

DDS Function Generator (With 100MHz Frequency Counter)

MFG-2103F/2105F/2110F/2120F/2140F

Using Direct Digital Synthesis (DDS) Technology. It features high resolution, high accuracy, high stability, and low distortion. Standard RS-232 interface; 100MHz frequency counter
Pulse Waveform Function. With Burst Function, it can send 1~65535 pulse waves at one time



MODEL	MFG-2103F	MFG-2105F	MFG-2110F	MFG-2120F	MFG-2140F
Max.frequency	3MHz	5MHz	10MHz	20MHz	40MHz

Specification

Waveform

Sine, Square, Triangle, Rampup, Rampdown, Noise, Sin(x)/x, Indexup, Indexdown, Pulse.

Frequency characteristics

Sine	1 μ Hz~fmax	Maximum resolution	0.1 μ Hz or 8 digits
Square	1 μ Hz~5MHz	Long term stability	50ppm (0°C~40°C)
Others	1 μ Hz~1MHz	Short term stability	1ppm (after power on and stable)
		Accuracy	0.4Hz (>3.1kHz), 0.1 μ Hz (<100MHz)

Harmonic Distortions

(50 Ω load, 1Vpp output)	
<20kHz	0.25%
1MHz~10MHz	1%
20kHz~1MHz	0.4%
10MHz~20MHz	2%

Signal Characteristics

Square(50 Ω load, 1Vpp output)	Rise time and fall times	<15ns	
Asymmetry	<1%+20ns	Over shot	<5%
Pulse Duty ratio:	0.1%~99.9% (<10kHz), 1%~99% (<100kHz), 3%~97% (<1MHz)		
Triangle, Ramp linearity:	<0.1% (<1kHz)		

Pulse Signal

Output terminal: ASK Sync out	Level: TTL
Width tw: 10us<tw<100s	Period ts: 10 μ s<ts<100s

Sweep

Sweep range: 1Hz~fmax	Minimum step: 0.4Hz
Sweep speed: 10ms~40s	Trigger mode: Internal, External, Single

FSK, PSK, ASK, BURST

Pulse width, period: 10 μ s~100s	Frequency resolution: 0.4Hz
Trigger mode: Internal, external, single	Carrier waveform: internal waveforms
Carrier waveform frequency: 1Hz~fmax	Phase: -360° C~360° C
Burst pulse quantity: 1~65535	

Characteristics of OUTPUT channel

Amplitude (to lead the way): 2mVpp~20Vpp
(to 50 Ω): 1mVpp~10Vpp
Output impedance: 50 Ω
Modulation fineness: 5%
Sine flatness: 5%
DC offset: -100%~100% peak-peak value

Characteristics of B OUTPUT channel

Waveform: Internal waveform
Amplitude (to lead the way): 200mVpp~20Vpp
(to 600 Ω): 100mVpp~10Vpp
Output impedance: 600 Ω
Frequency range: 0.1Hz~20kHz

Internal amplitude modulation

Carrier waveform: Internal waveform (except Square wave)
Carrier frequency: 1Hz~fmax
Frequency resolution: 0.4Hz
Modulation waveform: Internal waveform
Modulation frequency: 100mHz~20kHz
Modulation frequency stability: 50ppm
Modulation depth: 0%~100%

External amplitude modulation

Input resistance: 100k Ω
Modulation Depth: When output signal is 1Vpp sine waveform, -0.4Vpp~0.4Vpp modulation signal could achieve 100% modulation depth

Internal frequency modulation

Carrier waveform: Internal waveform
Carrier waveform frequency: 1Hz~fmax
Frequency resolution: 0.4Hz
Modulation waveform: Internal waveform
Modulation frequency: 100mHz~10kHz
Modulation frequency stability: 50ppm
Frequency shift range: 1Hz~fmax

Internal phase modulation

Carrier waveform frequency: 1Hz~fmax
Carrier frequency resolution: 0.4Hz
Modulation waveform: internal waveform
Modulation frequency: 100mHz~10kHz
Carrier waveform: Sine, Square
Modulation frequency stability: 50ppm
Maximum phase shift: 360° C

Frequency counter

Tested frequency: 1Hz~100MHz
Input signal: >100mV

General

Input voltage: 110V/220V selectable, ±10%
Maximum current consumption: 160mA (110V) / 80mA (220V)