

B8003FD
B8010FD
B8020FD
B8040FD

B8000FD Series DDS Function Generators

- Built with highly stable and reliable Direct Digital Synthesis (DDS) technology
- The B8000FD series of Function Generators consist of 4 models with Frequency ranges from 1μHz to 3MHz **B8003FD** / 10MHz **B8010FD** / 20MHz **B8020FD** / 40MHz **B8040FD**
- Sine, Square, Pulse, Triangle, Ramp, Sine [x]/x, Exponential up, Exponential down and noise waveforms.
- All models have a Dual output with a second 0.1Hz to 20KHz output with all internal waveforms available
- AM (int./ext), FM (int), FSK, ASK, PSK and Burst
- Linear & logarithmic sweep
- Excellent long and short term frequency stability
- RS232 interface.
- Built in 100MHz Frequency counter
- Convenient keyboard entry of all waveform parameters



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SPECIFICATIONS

Waveforms

Sine, Square, Triangle, Ramp Noise, Sin (X)/x, Exp Up, Exp down and Pulse.

Frequency Range

Sine: 1μHz to 3MHz **B8003FD**
1μHz to 10MHz **B8010FD**
1μHz to 20MHz **B8020FD**
1μHz to 40MHz **B8040FD**
Square: 1μHz to 5MHz (3MHz for the **B8003FD**)
1μHz to 1MHz (All other waveforms)
Ramp and Triangle: 1μHz to 1MHz
Stability: Long term 50ppm, Short term: 1ppm
Resolution: 0.1μHz or 8 digits
Accuracy: 0.4Hz (>3.1KHz)
0.1μHz(<100MHz)

Waveform Characteristics

Sine Wave
Harmonic distortion: <20 KHz: -54dBc (0.20%)
20 KHz to 1MHz: -48dBc (0.4%)
1 MHz to 10MHz: -40dBc (1.0%)
10MHz to 20MHz: -22dBc (2.5%)

Square Wave

Rise / Fall Time: <10nS (1Volt p-p in to 50Ω)
Asymmetry: <1%+20nS

Pulse: Duty cycle: 0.1% to 99.9% (<10KHz)
1% to 99% (<100KHz)
3% to 97% (<1MHz)

Ramp and Triangle

Linearity: < 0.1% (1KHz)

Outputs

Main output
Output Impedance: 50Ω
Amplitude: Open circuit: 2mV to 20V p-p (≤ 20MHz)
2mV to 6V p-p (40MHz)
50Ω load: 1mV to 10V p-p (≤ 20MHz)
1mV to 3V p-p (40MHz)
Resolution: 8 Bits
Amplitude Flatness: 5%
DC Offset range: -100% to +100% of Peak Value

Output B

Waveforms: All internal waveforms
Amplitude: 200mV to 20V p-p
Frequency Range: 0.1Hz to 20KHz
Output Impedance: 600Ω

Sine output

Active for All wave forms and functions except Sine and Square waves.
Output Level: TTL
Pulse Duration:
On time: (Determined by the number of cycles in the selected modulation) 10 μS to 100s
Off time: the time between a burst end and the subsequent burst starts) 10 μS to 100s
Note: In sweep mode the Sweep trigger signal is high during the entire sweep

Sweep

Sweep modes: Lin and Log
Sweep width: From 1Hz to max waveform freq.
Sweep Speed: 10mS to 10s
Sweep Trigger: Internal, External, and Single

FSK, PSK, ASK Modulation

Carrier: All internal waveforms
Internal Rate: 9mHz to 50KHz
Frequency Range: 1Hz to the maximum frequency
Phase Range: (PSK) -360° to + 360°
Trigger: Internal, External and Single

Burst

Waveforms: All internal waveforms
Number of cycles: 1 to 65,535
Phase Range: -360° to + 360°
Frequency Range: 1Hz to the maximum waveform frequency
Trigger: Internal, External and Single

Amplitude Modulation: [Internal]

Modulation: depth: 0 to 100%
Carrier Frequency: 1Hz to the maximum waveform frequency
Carrier Waveforms: Internal waveforms, Except Square wave
Modulation Waveforms: Internal waveforms
Modulation Frequency: 10mHz to 20KHz

External Amplitude Modulation:

Input Impedance: 100KΩ
Modulation depth: a 0.4V p-p signal would 100% modulate a 1V p-p Sine wave

Frequency Modulation:

Carrier Waveforms: All internal waveforms
Carrier Frequency: 1.0Hz to the maximum waveform frequency
Modulation Waveforms: All internal waveforms
Modulation Frequency: 100mHz to 10KHz
Deviation: 0.1Hz to the maximum waveform frequency

Phase Modulation:

Carrier Waveforms: Sine, Square
Carrier Frequency:
Sine wave: 1μHz to the maximum waveform frequency
Square wave: 1Hz to the maximum waveform frequency
Modulation Waveforms: All internal waveforms
Modulation Frequency: 100mHz to 10KHz
Maximum Phase Shift: 360°

Frequency Counter

Frequency Range: 1Hz to 100MHz
Input Signal Sensitivity: > 100mV
Interface: RS232; Baud Rate: 9600, Parity: None
Data bits: 8, Stop bits: 1

General Specifications

Input Voltage: 110V and 220V selectable
Input Power: 18 watts
Dimensions: 5.6"(W) x 3.0"(H) x 10.5"(D)
Weight: 4.34 lbs
Accessories: Operating manual, BNC cable w/ Alligator clips and AC power cord