Potentiometer

Outro

→ *So, in this video, we will see Potentiometer following the four-step process on which I have already created a video, so let's start.*

Potentiometer

→ *So, from the previous video, you would have known that a resistor is of two types a fixed value and a variable resistor, and the potentiometer is the variable type resistor.*

→ *A Potentiometer is also known as Pot and is a three-terminal Resistor. A potentiometer is also going to resist the flow of current but in a fixed value resistor we can't vary the value, for example, if a resistor is of 1kΩ you can only use 1kΩ, you cannot change Ω. But in a variable resistor lets a potentiometer is around 1kΩ then you can vary the Ω in the range of 0Ω to 1kΩ.*

→ *It has three filaments (pins), the two side-by-side pins are the output pins and the pin at the center is the input pin. If I make use of the input and one output pin then that potentiometer will behave like a rheostat.*

Difference between a rheostat and a potentiometer

- **A potentiometer is a three-terminal variable resistor, but a Rheostat is a two-terminal variable resistor.**

- **A potentiometer can be used as a rheostat but a rheostat can't be used as a potentiometer.**

- **Potentiometers are often used to vary voltage whereas rheostats are used to vary current.**
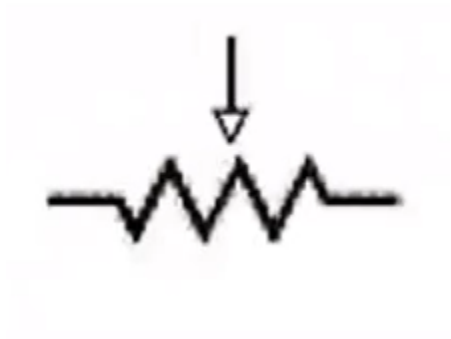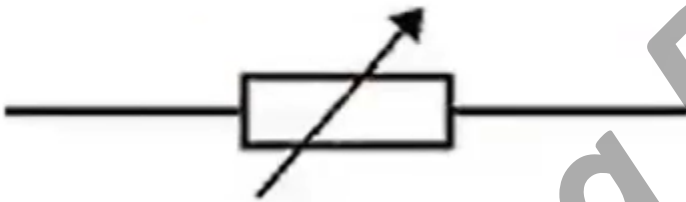
Circuit Symbols

→ **Potentiometer:**

- **New Symbol of potentiometer**
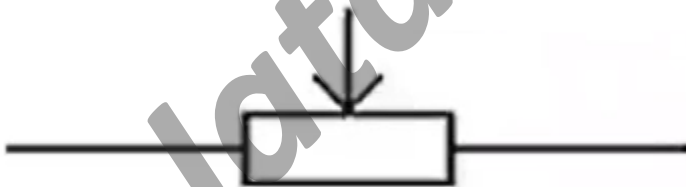
- **Old Symbol of potentiometer**

- *New Symbol of Rheostat*

- *Old symbol of Rheostat*

Real-Time Applications

- *Fan Regulators*

- *In cars to set volume*
- *In music players*
- *In airplanes*

Online Circuit Simulation

→ *Let's open our Tinker CAD, then we create a new project, and then we will simply drag some basic components like Bread Board, Battery, and two LEDs. Now we will drag a potentiometer.*

→ *In this simulation we are using a 10kΩ potentiometer.*

→ *Now let's do the connections, so we will connect the battery terminals to their respective power rails in the Bread Board, then we will connect the potentiometer to any random strips of the Board, now let's change the color of one of the LEDs to green, now let's connect the both LEDs' positive filament to both the outputs of the potentiometer, then we will connect the negative filaments of the LEDs to the negative power rail, and then we will connect the positive power rail to the input pin which is the wiper of the potentiometer.*

→ *Now click on 'Run Simulation' and one of your LEDs is glowing perfectly whereas another one is dull, as you rotate the knob of the potentiometer the brightness of the two LEDs will change accordingly.*

Practical Experimentation

→ *Now let's do the connections, so we will connect the battery terminals to their respective power rails in the Bread Board, then we will connect the potentiometer to any random strips of the Board, now let's connect the both LEDs' positive filament to both the outputs of the potentiometer, then we will connect the negative filaments of the LEDs to the negative power rail, and then we will connect the positive power rail to the input pin which is the wiper of the potentiometer.*

→ *Right now, both the LEDs are dull but as you rotate the knob of the potentiometer the brightness of the two LEDs will change accordingly.*

Circuit Diagram

→ *First, we will draw the symbol of a battery, then any of the two circuit symbols of the potentiometer, then we will connect draw a LED which's positive line is connected to one of the outputs of the potentiometer same for another LED, then we will connect the positive line of the battery to the arrow at the up of the potentiometer, and then we will simply connect the negative line of the battery to the negative line of the two LEDs, and your diagram is completed.*

Outro

→ *That's all for this video and I will see you in this next one until then BYE B Jatasya YE!*