Arbitrary Waveform/Function Generator

ESFG3600E Series

Introduction

The ESFG3600E series are arbitrary waveform/function generators with maximum frequency of 5MHz, 10MHz, 15MHz and 20MHz, based on Direct Digital Synthesis (DDS) technology providing flexible performance and system features for basic scientific and industrial requirements.

The 8 bits resolution, 100MSa/s sampling rate, 1024 pts memory length, 32 built-in waveforms and 8 user-defined arbitrary waveforms create various waveforms for different needs. Free PC software for RS-232 interface control.

The ESFG3600E series have additional functions of multiple modulations FM, FSK, ASK and PSK, 200MHz external frequency counter, 40 sets memories and multiple protections. Stable output frequency, high accuracy and low distortion make ESFG3600E series an ideal solution for an accurate and affordable signal source for industrial, scientific research and educational applications.

Features

- ✔ Max. output frequency 5MHz/10MHz/15MHz/20MHz
- ✔ 2 output channels
- ✔ 3.5-inch TFT LCD display
- ✔ Direct Digital Synthesis technology (DDS)
- ✔ Min. output amplitude 1mV (50Ω) with good stability
- ✔ Sampling rate 100MSa/s, vertical resolution 8 bit, waveform length 1024 points
- ✔ Arbitrary waveform function
- ✔ 32 built-in waveforms and 8 user-defined arbitrary waveforms
- ✔ 40 sets save & recall for panel settings
- ✔ Modulations: FM, FSK, ASK, PSK
- ✔ Frequency sweep, amplitude sweep, burst and TTL output functions
- ✔ Over voltage, over current, short circuit and reverse voltage protections
- ✔ High speed rotary dial and keypad input
- ✔ Standard RS-232 interface for PC remote control
- ✔ Standard 200MHz external frequency counter
- ✔ Optional power amplifier

ESFG-3620E

Arbitrary Waveform/Function Generator

Specifications

Model	ESFG-3605E	ESFG-3610E	ESFG-3615E	ESFG-3620E
Output frequency	**1µHz~5MHz**	**1µHz~10MHz**	**1µHz~15MHz**	**1µHz~20MHz**
Waveform				
Output waveform	32 built-in waveforms, including Sine, Square, Triangle, Ramp, Pulse, etc. 8 user-defined arbitrary waveforms			
Waveform length	1024 points			
Vertical resolution	8 bits			
Sampling rate	100MSa/s			
Sine — Harmonic distortion	≥40dBc (<1MHz); ≥35dBc (1~20MHz)			
Sine — Total distortion	≤1% (20Hz~200kHz)			
Square — Rise/fall time	≤35ns			
Square — Overshoot	≤10%			
Square — Duty cycle	1%~99%			
Frequency				
Range — Sine	1µHz~5MHz	1µHz~10MHz	1µHz~15MHz	1µHz~20MHz
Range — Square	1µHz~5MHz			
Range — Other	1µHz~1MHz			
Resolution	1µHz			
Accuracy	$\pm 5 \times 10^{-5}$			
Stability	$\pm 5 \times 10^{-6}$ /3hours			
Output characteristics				
Amplitude — Range	2mVpp~20Vpp (open circuit, ≤10MHz)			
Amplitude — Range	2mVpp~15Vpp (open circuit, 10MHz~15MHz)			
Amplitude — Range	2mVpp~8Vpp (open circuit, 15MHz~20MHz)			
Amplitude — Resolution	20mVpp (amplitude>2Vpp); 2mVpp (amplitude<2Vpp)			
Amplitude — Accuracy	±(1%+2mVrms) (open circuit, 1kHz, sine)			
Amplitude — Stability	±0.5% /3hours			
Amplitude — Flatness	±5% (<10MHz); ±10% (>10MHz)			
Amplitude — Output impedance	50Ω			
Offset — Range	±10V (open circuit, attenuation 0 dB)			
Offset — Resolution	20mVdc			
Offset — Accuracy	±(1%+20mVdc)			
Sweep				
Parameter	Frequency, Amplitude			
Range	Free to set start and stop point			
Time	100ms~900s			
Direction	Up, Down, Up-Down			
Mode	Linearity, Logarithmic			
Control	Auto sweep or manual sweep			
Frequency Modulation (FM)				
Carrier signal	CHA signal			
Modulating signal	CHB or external signal			
Deviation	0%~20%			
Shift Keying				
FSK	Free to set the hop frequency and the carrier frequency			
ASK	Free to set the hop amplitude and the carrier amplitude			
PSK	Hop phase: 0~360°, resolution: 1°			
Alternative rate	10ms~60s			

Arbitrary Waveform/Function Generator

Burst	
Carrier signal	CHA signal
Trigger signal	TTL_A signal
Burst counts	1~65000 cycles
Trigger source	Internal TTL, External, Single
CHB output characteristics	
Output waveform	32 built-in waveforms, including Sine, Square, Triangle, Ramp, Pulse, etc. 8 user-defined arbitrary waveforms
Waveform length	1024 points
Vertical resolution	8 bits
Sampling rate	12.5MSa/s
Frequency range	Sine: 1µHz~1MHz; Other: 1µHz~100kHz
Frequency resolution	1µHz
Frequency accuracy	$\pm 1 \times 10^{-5}$
Amplitude range	50mVpp~20Vpp (open circuit)
Amplitude resolution	20mVpp
Output impedance	50Ω
CHB signal is used as burst signal	
Carrier signal	CHB signal
Trigger signal	TTL_B signal
Burst counts	1~65000 cycles
Trigger source	Internal TTL, External, Single
TTL output	
Waveform	Square, rise/fall time ≤20ns
Frequency	10mHz~1MHz
Amplitude	TTL, CMOS compatible, low<0.3V, high>4V
Frequency counter	
Frequency range	1Hz~200MHz
Input amplitude	100mVpp~20Vpp
Power amplifier (optional)	
Max. output power	7W (8Ω), 1W (50Ω)
Max. output voltage	22Vpp
Frequency bandwidth	1Hz~200kHz
General	
Operation characteristics	Key operation for all functions, Menu display, Rotary dial adjustment
Display	3.5-inch TFT LCD
Language	English, Chinese (simplified), Chinese (traditional)
Interface	RS-232 interface
Operating environment	0~40℃, <80%RH
Power source	AC110V/220V±10% selectable, 50/60Hz, Max. 45VA
Accessories	Power cord x1, Operation manual x1, Software CD x1, RS-232 cable x1, BNC-BNC cable x1, Test lead x1
Dimension (WxHxD)	260x110x385mm
Weight	3.5kg

Specifications are subject to change without prior notice.