

# Data sheet

## Function Generators Models 4017A & 4040A



Model 4040A

These analog function generators offer familiar controls, stable output, and reliable operation at budget-saving price points.

### 4017A 10 MHz Sweep Function Generator

- 0.1 Hz to 10 MHz
- Sine, Square, Triangle, Pulse, & Ramp output
- Coarse and Fine tuning
- 5 digit LED display
- Linear and log sweep
- Variable duty cycle
- Variable DC offset
- cUL certified

### 4040A 20 MHz Sweep Function Generator

- 0.2 Hz to 20 MHz
- Sine, Square, Triangle, Pulse, & Ramp output
- Coarse and Fine tuning
- AM & FM modulation
- Burst operation
- External frequency counter to 30 MHz
- Linear and log sweep
- Variable duty cycle
- Variable DC offset
- cUL certified



Model 4040A	
<b>AM MODULATION CHARACTERISTICS</b>	
Source	Internal, External
Modulation Ratio	0 to 100%
Int modulation	1 kHz
Ext Modulation	DC to 500 kHz
Ext Sensitivity	Less than 10V p-p for 100% modulation
<b>FM MODULATION CHARACTERISTICS</b>	
Source	Internal, External
Modulation Ratio	0 to 100%
Deviation	0 to 5%
INT Modulation	1 kHz
Ext Modulation	DC to 500 kHz
Ext Sensitivity	Less than 10V p-p for 100% modulation
<b>BURST CHARACTERISTIC</b>	
Source	Internal, External
Burst Width	Cont. variable from 5% to 90% of internal gating frequency
Repetition Rate	0.5 Hz to 50 Hz, internal DC to 500 kHz external
External Level	TTL levels
Burst Frequency	Determined by main generator frequency setting

Specifications	4017A	4040A
<b>Frequency Characteristics</b>		
Waveforms	Sine, Square, Triangle, $\pm$ Pulse, $\pm$ Ramp	
Range	0.1 Hz to 10 MHz in 8 ranges	0.2 Hz to 20 MHz in 8 ranges
Resolution	5 digits	5 digits
Tuning Range	10:1	10:1
Fine	$\pm 5\%$ of coarse setting	$\pm 5\%$ of coarse setting
Variable Duty Cycle	15:85:15 cont variable	15:85:15 cont variable
Operating Modes	Normal, sweep, VCG	Normal, sweep, VCG, AM, FM, burst
<b>Output Characteristics</b>		
Impedance	50 $\Omega$ $\pm$ 10%	
Level	20 V p-p Open circuit, 10V p-p into 50 $\Omega$	
Amplitude	Variable, 20 dB range typical	
Attenuation	-20 dB $\pm$ 1 dB	
DC Offset	Preset $\pm$ 0.1 V typ Variable: $\pm$ 10V open-circuit $\pm$ 5 into 50 $\Omega$	
<b>Sine Wave</b>		
Distortion	$\leq 3\%$ typical at 1 kHz	
Flatness	$\pm 5\%$ (.45 dB) 0.1 Hz to 8 MHz $\pm 20\%$ (2.0 dB) 8 MHz to 10 MHz	$\pm 5\%$ (.45 dB) 10 Hz to 8 MHz $\pm 20\%$ (2.0 dB) 8 MHz to 20 MHz
<b>Square wave</b>		
Symmetry	0.1 Hz to 100 kHz <2%	0.2 Hz to 100 kHz <2%
Rise time	$\leq 30$ ns	
Triangle Wave	Linearity: $\geq 98\%$ to 100 kHz	
<b>TTL Output</b>		
Level	0.8V to 2.4V	
Rise time	$\leq 20$ nS	
Duty Cycle	50% typical	
<b>CMOS Output</b>		
Max. Frequency	2 MHz	
Level	4V to 14V $\pm$ 0.5 p-p cont. variable	
Rise Time	$\leq 120$ nS	
<b>VCG (Voltage controlled generator)</b>		
Input Voltage	0-10V $\pm$ 1V causes a 100:1 frequency change	
Impedance	10k $\Omega$ $\pm$ 5%	
<b>Sweep Operation</b>		
Mode	LIN/LOG	
Width	100:1 continuously variable	
Rate	0.5 s to 30 s cont variable	20 ms to 2 s cont variable
Sweep Output	0 to 10 V	0 to 2 V
Start/Stop Frequencies	NA	Adjustable
<b>Frequency Counter</b>		
Accuracy	Time base accuracy $\pm 1$ count	
Time Base Accuracy	$\pm 10$ ppm (23 $^{\circ}$ $\pm$ 5 $^{\circ}$ C)	
Display	5 digit LED	
Mode	NA	INT or EXT
<b>External Input</b>		
Frequency	Does not apply	5 Hz to 30 MHz
Resolution	Does not apply	0.1, 1, 10, 100, 1 kHz
Sensitivity	Does not apply	25 mVrms
<b>General</b>		
Power Source	120/230 VAC $\pm$ 10%, 50/60 Hz, internal jumper selectable	
Dimensions	4.5 x 11.75 x 10.575" (140 x 298 x 264mm)	5.5 x 11.75 x 10.575" (114 x 298 x 264mm)
Weight	4 lbs. (1.8 kg)	4.5 lbs. (2 kg)
<b>Two Year Warranty</b>		
Supplied Accessories	Output Cable with BNC to Alligator Clips, Instruction Manual Carrying Case (not included): LC-40	