

DDS Function Generator

ESFG5200 Series

Introduction

The ESFG5200 series are arbitrary waveform/function generators with maximum frequency of 25MHz, 40MHz and 60MHz, based on Direct Digital Synthesis (DDS) technology, providing high fidelity, low jitter performance function signal and arbitrary waveform signal.

The ESFG5200 series are equipped with 150MSa/s sampling rate, 14 bits vertical resolution, ± 1 ppm high stability and high accuracy waveform output, 250MHz frequency counter, as well as digital modulations of AM, DSSC AM, FM, PM, ASK, FSK, BPSK. Built-in USB device, USB host and RS232 interface support easy remote control. 4.3-inch TFT LCD display, user-friendly interface design and keyboard layout brings excellent operation experience.

Features

- ✓ Frequency range 1 μ Hz~25MHz/40MHz/60MHz
- ✓ 2 independent output channels at same frequency range for main waveforms
- ✓ 4.5-inch TFT LCD display
- ✓ Min. output amplitude 1mVpp (50 Ω), total distortion 0.2%
- ✓ Sampling rate 150MSa/s, vertical resolution 14 bits, waveform length 16k points
- ✓ 6 standard waveforms, 50 built-in waveforms and 12 user-defined arbitrary waveforms
- ✓ 10 sets save & recall for operating parameters
- ✓ Modulations: AM, DSSC AM, FM, PM, ASK, FSK, BPSK
- ✓ Synchronous output, external modulation input, trigger input, external reference input and count input
- ✓ Linearity/Logarithmic sweep signal and Burst signal
- ✓ Channel coupling, parameter coupling, point frequency replication tracking
- ✓ Strong arbitrary waveform building software, support SCPI commands
- ✓ Over voltage, over current, short circuit and reverse voltage protections
- ✓ Standard interface: RS232, USB device, USB Host
- ✓ 250MHz external frequency counter
- ✓ Optional power amplifier

ESFG-5225



DDS Function Generator

Specifications

Model		ESFG-5225	ESFG-5240	ESFG-5260
Output Frequency				
Range	Sine	1 μ Hz ~ 25MHz	1 μ Hz ~ 40MHz	1 μ Hz ~ 60MHz
	Square	1 μ Hz ~ 5MHz	1 μ Hz ~ 10MHz	1 μ Hz ~ 15MHz
	Ramp	1 μ Hz ~ 500kHz	1 μ Hz ~ 1MHz	1 μ Hz ~ 1MHz
	Pulse	1 μ Hz ~ 5MHz	1 μ Hz ~ 10MHz	1 μ Hz ~ 15MHz
	Noise	30MHz white noise (-3dBm)		
	Arbitrary	1 μ Hz ~ 6.5MHz		
Resolution		1 μ Hz		
Accuracy		$\leq \pm 5 \times 10^{-5}$		
Waveform				
Output waveform		Sine, Square, Ramp, Pulse, Noise, Arb, DC		
Waveform length		8~16384 points (CHA), 8~2048 point (CHB)		
Vertical resolution		14 bits		
Sampling rate		150MSa/s		
Sine	Harmonics distortion	< -70dBc, < 20kHz < -40dBc, 1MHz ~ 30MHz	< -50dBc, 20kHz ~ 1MHz < -30dBc, 30MHz ~ 60MHz	
	Total distortion	$\leq 0.2\%$ (20Hz $\leq f \leq 100$ kHz)		
Square Pulse	Rise/fall edge	18ns		
	Duty cycle	0.1% ~ 99.9%		
Ramp	Edge jitter	≤ 150 ps rms		
	Symmetry	0.0% ~ 100.0%		
Noise	Non-linearity	$\leq 0.1\%$, 5%~95% of signal		
	Repeat cycle	>50 years		
Arbitrary	Sampling rate	1 μ Sa/s ~ 50MSa/s		
	Vertical resolution	14 bits		
Output Characteristics				
Amplitude	CHA range	(High impedance) 2mVpp~20Vpp ≤ 20 MHz (50 Ω) 1mVpp~10Vpp ≤ 20 MHz	2mVpp~10Vpp ≤ 60 MHz 1mVpp~5Vpp ≤ 60 MHz	
	CHB range	2mVpp~6Vpp (High impedance) ≤ 60 MHz 1mVpp~3Vpp (50 Ω) ≤ 60 MHz		
	Flatness (1kHz)	± 0.1 dB (<100kHz), ± 0.3 dB (100kHz ~ 10MHz), ± 0.5 dB (10MHz ~ 60MHz)		
Offset	CHA level range	$\pm(10$ V DC~AC peak/2) (High impedance)		$\pm(5$ V DC~AC peak/2) (50 Ω)
	CHB level range	$\pm(189.3$ mV DC~AC peak/2) (High impedance)		$\pm(94.7$ mV DC ~AC peak/2) (50 Ω)
	CHA accuracy	$\pm 1\%$ offset setting value $\pm 0.25\%$ amplitude setting value ± 2 mV		
	CHB accuracy	$\pm 1\%$ offset setting value $\pm 0.25\%$ amplitude setting value ± 3 mV		
Modulation	AM modulation depth	0.0%~120.0%		
	FM modulation deviation	0 ~fc/2		
	PM modulation range	0.0°~360.0°		
	FSK	1 μ Hz~Fsine max (Sine), 1 μ Hz~ Fsquare max (Square/Pulse), 1 μ Hz~1MHz (Ramp)		
	BPSK	0.0°~360.0°		
	ASK	2mVpp~ 20Vpp		
Sweep	Sweep mode	Linearity/Logarithmic		
	Sweep time	0.001s~1000s		
	Trigger source	Int/Ext/Bus		
Burst	Burst mode	N Cycle/Gated		
	Burst numbers	1~1000000, resolution 1		
	Interval time	1 μ ~1000S, resolution 1 μ S		
Pulse	Pulse width	28.5 ns ~ period - 28.5 ns		
	Overshoot	$\leq 2\%$ (CHA) (50 Ω)		
	Edge jitter	≤ 150 ps rms		
Counter	Frequency range	0.1Hz~250 MHz		
	Resolution	6 digits/s		
Power amplifier (optional)		Frequency bandwidth: 20Hz~200kHz Max. output power: 5W sine wave		
Interface		USB Device, USB Host, RS232		
Power source		AC100~240V, 47~63Hz, Max. 30VA		
Accessories		Power cord x1, Operation manual x1, Software CD x1, USB cable x1, RS-232 cable x1, BNC-BNC cable x1, Test lead x1		
Dimension		Chassis: 260Wx110Hx385D mm Instrument: 295Wx195Hx415D mm		

