Using the Function Generator

This section will briefly describe how to operate the function generator, and some of its features. Figure 1 shows the interface of the signal generator, and Figure 2 shows the functionality of the controls.
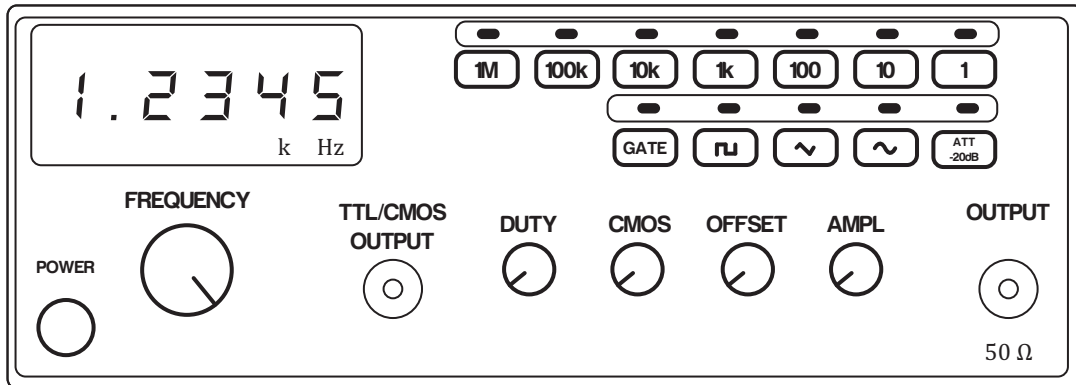

Figure 1: The interface of the signal generator.

The signal generators in the labs are capable of providing sine, triangle and square waves at frequencies from 0.5Hz to 5MHz. The frequency of the output signal is displayed on the six digit LED display on the top left of the control panel. To adjust the frequency, first press the frequency decade selection button corresponding to the order of magnitude required. Then secondly use the frequency adjustment knob to tune the generator to the desired frequency.

You can change the function type using the buttons indicated by "Function Type" in Figure 2.
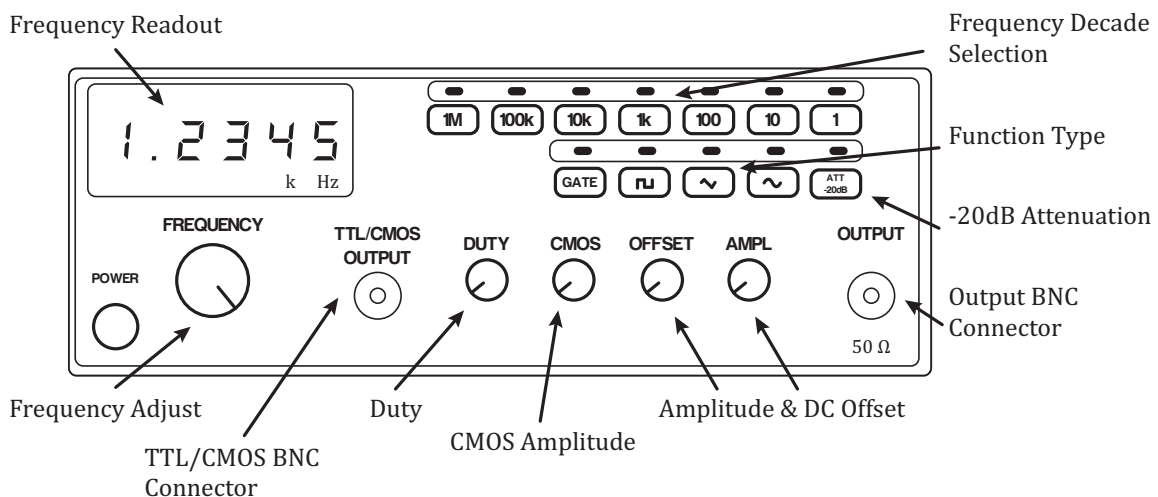

Figure 2: The control panel with the functionality of each control labelled.

There are four smaller knobs used to further adjust the output signal, labelled "DUTY", "CMOS", "OFF-SET" and "AMPL". The black text next to these adjustment is applicable when the knobs are in the pushed-in position, and the orange text is applicable when the knobs have been pulled outwards. The

amplitude knob changes the amplitude of the output signal, the maximum amplitude the function generator can provide is 10 V. If you need a very low voltage signal, you can use the -20dB button to attenuate the signal further. If you require a DC offset in your signal, **pull out the DC offset knob** and adjust accordingly. To adjust the duty cycle of the waveform, pull out the "DUTY" knob and adjust accordingly.

The signal generator connects to your circuit from the output connector on the right side of the control panel using a BNC cable. The other BNC connector is used for the TTL/CMOS output. Using the wrong BNC connector is a common mistake in the labs.

TTL/CMOS Output

The other BNC connector labelled "TTL/CMOS OUTPUT" provides a clock (square wave) output at the currently selected frequency, for circuits containing TTL or CMOS family logic. If the "CMOS" knob is pushed in, the function generator is set to output a TTL compatable clock signal. TTL Logic operates on 0/+5V, so when the output is set to TTL, a 0-5V square wave is provided. If the knob labelled "CMOS" is pulled out, it can be adjusted from 0 to +15V; as a range of logic voltage levels can be used with CMOS logic.