Waveforms Generated BY Function Generator
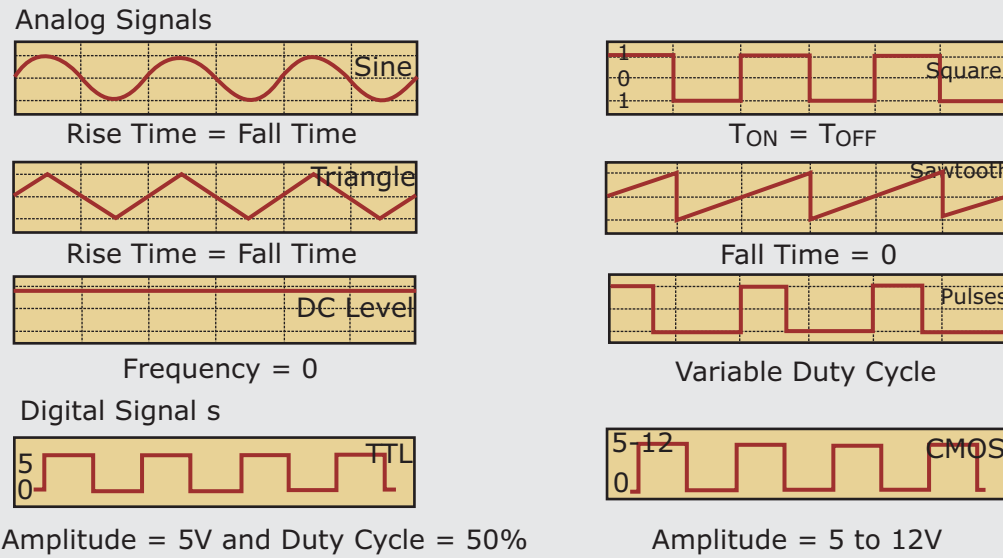
Analog Signals

Sine
Rise Time = Fall Time

Triangle
Rise Time = Fall Time

DC Level
Frequency = 0

Square
$T_{ON} = T_{OFF}$

Sawtooth
Fall Time = 0

Pulses
Variable Duty Cycle

Digital Signals

TTL
Amplitude = 5V and Duty Cycle = 50%

CMOS
Amplitude = 5 to 12V

Analog Modulation

Modulating Signal

Frequency Modulated Wave

Amplitude Modulated Wave

Pulse Width Modulated Wave

Digital Modulation

ASK Modulation

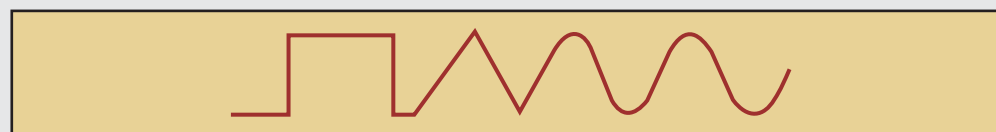FSK Modulation

PSK Modulation
Phase Change / No Phase Change / Phase Change

Arbitrary Waveforms

User can define any waveform that he desires, for example he needs a square wave for 1 msec then a triangular wave for 1.5 msec and at last a sine wave, so that wave will look like this.


A Function Generator is a device that can produce various patterns of voltage at a variety of frequencies and amplitudes. A high quality signal with minimum distortion should obtained at the output.

2MHz AM/FM Function - Pulse Generator - 40MHz Frequency Counter

Freq:2.03 KHz
2K Sine Off FG
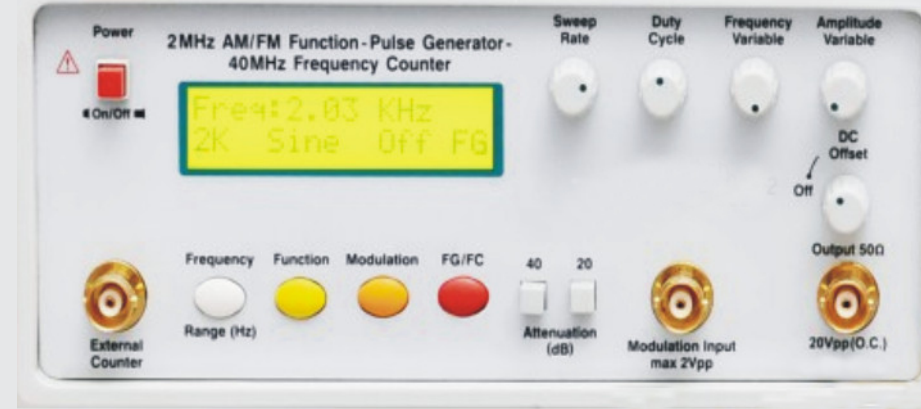
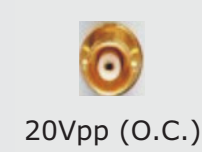### Specifications of Function Generator

Frequency Range
It is the range between minimum and maximum frequency that we can get at the function generator's output. It can be varied by a course and fine switch. Frequency range for the above model is 2MHz.

Frequency Range (Hz)

Amplitude Variable
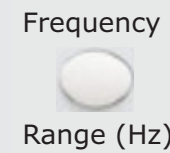
Amplitude Range:
It is the range of minimum to maximum amplitude of any wave. Amplitude range for the model displayed is 0-20Vpp. (O.C)

Amplitude Variable

20Vpp (O.C.)

Functions Available:
It is the number of waves provided by a function generator. A function generator with more number of functions is preferred over the one with lesser functions.

Frequency Range (Hz)   Function   Modulation   FG/FC
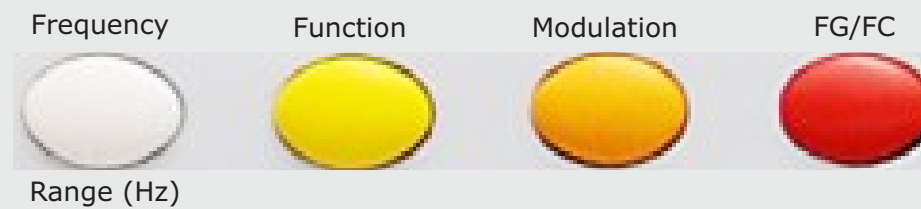
Some Features of Function Generator

Display or Readout: If the frequency and amplitude of a function generator are readable, it is more convenient to use it.

Freq:2.03 KHz
2K Sine Off FG

DC OFFSET: DC offset is offsetting of a signal from zero. DC offset is the mean amplitude of the waveform; if the mean amplitude is zero, there is no DC offset.

V_{AC}

$V_{AC} + V_{DC}$
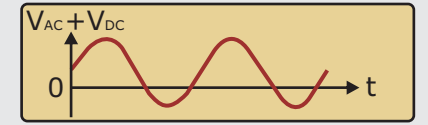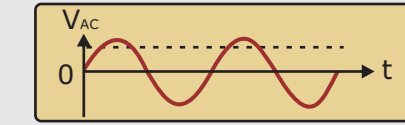
Modulation: Modulation is the process of varying some characteristic of carrier signal with respect to an information signal Displayed model acts as a carrier source while modulating signal is to be fed externally.

Modulation Input max 2Vpp

Duty Cycle: Duty cycle is the fraction of time that a system is in "active" state. It is defined as the ratio between the pulse duration (τ) and the period (T) of a waveform. It is given by:
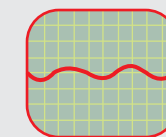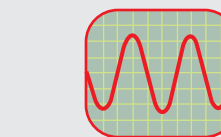
Duty Cycle

Duty Cycle $\dfrac{T_{ON} \times 100}{T_{ON} + T_{OFF}} = \dfrac{\tau}{T}$ in Percentage

On=High Level   Off = Low Level

Duty Cycle = 100%

Duty Cycle = 50%

Duty Cycle = 90%
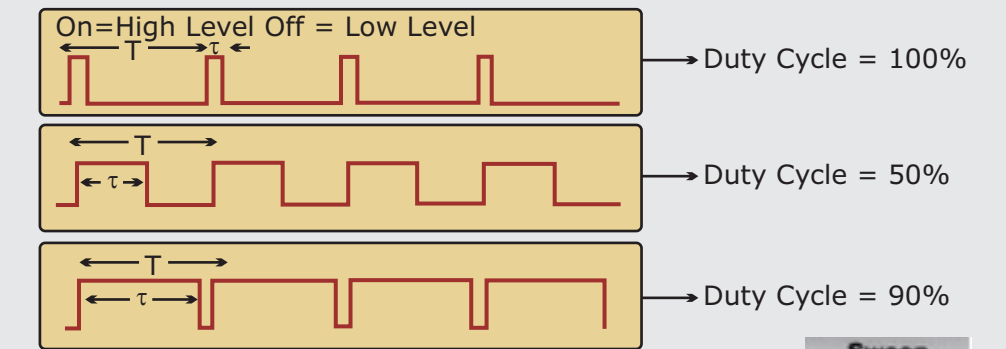
Sweep Rate: It is the rate at which a signal sweeps between two frequencies. The range is fixed for a particular device.

Sweep Rate

Attenuation: Attenuation is a general term that refers to any reduction in the strength of a signal. It is expressed in decibels (dBs). It increases the amplitude range of a function generator. Displayed mode can attenuate the signal by 60dB.
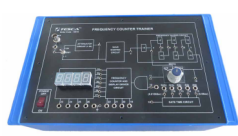
Before Attenuation 20V

After Attenuation of 20 dB-2V

Attenuation (dB) 40 20

Attenuation Switches

TTL/COMS Trigger Output: A square wave that continuously switches between 0 and 1 is known as TTL wave. It has a Duty Cycle of 50%. And CMOS are waveform with 5 to 12V amplitude.

TTL   CMOS   TRIG   OUTPUT

External Counter: It has a facility to count and display the frequency of any signal fed externally.

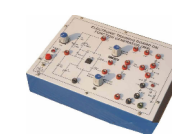| 10915 Function Generator Trainer | 10916 Frequency Counter Trainer | 17023 Function generator 0.1Hz-2MHz | 17037 DDS Function Generator 120MHz | 17127 Function Generator 2MHz | 36170 Function Generator | 46622 Synchronization Panel Trainer | 46800 Electrical Machine Trainer |