

# BK Precision Function Generator

Part No. 01BK4070A

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Specifications		model 4070A
<b>STANDARD FEATURES</b>		
<ul style="list-style-type: none"> <li>• DC offset capability</li> <li>• TTL/CMOS sync output available in all modes</li> <li>• RS232 remote control (Easy to use) Code examples included.</li> <li>• External logic input for gating or output signal and triggering.</li> <li>• Easy software updates via Flash memory.</li> <li>• Configuration save/restore: 10 complete front panel setups.</li> </ul>		
<b>MAIN OUTPUT</b>		
Frequency:	DC to 21.5000000 MHz, 0.01 Hz steps	
Level:	4 mVp-p to 10.000 Vp-p, 1 mV steps (into 50Ω) or -44 dBm to +24 dBm, 0.1 dBm steps (into 50 Ω)	
Level Accuracy:	+-1%	
Flatness:	+-0.2 dB (DC-21.5 MHz) Level 5V @50Ω	
DC offset:	0V to +- 6V, 1 mV steps (into 50 Ω)	
Output impedance:	50Ω	
Freq. accuracy	+-10ppm (.001%), +-5 ppm optional (@50Ω)	
Phase Noise:	<-55 dBc in a 30 kHz band	
Spectral Purity:	DC to 100 kHz: > -50 dBc	
100 kHz to 1 MHz:	-45 dBc	
1 MHz to 12 MHz:	-40 dBc	
12 MHz to 21.5 MHz:	>-35 dBc	
<b>SYNC OUTPUT</b>		
Amplitude:	0V to +5V (TTL/CMOS comp.)	
Fall Time:	3 ns.	
Rise Time:	< 8 ns. 10% to 90%	
Output current:	+-24 mA.	
<b>RS232 PORT</b>		
Asynchronous, no parity, 1 start bit, 1 stop bit.		
Baud rate:	Adjustable, 300 bps to 115,200 bps.	
Remote operation from a terminal or host computer.		
<b>EXTERNAL MODULATION INPUT</b>		
Maximum full scale input: +- 5V (10Vp-p)		
Input Impedance:	30kΩ	

<b>EXT. TRIGGER/GATING?FSK/BPSK INPUT</b>	
Input impedance:	80 k $\Omega$
Max. input level:	+ - 10V
Max. gating freq:	3 MHz
<b>EXT. ARB CLOCK INPUT</b>	
Input level:	TTL/CMOS
Max. clock freq:	40 MHz
<b>OPERATING MODES</b>	
The carrier frequency for all modulation modes is 0 Hz to 21.5000000 MHz, 0.01 Hz steps.	
All internal modulation frequencies are synthesized and are accurate to 0.01%.	
<b>BASIC SINEWAVE (CW) MODE</b>	
Output frequency:	0 Hz to 21.500 Mhz, 0.01 Hz steps
<b>FREQUENCY MODULATION (FM) MODE</b>	
Int. modulation freq:	0 Hz to 10 kHz, 1 Hz steps
Ext. modulation freq:	DC to 35 kHz
Peak phase deviation:	0 to + - 180 $^{\circ}$ , 1 $^{\circ}$ steps
<b>SWEEP MODE</b>	
Start/Stop freq:	0 Hz to 21.500 MHz, .01 Hz steps
Linear or Log sweep. Up or Down sweep direction	
Continuous or Int/Ext Triggered sweep	
Sweep time:	1 ms to 60 sec. 1 ms steps.
<b>VOLTAGE CONTROLLED OSCILLATOR MODE</b>	
Endpoint frequencies:	0 Hz to 21.500 MHz, 0.01 Hz steps
Control input range:	-5.0V to +5.0V
Control signal bandwidth:	DC to 35 kHz
<b>BURST MODE</b>	
Continuous or Triggered from Front Panel, RS232, or Ext. TTL	
On Time:	1 mS to 99.999 Sec, 1 mS steps
Off Time:	0 mS to 99.999 Sec, 1 mS steps
<b>DUAL TONE MULTI FREQUENCY (DTMF) GENERATE MODE</b>	
Dialing digits generated:	0 to 9, #, *, A, B, C, D
Duration:	1 mS to 10.000 Sc, 1 mS steps
Delay:	0 mS to 10.000 Sec, 1 mS steps
<b>CUSTOM DUAL TONE GENERATE MODE</b>	
Tone 1, Tone 2 Frequency:	DC to 10.000 kHz, 1 Hz steps
Phase Offset:	0 deg. to 359 deg., 1 deg. steps
Output ON time:	Cont. or 1 ms to 10.000 sec, 1 ms steps
<b>AMPLITUDE MODULATION (AM) MODE</b>	
Int. modulation freq:	0 Hz to 10 kHz, 1 Hz steps
Ext. modulation freq:	DC to 35 kHz
Percentage modulation:	Variable 0% to 100%, 1% steps
<b>SINGLE SIDEBAND (SSB) MODE</b>	
Int. modulation freq:	0 Hz to 1.0 MHz, 1 Hz steps
Ext. modulation freq:	DC to 8500 Hz
Upper or Lower Sideband selectable	

<b>FREQUENCY SHIFT KEYING (FSK) MODE</b>	
Int. modulation freq:	0 Hz to 130 kHz, 1 Hz steps
Ext. modulation freq:	0 Hz to 3 MHz
Mark/Space freqs:	0 Hz to 21.5 MHz, 0.01 Hz steps
<b>DATA MODULATION MODE</b>	
Baud Rate:	0 Hz to 130 kHz, 1 Hz steps
Message length:	1 to 960 bits. Nonvolatile storage: 10 locations
Mark/Space frequencies:	0 Hz to 21.5 MHz, 0.01 Hz steps
<b>POWER &amp; VOLTAGE MEASUREMENT MODE</b>	
Input signal level:	+5V max. (10Vp-p)
Input signal bandwidth:	DC to 50 kHz
Power calc. impedance:	Variable from 1 to 999Ω
<b>BINARY PHASE SHIFT KEYING (BPSK) MODE</b>	
Int. modulation freq:	0 Hz to 130 kHz, 1 Hz steps
Ext. modulation freq:	0 Hz to 10 kHz
<b>DUAL TONE MULTI FREQUENCY (DTMF) DETECT MODE</b>	
DTMF digits detected:	0 to 9, #, *, A, B, C, D
Detection range:	10 Vp-p max., 20 mVp-p min.
Detection time:	100 ms
<b>ARBITRARY WAVEFORM GENERATOR MODE</b>	
Vertical Resolution:	12 bits
Sample Rate:	Variable from 0Hz to 40 Msamples/Sec. in .1 Hz steps
Sample Buffer Depth:	32,768 data points
Data Formats Supported:	Floating Point, Decimal, Hexadecimal, Integer, Binary, Digital, CSV and PRN formats
Nonvolatile waveform storage:	1 location, 32,768 points
<b>FUNCTION GENERATOR MODE</b>	
Waveforms:	Pos. Ramp, Neg. Ramp, Triangle, Pos. Exponential, Inverted Pos. Exponential, Neg. Exponential, Inverted Neg. Exponential, Random (noise), Sinewave
Repetition Rate:	0 Hz to 2 MHz in 1 Hz steps
Run Mode:	Continuous or Internal/External Triggered
<b>PULSE GENERATOR MODE</b>	
Frequency:	0 Hz to 2 MHz in 1 Hz steps
Duty Cycle:	Variable 0% to 100% in 1% steps
Run mode:	Continuous or Int/Ext Triggered
Output:	Variable in amplitude and offset. A TTL/CMOS output is simultaneously provided.
<b>GENERAL</b>	
Power:	100-240 VAC 47-63 Hz, 30W, 3 prong IEC conn.
Display:	2 line by 40 character, LCD, backlit.
Weight:	Approx. 3.5 lbs. (1.6 kg)
Dimensions (HxWxL):	5.5x11.75x10.375" (140x298x264 mm)
Operating Temperature:	32 ° to 104 ° F (0 ° to 40 ° C) ambient.
Stored instrument setups:	10, including 1 power-up state
Accessories	
Carrying Case (not included): LC-40	