DDS Function Generator

TFG3200E Series

Introduction

The TFG3200E series are LOW-COST function generators with maximum frequency of 5MHz, 10MHz, 15MHz and 20MHz. The TFG3200E series are based on DDS (Direct Digital Synthesis) 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 create various waveforms for different needs. A free PC software for RS-232 interface control for system control. The TFG3200E series have additional functions of multiple modulations (FM, FSK, ASK, PSK), 200MHz external counter, 40 sets memories and multiple protections. Stable output frequency, high accuracy and low distortion make TFG3200E 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
- ✓ Direct Digital Synthesis technology (DDS)
- ✓ Sampling rate 100MSa/s, vertical resolution 8 bits, waveform length 1024 points
- ✓ Min. 1mV (50Ω) waveform output with good stability
- ✓ 32 built-in waveforms
- ✓ 40 sets panel setting save & recall
- ✓ Modulations: FM, FSK, ASK, PSK
- ✓ Frequency sweep, amplitude sweep, burst and TTL output functions
- ✓ Over voltage protection, over current protection, short circuit protection, reverse voltage protection
- ✓ Standard parts: 200MHz frequency counter
- ✓ Optional parts: RS-232 interface, power amplifier

Product photo

TFG-3205E

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Specifications

Model		TFG-3205E	TFG-3210E	TFG-3215E	TFG-3220E
Frequency range		**1μHz~5MHz**	**1μHz~10MHz**	**1μHz~15MHz**	**1μHz~20MHz**
Waveform (CHA)					
Type		32 built-in waveforms, including Sine, Square, Triangle, Ramp, Pulse, etc.			
Length		1024 points			
Vertical resolution		8 bits			
Sampling rate		100MSa/s			
Harmonic distortion of sine		≥40dBc (<1MHz); ≥35dBc (1MHz~20MHz)			
Total distortion of sine		≤1% (20Hz~200kHz)			
Rise/fall time of square		≤35ns			
Overshoot of square		≤10%			
Duty cycle of square		1%~99%			
Frequency (CHA)					
Range	Sine	1μHz~5MHz	1μHz~10MHz	1μHz~15MHz	1μHz~20MHz
	Square	1μHz~5MHz			
	Other	1μHz~1MHz			
Resolution		1μHz			
Accuracy		$\pm 5 \times 10^{-5}$			
Stability		$\pm 5 \times 10^{-6}$ /3hours			
Amplitude (CHA)					
Range		2mVpp~20Vpp, 1μHz~10MHz (high impedance) 2mVpp~15Vpp, 10MHz~15MHz (high impedance) 2mVpp~8Vpp, 15MHz~20MHz (high impedance)			
Resolution		20mVpp (amplitude>2Vpp); 2mVpp (amplitude<2Vpp)			
Accuracy		± (1%+2mVrms) (high impedance, RMS, frequency 1kHz)			
Stability		±0.5% /3hours			
Flatness		±5% (frequency <10MHz); ±10% (frequency >10MHz)			
Output impedance		50Ω			
DC Offset (CHA)					
Range		±10V (high impedance, attenuation 0 dB)			
Resolution		20mVdc			
Accuracy		±(1%+20mVdc)			
Sweep (CHA)					
Parameter		Frequency, Amplitude			
Range		Free to set starting point and end point			
Time		100ms~900s			
Direction		Up, Down, Up-Down			
Mode		Linearity, Logarithmic			
Control		Auto sweep or manual sweep			
Frequency Modulation (FM) (CHA)					
Carrier signal		CHA signal			
Modulating signal		CHB or external signal			
FM deviation		0%~20%			
Burst (CHA)					
Carrier signal		CHA signal			
Trigger signal		TTL_A signal			
Burst counts		1~65000 cycles			
Trigger mode		Internal TTL, External, Single			

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Shift Keying (CHA)	
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
Waveform (CHB)	
Type	32 built-in waveforms, including Sine, Square, Triangle, Ramp, Pulse, etc.
Length	1024 points
Vertical resolution	8 bits
Sampling rate	12.5MSa/s
Duty cycle of square	1%~99%
Frequency (CHB)	
Range	Sine: 1μHz~1MHz; Other: 1μHz~100kHz
Resolution	1μHz
Accuracy	$\pm 1 \times 10^{-5}$
Amplitude (CHB)	
Range	50mVpp~20Vpp (high impedance)
Resolution	20mVpp
Output impedance	50Ω
Burst (CHB)	
Carrier signal	CHB signal
Trigger signal	TTL_B signal
Burst counts	1~65000 cycles
Trigger mode	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	
Testing frequency range	1Hz~200MHz
Input signal amplitude	100mVpp~20Vpp
Remote control	RS-232 interface (optional)
Power amplifier (optional)	
Max. output power	7W (8Ω), 1W (50Ω)
Max. output voltage	22Vpp
Frequency bandwidth	1Hz~200kHz
Common characteristics	
Operation characteristics	Key operation for all functions, Menu display, Rotary dial adjustment
Display	Mono LCD
Language	English, Chinese (simplified), Chinese (traditional)
Power source	AC110V/220V±10% selectable, 50/60Hz, Max. 45VA
Environmental condition	0~40℃, <80%RH
Standard accessories	Power cord x1, Operation manual x1, BNC-BNC cable x1, Test lead x1
Dimension	385x260x110mm
Weight	3.5kg

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