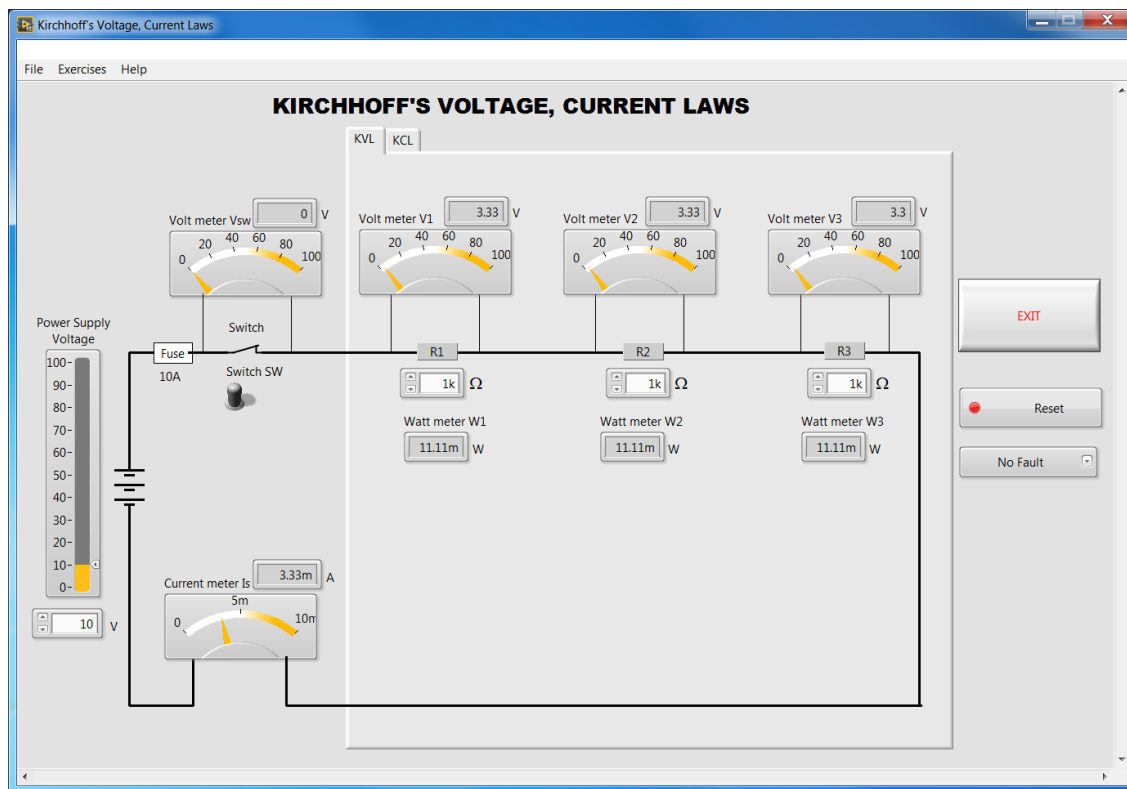


USER GUIDE

KIRCHHOFF'S VOLTAGE, CURRENT LAWS

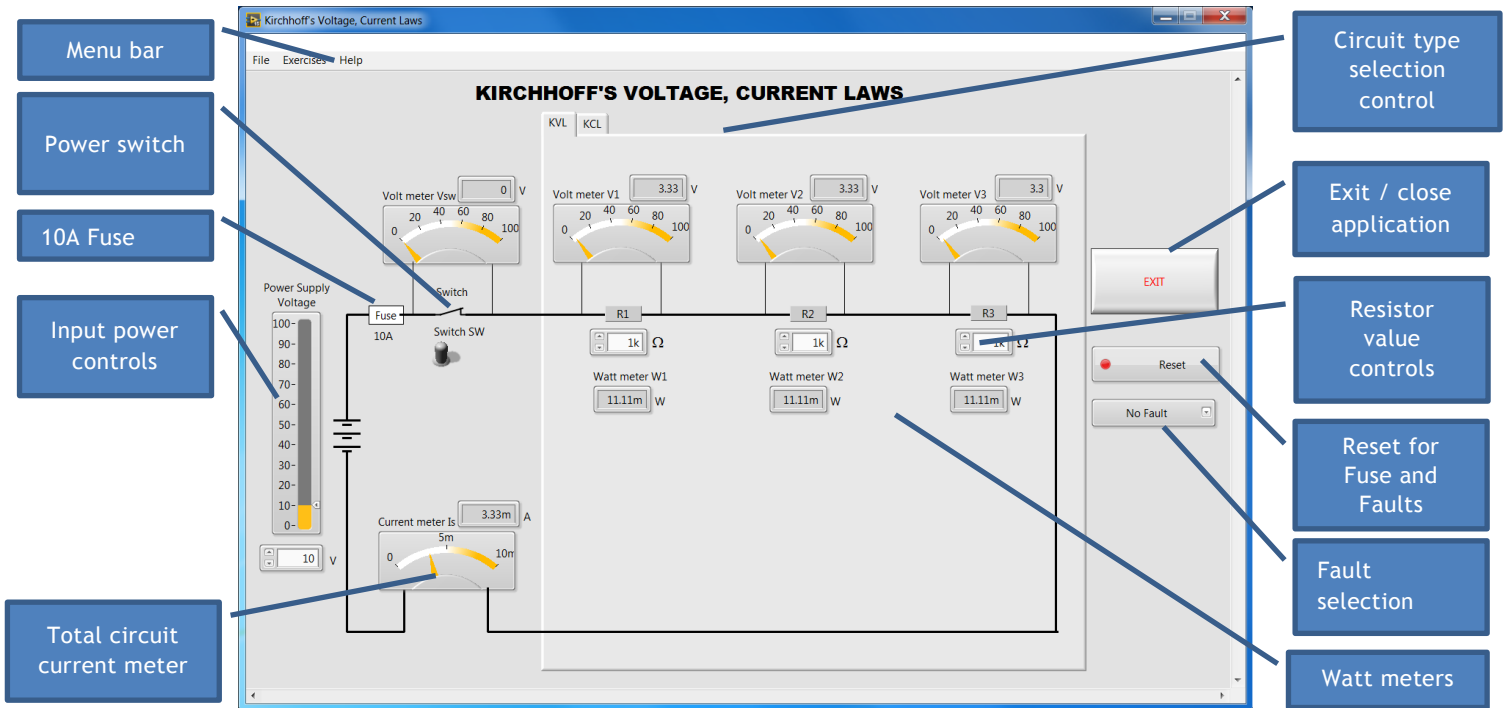
LabVIEW Simulation Software



INTRODUCTION

Kirchhoff's voltage, current laws application is written to help students to do practical exercises using LabVIEW simulation software. This application is for dc series and parallel circuits. You will find the intuitive controls and the layout of components are very user friendly and easy to use with minimal help. The instructions below will help you to get started.

CONTROLS AND DISPLAYS LAYOUT



MENU BAR

File

- Print Window. Print a screenshot of the window
- Exit. Close this application

Exercises

- Student Exercises. Opens a student exercises document.
- Calculator. Opens the standard windows calculator

Help

- Help on This VI. Opens a user guide document.
- Licence. Opens a pop-up window to show the licence information for this application. Here you can enter the licence key to activate this application.
- About LabVIEW. Opens a pop up window to show the LabVIEW software information.

POWER SWITCH CONTROL

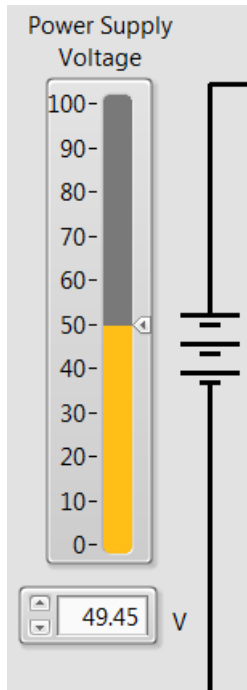
To turn on/off the power to the circuit.

10A FUSE



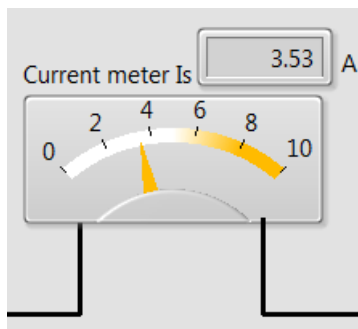
This circuit is protected by a 10A fuse. When the supply current exceeds 10A the fuse will blow and open the circuit. The fuse will flash in RED colour. To reset the fuse, click on the reset button.

INPUT POWER CONTROL



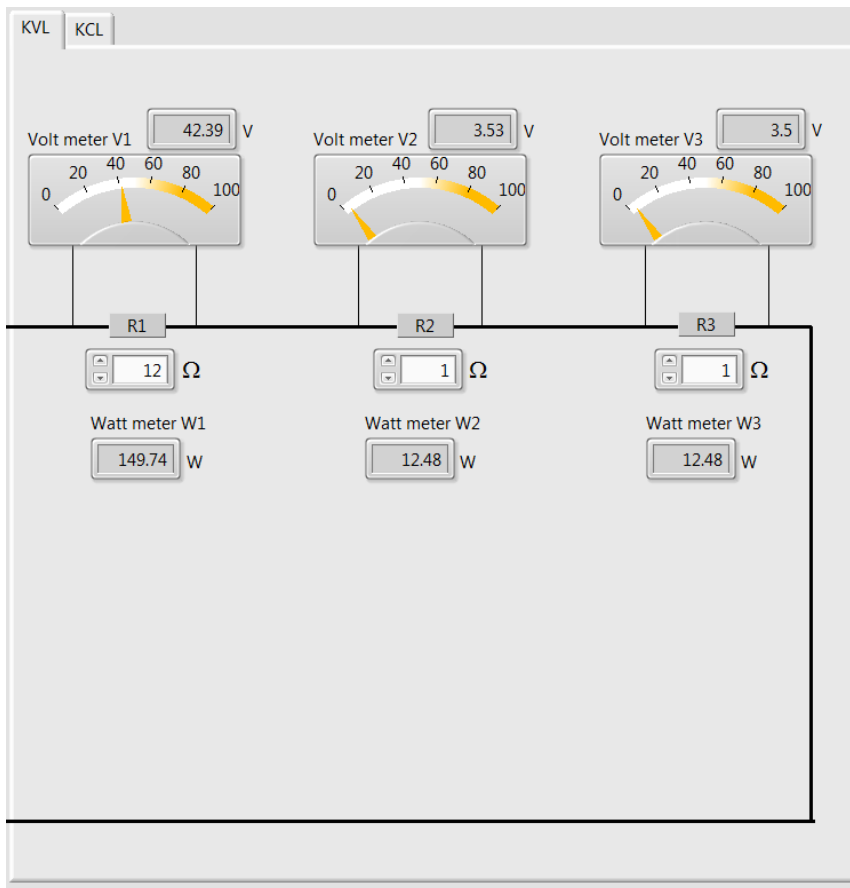
In this section you can adjust the power supply voltage.

CIRCUIT CURRENT DISPLAY

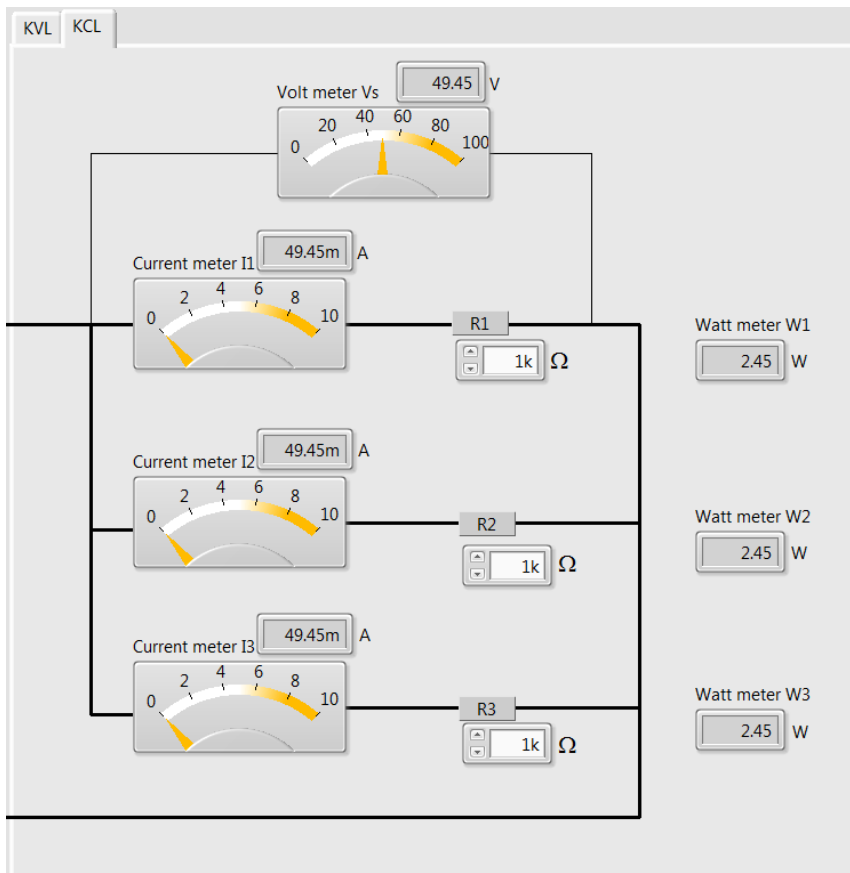


This meter shows the total supply current.

CIRCUIT TYPE SELECTION CONTROL



Use this to select a series or parallel circuit.



RESET BUTTON

This button is to reset the fuse or any circuit faults that you put in.

FAULT SELECTION DROP DOWN BUTTON

This drop down selection button allows you to put in a fault in the circuit. This will help you to improve your troubleshooting skills. Once you identify the fault, press the Reset button to clear the fault. For each circuit type 5 faults are available for you to select.

WATT METERS DISPLAY

This display shows the power dissipated at each resistor.

USING THE SIMULATION APPLICATION

STEPS

1. Select the type of circuit
2. Set the power supply voltage
3. Set the values for each resistor
4. Calculate the voltage drop across each resistor and note it down in your work book
5. Calculate the current through each resistor, total circuit current and note it down in your work book
6. Calculate the power dissipated by each resistor and note it down in your work book
7. Turn on the power supply switch
8. Record the volt, current and watt meter readings from the voltage, current and watt meters.
9. Compare your answers with the simulation results. If different, then check your answers and explain why you have a different answer.

Enjoy learning Kirchhoff's voltage and current laws!