Makersplayce Machine Manual

Analog Function Generator

Aim TTI TG550

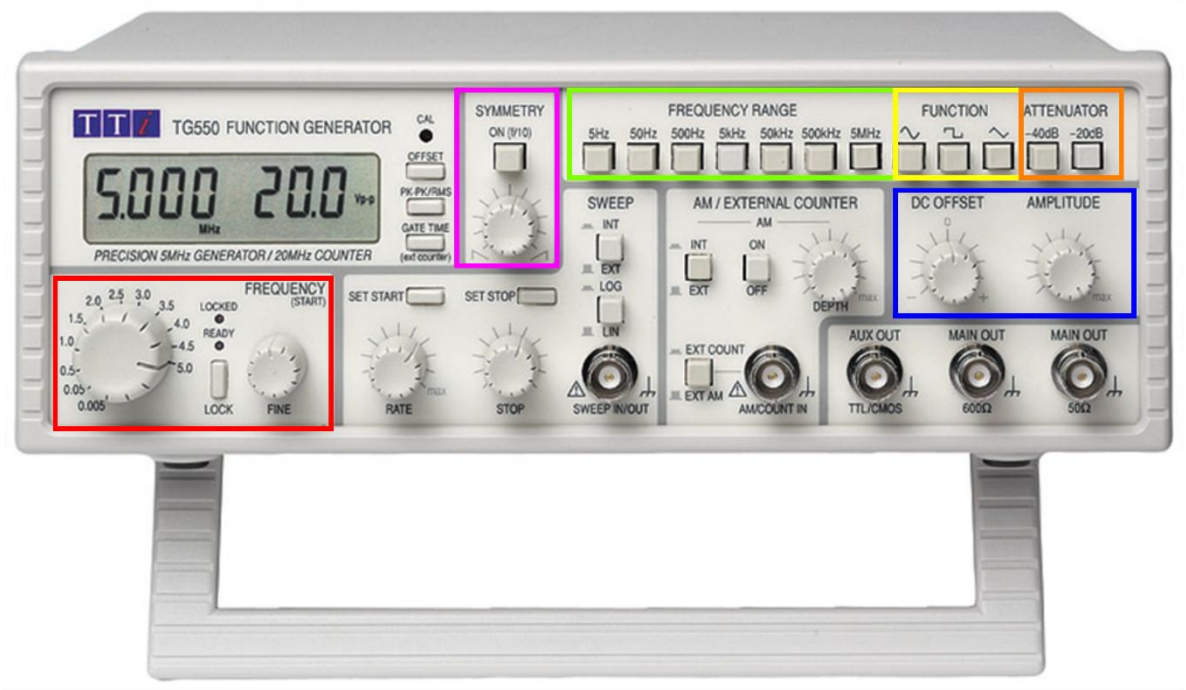


Introduction

This is the user guide of the Aim TTI TG550 Analog function generator in Makersplayce. This device is a one channel function generator with various forms of outputs and settings.

The user can refer to the information given in this document to properly use the function generator. **It is strongly encouraged to connect the output of the function generator to an oscilloscope before connecting it to the system**, so that the desired output can be checked and adjusted properly.

Overview



Frequency Control Section: This section controls the starting frequency of the generated signal. The large knob sets the approximate frequency, while the smaller FINE knob lets the user make finer adjustments, within +/- 2Hz range. The LOCK switch locks the frequency of the generated signal at the output.

Frequency Range Selection: This section determines the range of frequencies the generator operates within. To set a specific frequency, select the closest higher value that are written on top of the buttons. For example, if 600Hz is needed at the output, Select the 5kHz and change the frequency value using the large knob on the Frequency control section.

Waveform Selection: This section selects the waveform type. It allows for sine, square and triangle waves.

Attenuator Section: Controls output signal attenuation (reduction in amplitude). Allows selection of -20dB (selected amplitude / 10) or -40dB (selected amplitude / 100) attenuation to reduce signal strength.

Symmetry Control: Adjusts the duty cycle of the waveform. When the button on top of the knob is pressed, the duty cycle at the output is exactly 1/10 of the period. When it is not pressed, the duty cycle can be adjusted using the knob below the button.

DC Offset & Amplitude Control: DC OFFSET knob shifts the waveform up or down along the voltage axis, allowing the signal to be cantered around a different voltage level. AMPLITUDE knob adjusts the output signal's strength (voltage level).

Starting Up

To start up the generator, make sure the device is plugged in. After this, you can use the switch at the back of the generator to turn it on.

How to use:

To start using the function generator, first decide on the specific shape and values of the signal that is needed for the system/circuit. After determining the specific values, the output can be adjusted. To monitor and adjust the signal at the output, using an oscilloscope is highly recommended.

Frequency:

- Use the Frequency Range selector switches to choose an appropriate range (e.g., Hz, kHz, or MHz). The TG550 has multiple frequency bands, so select the closest range that's higher than the desired value.
- With the knob on the left corner, adjust the exact frequency at the output and fine tune using the FINE knob next to it. The frequency will display on the screen of the generator.

Amplitude & DC Offset:

- Using the amplitude knob, adjust the peak-peak strength of the output. The amplitude value will be displayed on the screen. If you need the signal to be not symmetrical along the x-axis and start at a different value, use the DC offset knob to adjust the minimum voltage. An oscilloscope will be really helpful in determining the output's real minimum and maximum voltage values.
- Keep in mind that the generator has a max 20V output. If very small signals are needed at the output (in the mV range), use the Attenuator buttons to adjust.

Waveform:

- Select the desired waveform at the output using the Function buttons, double check with an oscilloscope if the output is stable.

Shutting Down

After you're done using the function generator, use the switch at the back to turn the generator off.