Stony Brook University

Department of Physics and Astronomy
Introductory Physics Laboratories
PHY 122

PHY 122 Function Generators

Instek GFG 8210

The Instek GFG 8210 is an analog function generator capable of making sinusiodal, square and triangle wave outputs from ~1 Hz to 3MHz and up to 10 Volts peak-to-peak.
To operate it:

i) Ensure that the unit is plugged in AC power. Press in the power switch in the lower left. Connect a BNC to Banana adapter to the **Output 50 Ω,** in the lower right.
ii) Select your function with the button in the second row, square, triangle or sine.
iii) Select a frequency range with a button from the top row. You will be able to adjust the function generator from ~1 Hz to ~10% above the range displayed. So, if you wish to use 8000Hz, choose the button 10k, which will allow 1-11000 Hz, or so.
iv) The output frequency is displayed on the 6 digit display. Note the units: Hz, kHz and MHz are possible, depending on the frequency range button you selected.
v) Adjust the frequency with the knob below the frequency display. You may adjust the amplitude of the output with the knob next to the **Output 50 Ω.**

Instek AFG 2005

The Instek AFG-2005 is a digitally synthesized arbitrary function generator capable of making sinusiodal, square, triangle and arbitrary waveforms outputs from ~1 Hz to 5MHz and up to 20 Volts peak-to-peak (into an open circuit).
To operate it:

i) Ensure that the unit is plugged in AC power. Press in the power switch in the lower right. Connect a BNC to Banana adapter to the **MAIN Output 50 Ω**, second from the top on the right.
ii) Buttons to the right of the display are the controls. Us the top button to select your function; the current selection is indicated with an image on the top of the display.
iii) To set a frequency, press the FREQ button. The dial and arrow keys select the value and digit you are adjusting. You can also use the keyboard to enter a value, then set it with the appropriate UNITS button (dark gray, on the bottom row). Use Hz/Vpp for setting frequency in Hertz.
iv) To set an amplitude, press the AMP button. The dial and arrow keys select the value and digit you are adjusting. You can also use the keyboard to enter a value, then set it with the appropriate UNITS button (dark gray, on the bottom row). Use Hz/Vpp for setting amplitude in Volts peak-to-peak.
v) There is no output from the AFG 2005 unless you press the **OUTPUT** button, below the knob & arrow keys. The Output button with be **Yellow** when the output is **ON**.

vi) The frequency and amplitude are given on the display; please note the units (Hz or KHz, volts or mV). **NB**: the amplitude displayed is the amplitude which would be found with a 50 Ω load. Connected to an Elenco oscilloscope, which provides a 1 M Ω load, the measured amplitude will be 2x (twice) the value on the display.

PHY 122 Function Generators

Krohn-Hite 1000A

The Krohn-Hite 100A is an analog function generator capable of making sinusiodal, square and triangle wave outputs from ~1 Hz to 300 kHz and up to 10 Volts peak-to-peak (into a 50 Ω load).
To operate it:

i) Ensure that the unit is plugged in AC power. Press in the power switch in the upper left. Connect a BNC to Banana adapter to the **MAIN Out Hi**, in the lower right.
ii) The three rightmost buttons select the function out: square, triangle or sine wave. One button must be IN to get an output.
iii) The output frequency is the product of the value on the Frequency dial (.2 -300) and the Multiplier button value (1, 100 or 10k). For example, to set 8000Hz, one can set the dial to 80 and the Mult to 100 OR set the dial to .8 and the Mult to 10k. The Vernier knob (left of the frequency dial) is a fine adjust for the frequency.
iv) To set an amplitude, use the knob above the Main Out connectors.
v) There is no display of the set frequency or amplitude from this unit. One must use an oscilloscope (or other electronic tools such as a frequency counter) to measure the values.

PHY 122 Power Supplies

MW 122A

The MW 122A is a regulated DC power supply capable of delivering up to 2 Amps at 3-12 Volts, dc.

To operate it:

i) Ensure that the unit is plugged in AC power. Connect the unit to your circuit using a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
ii) Set your desired voltage.
iii) Toggle the power switch in the upper left to turn the unit On and Off.