

Ohm's Law using CircuitJS Simulator

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

Spoken Tutorial & FOSSEE Team
IIT Bombay

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Learning Objectives



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We will learn how



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- **Voltage, Resistance, and Current are related in a circuit**



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- **Voltage, Resistance, and Current are related in a circuit**
- **Ohm's Law helps to understand this relationship**



Pre-requisites



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To follow this tutorial, you should have basic knowledge of

- **Electrical Circuits**



System Requirement



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- **Ubuntu Linux 20.04 OS**



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- **CircuitJS Application**



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What is Ohm's Law?

- **Ohm's Law Equation: $V=IR$**
 - **V** is the voltage across the conductor measured in Volts
 - **I** is the current flowing through the conductor measured in Amperes
 - **R** is the resistance provided by the conductor measured in Ohms



Ohm's Law: Relationship of I,V,R



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- Ohm's Law helps us find the third parameter when we know any two parameters:



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- Ohm's Law helps us find the third parameter when we know any two parameters:
 - To calculate the current, $I = V/R$
 - To calculate the voltage, $V = I \times R$



Summary

In this tutorial, we learnt how

- Voltage, Resistance, and Current are related in a circuit
- Ohm's Law helps to understand this relationship



Assignment 1

- 1 In the same circuit, change the resistor value from 1K Ohms to 10K Ohms

Tips:

To change the value of any component, select the component and right click. Select edit option to change the values.



Assignment 2 : Circuit Diagram



Assignment 2

- 1 Do the circuit connection as shown in the image, i.e. use both A and B power supply in the circuit
- 2 Keep the resistor value as 10K Ohms
- 3 Calculate the current (in mA) flowing through the circuit



About the Spoken Tutorial Project

- Watch the video available at https://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarises the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- Conducts workshops using spoken tutorials
- Gives certificates to those who pass an online test
- For more details, please write to contact@spoken-tutorial.org



Answers for THIS Spoken Tutorial

- Questions in THIS Spoken Tutorial?
- Visit <https://forums.spoken-tutorial.org>
- Choose the minute and second where you have the question
- Explain your question briefly
- The Spoken Tutorial project will ensure an answer



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Thank You

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