Data Sheet

DDS Function Generators

Models 4007B and 4013B

Features & Benefits

- Sine and square waveforms up to 12 MHz
- Bright easy-to-read display
- Linear and logarithmic sweep
- Variable DC offset
- Adjustable duty cycle
- Store and recall up to 9 instrument settings
- Output On/Off button
- Overvoltage, overcurrent, and short circuit protection on main output

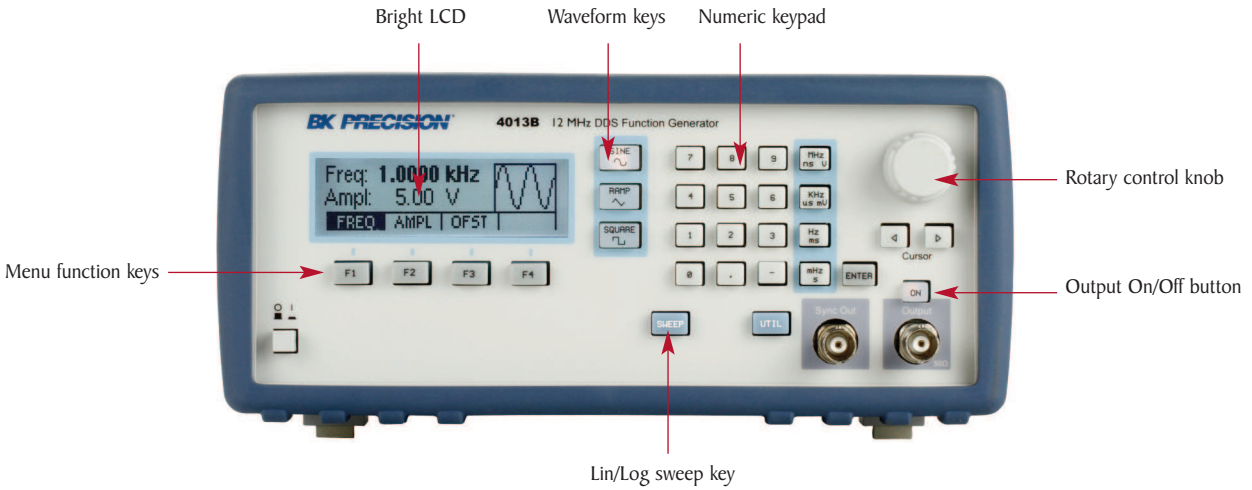
Models 4007B and 4013B are versatile DDS (direct digital synthesis) sweep function generators with high signal precision and stability. These instruments generate sine and square waveforms up to 7 MHz or 12 MHz, including triangle/ramp waveforms up to 1 MHz. Both models provide variable output voltages from 0 to 10 Vpp into 50 ohms or up to 20 Vpp into open circuit. A continuously variable DC offset allows the output to be injected directly into circuits at the correct bias level.

These models are suitable for education and other applications that need basic DDS function generators with sweep capability.

Model	4007B	4013B
Sine and square frequency range	0.1 Hz - 7 MHz	0.1 Hz - 12 MHz
Triangle/ramp frequency range	0.1 Hz - 1 MHz	

Intuitive user interface

Easily change all waveform parameters using the intuitive menu-driven front panel keypad, control knob, and easy-to-read LCD. Convenient waveform and range selection buttons let users make quick and precise adjustments.



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Specifications	4007B	4013B
Frequency Characteristics		
Sine	0.1 Hz to 7 MHz	0.1 Hz to 12 MHz
Square	0.1 Hz to 7 MHz	0.1 Hz to 12 MHz
Triangle	0.1 Hz to 1 MHz	
Resolution	5 digits or 100 mHz	
Accuracy	0.01% ± 0.186 Hz	
Output Characteristics		
Amplitude Range	20 mVpp to 20 Vpp (open circuit); 10 mVpp to 10 Vpp (into 50 Ω)	
Amplitude Resolution	3 digits (1,000 counts)	
Amplitude Accuracy	± 2 % ± 20 mV of programmed output from 1.01 V – 10 V	
Flatness	± 1 dB to 7 MHz	± 1 dB to 12 MHz
DC Offset Range	-4.5 V to 4.5 V (into 50 Ω)*	
DC Offset Resolution	10 mV, 3 digits	
DC Offset Accuracy	± 2 % ± 10 mV (into 50 Ω)	
Output Impedance	50 Ω ± 2%	
Output Protection	Protected against short circuit or accidental overvoltage practically available in electronic laboratories, applied to the main output connector	
Waveform Characteristics		
Harmonic Distortion (at 10 Vp-p into 50 Ω)	DC - 100 kHz, -55 dBc 100 kHz - 1 MHz, < -45 dBc 1 MHz – 7 MHz, <-30 dBc	DC - 100 kHz, -55 dBc 100 kHz - 1 MHz, < -45 dBc 1 MHz – 12 MHz, <-30 dBc
Square Rise/Fall Time	≤ 20 ns (10% to 90% at full amplitude into 50 Ω)	
Duty Cycle	Adjustable 20% - 80% up to 1 MHz for square and triangle	
Symmetry Accuracy at 50%	± 1%	
Sweep Characteristics		
Sweep Shape	Linear or Logarithmic, up or down	
Sweep Time	20 ms to 100 s	
Input and Output		
Sync Out	TTL pulse at programmed frequency; 50 Ω source impedance	
General		
Memory Storage	9 instrument settings	
Power Requirements	100 V – 240 V AC ± 10%	
Operating Temperature	0 °C to 50 °C (32 °F to 122 °F)	
Storage Temperature	-10 °C to 70 °C (14 °F to 158 °F)	
Humidity	95% R.H. 0 °C to 30 °C	
Dimensions (W x H x D)	8.39" x 3.46" x 8.27" (213 x 88 x 210 mm)	
Weight	4.4 lbs (2 kg)	
Electromagnetic Compatibility	Meets EMC Directive 2004/108/EC, EN55011, EN55082	
Safety	Meets Low Voltage Directive 2006/95/EC, EN61010	
	Three Year Warranty	
Supplied Accessories	Manual on CD, power cord, certificate of calibration	

*Depending on the amplitude setting

Note: All specifications apply to the unit after a temperature stabilization time of 15 minutes over an ambient temperature range of 23 °C ± 5 °C.
Specifications are subject to change without notice.