Hz~20MHz	0.1Hz~4MHz	0.1Hz~7MHz	0.1Hz~10MHz	1Hz~20MHz
		0.1Hz~1MHz (1Hz ~ 1MHz for SFG-2020/2120)							
		0.1Hz (1Hz for SFG-2020/2120)							
		± 20 ppm							
		± 20 ppm							
		± 5 ppm / year							
		Sine, Square, Triangle							
		2mV ~ 10Vpp(into 50Ωload)							
		50Ω ±10%							
		-20dB±1dBx2							
		<-.5V ~ >+5V(into 50Ω load)							
		20% to 80% , 2Hz ~1MHz (Square wave only)							
		1%							
		9 digits LED display							
SINE WAVE									
Harmonics Distortion		-55dBc,0.1Hz~200kHz; -40dBc,0.2MHz~4MHz; -30dBc,4MHz~10MHz (Specification applied to both TTL/CMOS OFF and from MAX. to 1/10 level)							
Flatness(Relative to 1kHz)		<±0.3dB, 0.1Hz~1MHz; <±0.5dB, 1MHz~4MHz; <±2dB, 4MHz~10MHz							
TRIANGLE WAVE									
Linearity		≥98%,0.1Hz~100kHz; ≥95%,100kHz~1MHz							
SQUARE WAVE									
Symmetry		±1% of period + 4ns, 0.1Hz~100kHz							
Rise or Fall Time		≤25ns at maximum output.(into 50Ωload)							
CMOS OUTPUT									
Level		4Vpp±1Vpp~15Vpp±1Vpp adjustable; Rise or Fall Time≤120ns							
TTL OUTPUT									
Level		≥3Vpp							
Fan Out		20 TTL load							
Rise and Fall Time		≤25ns							
SWEEP OPERATION									
Rate Time Mode		—				100:1 ratio max. and adjustable(*) 1Sec~30Sec adjustable(**) Lin./Log. switch selector			
AMPLITUDE MODULATION									
Depth & Modulation Frequency Carrier BW EXT Modulation Sensitivity		—				0~100% ; 400Hz(INT), DC~1MHz(EXT) 100Hz~5MHz(-3dB) ≤10Vpp for 100%modulation			
FREQUENCY MODULATION									
Deviation & Modulation Frequency EXT Modulation Sensitivity		—				≥±50kHz,center at 1MHz, 400Hz fixed(INT),1kHz fixed(EXT) ≤10Vpp for 10% modulation(center at 1kHz)			
FREQUENCY COUNTER									
Range Accuracy Time base Resolution		—				5Hz~150MHz Time base accuracy±1count ±20ppm(23℃±5℃)after 30 minutes warm up 100nHz for 1Hz ; 0.1Hz for 100MHz			
Input Impedance Sensitivity		—				1MΩ/150pf ≤35mVrms (5Hz-100MHz) ≤45mVrms (100MHz~150MHz)			

NOTE : 1.(*) In order to get the maximum sweep span, the sweep time needs to be tuned on when adjusting the sweep span.
2.(**) When the sweep time is too long, the stop frequency will reach and stay at the maximum frequency of the instrument until the end of the sweep cycle.



SFG-2100 Series

Rear Panel



SPECIFICATIONS		SFG-2000 Series				SFG-2100 Series			
		SFG-2004	SFG-2007	SFG-2010	SFG-2020	SFG-2104	SFG-2107	SFG-2110	SFG-2120
STORE/RECALL FUNCTION		10 groups of panel settings							
POWER SOURCE		AC115V $\pm 10\%$, AC230V $\pm 10\%$ /-15%, 50/60Hz							
DIMENSION & WEIGHT		266(W) $\times$ 107(H) $\times$ 293(D) mm; Approx. 3.1kg				266(W) $\times$ 107(H) $\times$ 293(D) mm; Approx. 3.2kg			

ORDERING INFORMATION	
SFG-2004	4MHz DDS Function Generator
SFG-2007	7MHz DDS Function Generator
SFG-2010	10MHz DDS Function Generator
SFG-2020	20MHz DDS Function Generator
SFG-2104	4MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation
SFG-2107	7MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation
SFG-2110	10MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation
SFG-2120	20MHz DDS Function Generator with Counter, Sweep & AM, FM Modulation
ACCESSORIES :	
User manual x 1, Power Cord x 1	
GTL-101 test lead x1 (SFG-2000 Series)	
GTL-101 test lead x2 (SFG-2100 Series)	

SELECTION GUIDE		4MHz		7MHz		10MHz		20MHz	
FREQUENCY RANGE		SFG-2004	SFG-2104	SFG-2007	SFG-2107	SFG-2010	SFG-2110	SFG-2020	SFG-2120
MODEL		✓	✓	✓	✓	✓	✓	✓	✓
DUTY		✓	✓	✓	✓	✓	✓	✓	✓
TTL/CMOS		✓	✓	✓	✓	✓	✓	✓	✓
DC OFFSET		✓	✓	✓	✓	✓	✓	✓	✓
LIN/LOG SWEEP		✓	✓	✓	✓	✓	✓	✓	✓
AM/FM MODULATION		✓	✓	✓	✓	✓	✓	✓	✓
EXT COUNTER		✓	✓	✓	✓	✓	✓	✓	✓