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

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

Based on Direct Digital Synthesized (DDS) technology and unique FPGA design, 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.

SFG-2000/2100 Series include three members in each family at 4MHz, 7MHz, 10MHz and 20MHz bandwidth, respectively. SFG-2100 Series has additional functions of Sweep, AM/FM modulation, and External Counter. As a result of the ±20ppm stability level and output waveform accuracy, SFG-2000/2100 Series well fits 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.

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)

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)	0.1Hz~ 4MHz	0.1Hz~ 7MHz	0.1Hz~ 10MHz	1Hz~ 20MHz	0.1Hz~ 4MHz	0.1Hz~ 7MHz	0.1Hz~ 10MHz	1Hz~ 20MHz
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 50Ω load)							
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 (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 FallTime≤120ns							
TTL OUTPUT								
Level	≥3Vpp; Fan Out: 20 TTL load;Rise or FallTime:≤25ns							
SWEEP OPERATION								
Rate	—				100:1 ratio max. and adjustable(*)			
Time					1Sec~30Sec adjustable(**)			
Mode					Lin./Log. switch selector			
AMPLITUDE MODULATION								
Depth & Modulation Frequency	—				0~100% ; 400Hz(INT), DC~1MHz(EXT)			
Carrier BW					100Hz~5MHz(-3dB)			
EXT Modulation Sensitivity					≤10Vpp for 100%modulation			
FREQUENCY MODULATION								
Deviation & Modulation Frequency	—				≥0~±50kHz,center at 1MHz, 400Hz fixed(INT),1kHz fixed(EXT)			
EXT Modulation Sensitivity					≤10Vpp for 10% modulation(center at 1MHz)			
FREQUENCY COUNTER								
Range	—				5Hz~150MHz			
Accuracy					Time base accuracy±1count			
Time base					±20ppm(23℃±5℃)after 30 minutes warm up			
Resolution					The maximum resolution is 100nHz for 1Hz and 0.1Hz for 100MHz			
Input Impedance					1MΩ/150pf			
Sensitivity					≤35mVrms (5Hz~100MHz) ≤45mVrms (100MHz~150MHz)			

SFG-2000 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 Setting memories							
POWER SOURCE								
	AC115V±10%, AC230V+10%/-15%, 50/60Hz							
ACCESSORIES								
	User manual x1, Power Cord x1,GTL-101 x1				User manualx1, Power Cord x 1,GTL-101x 2			
DIMENSION & WEIGHT								
	266(W)x107(H)x293(D) mm; Approx. 3.1kg				266(W)x107(H)x293(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

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

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		✓		✓		✓		✓