DDS Function Generator

TFG3200E Series

Introduction

The TFG3200E series are LOW-COST 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 create various waveforms for different needs. Optional PC software for RS-232 interface control. The TFG3200E series have additional functions of multiple modulations FM, FSK, ASK and PSK, 200MHz external frequency counter, 40 sets memories and multiple protections. Low-cost, 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
- ✓ Mono LCD display
- ✓ Direct Digital Synthesis technology (DDS)
- ✓ Min. output amplitude 1mV (50Ω) with good stability
- ✓ Sampling rate 100MSa/s, vertical resolution 8 bits, waveform length 1024 points
- ✓ 32 built-in 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 200MHz external frequency counter
- ✓ Optional RS-232 interface for PC remote control
- ✓ Optional power amplifier

Product photo

TFG-3205E

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Specifications

Model		TFG-3205E	TFG-3210E	TFG-3215E	TFG-3220E
Output frequency		**1μHz~5MHz**	**1μHz~10MHz**	**1μHz~15MHz**	**1μHz~20MHz**
Waveform					
Output waveform		32 built-in waveforms, including Sine, Square, Triangle, Ramp, Pulse, etc.			
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~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			
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%			
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			

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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.
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	Mono LCD
Language	English, Chinese (simplified), Chinese (traditional)
Interface	Optional 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, RS-232 cable x1
Dimension (WxHxD)	260x110x385mm
Weight	3.5kg

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