

Introduction to LabVIEW and Multisim

Goals and Learning Outcomes

By the end of this lab, you should be able to-

- Create a circuit in Multisim
- Measure DC and AC parameters
- Create a Virtual Instrument (VI) in LabVIEW
- Build a Waveform VI

Assignment 1:

Build the circuit as shown in figure 1 in Multisim. First, instead of an AC power supply choose a DC power supply from the component drop down menu. Set the DC power supply voltage to 10 V. Build the circuit and measure the current through each resistor and the voltage across each resistor using a Digital Multimeter. Instead of writing into your notebook, create a word document and write a short report about your results. Insert your circuit diagram and record all measured values.

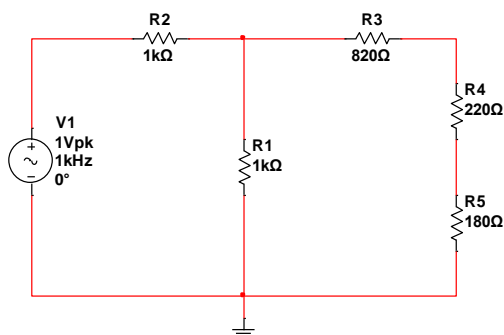


Figure 1: Resistor Circuit

Assignment 2:

Build the same circuit but now choose an AC power supply or a function generator. Replace the DC power supply with an AC source. Set the frequency of the function generator to 1kHz and the output voltage to 10 V. Use an oscilloscope and a digital Multimeter to measure the voltage across each resistor. Record all values in your report.

Assignment 3:

Open LabView. Your task is to write a program that converts degree Celsius to Fahrenheit: Given a temperature in Celsius T_C your program needs to perform a conversion to Fahrenheit and then display this value on a front panel Numeric indicator. This is called a virtual instrument or VI. The formula to convert between the two temperature scales is

$$T_C = (T_F - 32) * \frac{5}{9}$$

Assignment 4:

Create a Waveform Graph VI in LabVIEW. How is a Waveform Graph different from a Waveform chart? What is the wavelength of the sinewave on your Waveform Graph? What is the frequency?