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Lab 10

Objective

- Understand the operation of an oscilloscope
- Learn to set the amplitude and frequency of a function generator
- Learn to measure both DC and AC voltage levels with an oscilloscope
- Understand the opration of the AC/DC/GND switch on the oscilloscope

Procedure

Before each of the following, the oscilloscope was zerod.

1. Connect a 1volt DC source to the oscilloscope and save the image generated.
2. Connect a 2volt amplitude, 1KHz AC source to the oscilloscope. Set the oscilloscope signal sensitivity to 1 volt/div for vertical and horizontal. Save the image generated.
3. Connect a 1volt DC source and a 2volt amplitude, 1KHz AC source in series. Connect this series source to the oscilloscope. Save the image generated.

Analysis

The sine wave generated in step 2 is

$$y = 2 \sin(5x)$$

The sine wave generated in step 3 is

$$y = 2 \sin(5x) + 1$$

Conclusion

The oscilloscope can be used to view a time-based wave of the voltage applied to its inputs. This is useful in approximating voltage values as well as how these values change over time.