DDS Function Generator

TFG3200 Series

Introduction

The TFG3200 series are LOW-COST function generators with maximum frequency of 10MHz, 20MHz, 40MHz and 60MHz, based on Direct Digital Synthesis (DDS) technology providing flexible performance and system features for basic scientific and industrial requirements.

The10 bits resolution, 180MSa/s sampling rate, 16k pts memory length, and 32 built-in waveforms create various waveforms for different needs. Optional PC software for USB and RS-232 interfaces control and optional 200MHz frequency counter for external signal measuring. The TFG3200 series have additional functions of multiple modulations FM, AM, FSK, ASK and PSK, 40 sets memories and multiple protections. Low-cost, multi-functional, high accuracy and low distortion make TFG3200 series an ideal solution for an accurate and affordable signal source for industrial, scientific research and educational applications.

Features

- ✓ Max. output frequency 10MHz/20MHz/40MHz/60MHz
- ✓ 2 output channels
- ✓ Mono LCD display
- ✓ Direct Digital Synthesis technology (DDS)
- ✓ Min. output amplitude 1mV (50Ω) with good stability
- ✓ Sampling rate 180MSa/s, vertical resolution 10 bits, waveform length 16000 points
- ✓ 32 built-in waveforms
- ✓ 40 sets save & recall for panel settings
- ✓ Modulations: FM, AM, FSK, ASK, PSK
- ✓ Frequency sweep, amplitude sweep, burst, CHA & CHB ADD and TTL output functions
- ✓ Over voltage, over current, short circuit and reverse voltage protections
- ✓ High speed rotary dial and keypad input
- ✓ Optional USB and RS-232 interface for PC remote control
- ✓ Optional 200MHz external frequency counter
- ✓ Optional power amplifier

Product photo

TFG-3210

TWINTEX · www.twintex.com.tw
Taipei, Taiwan: Tel: +886-02-2915 0101 · Fax: +886-02-2916 0101
Shenzhen, China: Tel.: +86-755-2812 9890 · Fax: +86-755-2814 9802

DDS Function Generator

Specifications

Model		TFG-3210	TFG-3220	TFG-3240	TFG-3260
Output frequency		**40μHz~10MHz**	**40μHz~20MHz**	**40μHz~40MHz**	**40μHz~60MHz**
Waveform					
Output waveform		Sine, Square, Pulse, DC			
Waveform length		4~16000 points			
Vertical resolution		10 bits			
Sampling rate		180MSa/s			
Sine	Harmonic distortion	≥50dBc (<1MHz);≥40dBc (1~20MHz); ≥30dBc (>20MHz)			
	Total distortion	≤0.5% (20Hz~200kHz)			
Square	Rise/fall time	≤20ns			
	Overshoot	≤5%			
	Duty cycle	50.0%			
Pulse	Rise/fall time	≤20ns			
	Overshoot	≤5%			
	Duty cycle	0.1%~99.9%			
Frequency					
Range	Sine	40μHz~10MHz	40μHz~20MHz	40μHz~40MHz	40μHz~60MHz
	Square	40μHz~10MHz	40μHz~20MHz		
	Other	40μHz~10MHz			
Resolution		40μHz (40μHz~2kHz); 40mHz (>2kHz)			
Accuracy		±(5x10^{-5}+40mHz)			
Stability		±5x10^{-6} /3hours			
Output characteristics					
Amplitude	Range	1mVpp~10Vpp (into 50Ω, ≤10MHz)			
		1mVpp~5Vpp (into 50Ω, 10MHz~40MHz)			
		1mVpp~2Vpp (into 50Ω, ≥40MHz)			
		2mVpp~20Vpp (open circuit, ≤10MHz)			
		2mVpp~10Vpp (open circuit, 10MHz~40MHz)			
		2mVpp~4Vpp (open circuit, ≥40MHz)			
	Resolution	20mVpp (amplitude>2V); 2mVpp (amplitude<2V)			
	Accuracy	±(1%+2mVrms) (open circuit, 1kHz, sine)			
	Stability	±0.5% /3hours			
	Flatness	±5% (<1MHz); ±10% (1~10MHz); ±20% (>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~600s			
Direction		Up, Down, Up-Down			
Mode		Linearity, Logarithmic			
Control		Auto sweep or manual sweep			
Frequency Modulation (FM)					
Modulating signal		Internal or external signal			
Deviation		0%~20%			
Amplitude Modulation (AM)					
Modulating signal		Internal or external signal			
Depth		0%~120%			

TWINTEX · www.twintex.com.tw
Taipei, Taiwan: Tel: +886-02-2915 0101 · Fax: +886-02-2916 0101
Shenzhen, China: Tel.: +86-755-2812 9890 · Fax: +86-755-2814 9802

DDS Function Generator

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: 11.25°
Alternative rate	10ms~60s
CHB output characteristics	
Output waveform	32 built-in waveforms, including Sine, Square, Triangle, Saw tooth, Ladder, etc.
Waveform length	1024 points
Vertical resolution	8 bits
Sampling rate	12.5MSa/s
Frequency range	Sine: 10mHz~1MHz; Other: 10mHz~100kHz
Frequency resolution	10mHz
Frequency accuracy	$\pm(1x10^{-5}+10mHz)$
Amplitude range	50mVpp~20Vpp (open circuit)
Amplitude resolution	2mVpp
Output impedance	50Ω
CHB signal is used as the harmonic signal of CHA	
Harmonic times	0.1~250.0 times
Harmonic frequency	<1MHz
Phase adjustment	Coarse: 11.5°/step; Fine: 2°/step
CHB signal is used as burst signal	
Frequency of CHB	40mHz~1MHz
Burst frequency	10mHz~50kHz
Burst count	1~65000 cycles
Trigger source	Continuous, Single
TTL output	
Waveform	Square, rise/fall time ≤20ns
Frequency	Same as CHA signal
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	Mono LCD
Language	English, Chinese (simplified), Chinese (traditional)
Interface	Optional USB and RS-232 interface
Operating environment	0~40℃, <80%RH
Power source	AC110V/220V±10% selectable, 50/60Hz, Max. 45VA
Standard accessories	Power cord x1, Operation manual x1, BNC-BNC cable x1, Test lead x1
Optional accessories	Software CD x1, USB cable x1, RS-232 cable x1
Dimension (WxHxD)	260x110x385mm
Weight	3.5kg

TWINTEX · www.twintex.com.tw
Taipei, Taiwan: Tel: +886-02-2915 0101 · Fax: +886-02-2916 0101
Shenzhen, China: Tel.: +86-755-2812 9890 · Fax: +86-755-2814 9802