

10MHz~20MHz ARBITRARY WAVEFORM & DDS FUNCTION GENERATOR

DFG-1010/1020 & AFG-1010/1020

The AFG-1000 series arbitrary waveform/function generators with maximum frequency of 10MHz and 20MHz are designed 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.

The AFG-1000 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 TFG3600E series an ideal solution for an accurate and affordable signal source for industrial, scientific research and educational applications.



DFG-1010 & DFG-1020



AFG-1010 & AFG-1020

Features

- Max. output frequency of 10MHz & 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 (AFG-1010 & AFG-1020)
- 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

Technical Specification

Model	DFG-1010	DFG-1020	AFG-1010	AFG-1020	
Output frequency	1μHz~10MHz	1μHz~20MHz	1μHz~10MHz	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)			
	Total distortion	≤1% (20Hz~200kHz)			
Square	Rise/fall time	≤35ns			
	Overshoot	≤10%			
	Duty cycle	1%~99%			
Frequency					
Range	Sine	1μHz~10MHz	1μHz~20MHz	1μHz~10MHz	1μHz~20MHz
	Square	1μHz~5MHz			
	Other	1μHz~1MHz			
Resolution	1μHz				
Accuracy	±5x10 ⁻⁵				
Stability	±5x10 ⁻⁶ /3hours				
Output characteristics					
Amplitude	Range	2mVpp~20Vpp (open circuit, ≤10MHz)			
		2mVpp~15Vpp (open circuit, 10MHz~15MHz)			
		2mVpp~8Vpp (open circuit, 15MHz~20MHz)			
	Resolution	20mVpp (amplitude>2Vpp); 2mVpp (amplitude<2Vpp)			
	Accuracy	±(1%+2mVrms) (open circuit, 1kHz, sine)			
	Stability	±0.5% /3hours			
	Flatness	±5% (<10MHz); ±10% (>10MHz)			
Output impedance	50Ω				
Offset	Range	±10V (open circuit, attenuation 0 dB)			
	Resolution	20mVdc			
	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%				

DFG-1010/1020 & AFG-1010/1020

Model	DFG-1010	DFG-1020	AFG-1010	AFG-1020
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			
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	±1x10 ⁻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			
General				
Operation characteristics	Key operation for all functions, Menu display, Rotary dial adjustment			
Display	3.5-inch TFT LCD			
Interface	RS-232 interface			
Operating environment	0~40°C, <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			

