



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 : ±20ppm
- * High Frequency Stability : ±20ppm
- * 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±20ppm 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		0.1Hz~4MHz	0.1Hz~7MHz	0.1Hz~10MHz	1Hz~20MHz	0.1Hz~4MHz	0.1Hz~7MHz	0.1Hz~10MHz	1Hz~20MHz
Range(For Sine, Square)									
Range(For Triangle)		0.1Hz~1MHz (1Hz ~ 1MHz for SFG-2020/2120)							
Resolution		0.1Hz (1Hz for SFG-2020/2120)							
Stability		±20 ppm							
Accuracy		±20 ppm							
Aging		±5 ppm / year							
Output Function		Sine, Square, Triangle							
Amplitude Range		2mV ~ 10Vpp(into 50Ωload)							
Impedance		50Ω±10%							
Attenuator		-20dB±1dBx2							
DC Offset		<-5V ~ >+5V(into 50Ω load)							
Duty Control		20% to 80% , 2Hz ~1MHz (Square wave only)							
Range Resolution		1%							
Display		9 digits LED display							
SINE WAVE									
Harmonics Distortion		-55dBc,0.1Hz~200kHz; -40dBc,0.2MHz~4MHz; -30dBc,4MHz~10MHz							
Flatness(Relative to 1kHz)		(Specification applied to both TTL/CMOS OFF and from MAX. to 1/10 level)							
		<±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		—				100:1 ratio max. and adjustable(*)			
Time						1Sec~30Sec adjustable(**)			
Mode						Lin./Log. switch selector			
AMPLITUDE MODULATION									
Depth & Modulation						0~100% ; 400Hz(INT),			
Frequency						DC~1MHz(EXT)			
Carrier BW						100Hz~5MHz (-3dB)			
EXT Modulation Sensitivity						≤10Vpp for 100%modulation			
FREQUENCY MODULATION									
Deviation & Modulation						≥±50kHz,center at 1MHz,			
Frequency						400Hz fixed(INT),1kHz fixed(EXT)			
EXT Modulation Sensitivity						≤10Vpp for 10% modulation(center at 1kHz)			
FREQUENCY COUNTER									
Range						5Hz~150MHz			
Accuracy						Time base accuracy±1count			
Time base						±20ppm(23℃±5℃)after 30 minutes warm up			
Resolution						100nHz			
						for 1Hz ; 0.1Hz for 100MHz			
Input Impedance						1MΩ/150pf			
Sensitivity						≤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±10%, AC230V+10%/-15%, 50/60Hz							
DIMENSION & WEIGHT	266(W)×107(H)×293(D) mm; Approx. 3.1kg				266(W)×107(H)×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 × 1, Power Cord × 1	
GTL-101 test lead ×1 (SFG-2000 Series)	
GTL-101 test lead ×2 (SFG-2100 Series)	

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