

FUNCTION GENERATOR

*FG-2020B*

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# Operation Manual

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## FUNCTION GENERATOR

### 1. Description:

The unit is a versatile and compact Function Generator capable of generating high quality sine, triangle and square waveforms of high stability and accuracy.

The sine and triangle waveforms can be amplitude and frequency modulated by applying external voltages at the VCA (Voltage-Controlled Amplitude) and the VCF (Voltage-Controlled Frequency) inputs. With these two inputs, the unit can easily produce amplitude modulated, frequency sweep, ASK (Amplitude-Shift Keying), or FSK (Frequency-Shift Keying) signal.


Output Frequency is adjustable from 0.5Hz to 500 KHz in 6 ranges. The DC offset of all waveforms can be adjusted between + and - 10 volts by a front panel adjustment.


### 2. Specification:

Frequency Range .....	0.5Hz to 500KHz (6 ranges)
Wave Forms .....	Sine, Triangle and Square
Amplitude .....	not over 20 Vpp open circuit, not over 10Vpp into 50 ohm.
Attenuation .....	1/100

Frequency Accuracy .....	±5% of full scale
DC Offset .....	Variable, +10 to - 10V open circuit, +5 to - 5V into to ohm
Sine Wave Distortion .....	1% typical at 1KHz
Square Wave .....	Rise time 500ms typical
VCF .....	Linear frequency sweep for control voltage from -2 to +2, input impedance 10K ohm
VCA .....	Linear amplitude modulation approx. 10 to 1 variations for sine and triangle wave output, impedance 10K ohm.

### 3. Front Panel Control:

- a. POWER ..... This is the main power switch. It is a push on/push off type.
- b. DC OFF SET ..... This adjustment knob can be used to add a DC voltage to the output signal.
- c. AMPLITUDE ..... This adjustment sets the signal level of the output. Turning the control clockwise will increase the amplitude.
- d.  ..... These switches is used to select the output waveform. Only one of these switches can be depressed at a time.

- e. 1/100 ..... When this push button switch is depressed (  ), the output signal level is attenuated by 20dB.
- f. RANGE Hz ..... This rotary switch is used to select the frequency range produced. The actual output is the product of the setting dial of the(g) "FREQUENCY".  
For example, "FREQUENCY" sets dial 7 and "RANGE Hz" sets in 1K the actual output is 7K (7x1K).
- g. FREQUENCY ..... This knob is used to adjust the output frequency.
- h. VAC ..... Voltage-Control-Amplitude.
- i. VCF ..... Voltage-Control-Frequency.
- j. O/P ..... The output signal for all waveforms.

4. Operation Instruction:

- a. Select the desired waveform using the waveform switches.
- b. Selecting the desired frequency with the (f) "Range Hz" and (g) "FREQUENCY". The actual output frequency will be:  

$$F(\text{Hz}) = \text{Dial Indication (FREQUENCY)} \times \text{"RANGE Hz" setting.}$$
- c. If the output signal level is too small, it may be adjusted with the (C) AMPLITUDE.
- d. Any required DC offset voltage can be set with the "DC SET" knob.