Switch

Intro

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

Types of Circuit

→ *So, there are three types of circuits:*

- *Closed Circuit: As you can see in the ppt the connections of the close circuit are complete, and that's why the LED in it is glowing.*

- *Open Circuit: As you can see in the ppt the connections here are disconnected, and that's why the LED in it is not glowing.*

- *Short Circuit: As you can see in the ppt the connection here which are the positive and the negative terminals are interconnected causing a dangerous situation known as a short circuit. These circuits are very dangerous because they could lead to fire accidents.*

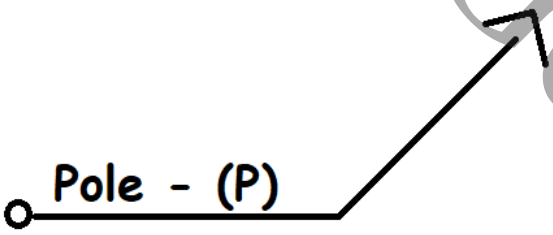
Types of Switches

- *Single Pole Single Throw (SPST)*

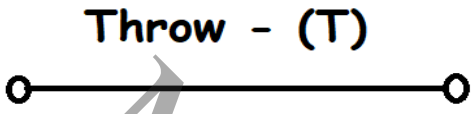
- ***Single Pole Dual Throw (SPDT)***
- ***Dual Pole Single Throw (DPST)***
- ***Dual Pole Dual Throw (DPDT)***
- ***Push Switch***
- ***Reset Switch***

Circuit Symbols

→ ***Pole - (P)***

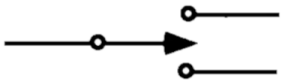


→ ***Throw - (T)***



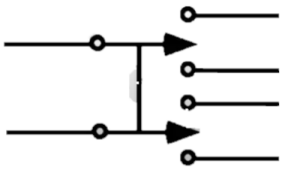
SPST

SPDT



DPST

DPDT



Switch

→ ***A switch is a component that is used to make the circuit open or close.***

→ *A switch is used to make the circuit open or close. If a circuit is open it is off and vice versa.*

→ *If there are only two pins in a switch then that is an SPST, 3 pins mean SPDT, 4 pins mean DPST, and 6 pins mean DPDT. Push or Reset switches will only have 2 pins*

Real-Time Applications

→ *It is used just to on and off electronics*

Online Circuit Simulation

→ *Let's open our Tinker CAD, create a new project, and then simply drag some basic components like Bread Board, a Battery, a LED, and a resistor. The resistor is optional but it is recommended to not use the LED directly unless it is a multicolored LED. Now I will drag a Pushbutton which is a switch only.*

→ *Let's do the connections so first of all, we connect the Pushbutton to any random strip of the Bread Board then we will connect the positive terminal of the battery to the power rails, and then connect the positive power rail to the Pushbutton's Terminal 1a or 1b, then we will connect the negative terminal of the battery to the negative power rail. Now if you have connected the positive power rail to the 1a terminal then connect the first terminal of the resistor to 2a and vice versa for the b terminals of the Pushbuttons. Now we will connect the positive pin of the LED to*

the 2nd Terminal of the resistor then we will connect the negative power rail to the negative pin of the LED. Then we will click on "Run Simulation" and push the button and our LED should be glowing perfectly.

Practical Experimentation

→ *Components Required:*

- *A Breadboard*
- *A Battery*
- *Some Jumper Wires*
- *A Switch*
- *A LED*
- *A Resistor*

→ *Let's do the connections so first of all, we connect the Pushbutton to any random strip of the Bread Board then we will connect the positive terminal of the battery to the power rails, and then connect the positive power rail to the Pushbutton's Terminal 1, then we will connect the negative terminal of the battery to the negative power rail. Now we will connect the first terminal of the resistor to the 2nd Terminal of the Switch. Now we will connect the positive pin of the LED to the 2nd Terminal of the resistor then we will connect the negative power rail to the negative pin of the LED. Now our LED should be glowing perfectly.*

Circuit Diagram

→ ***First, we will draw the symbol of a battery, then the symbol of a LED, then we will draw the symbol of the switch, We will draw the reset or push switch symbol, then we will connect the negative line of the battery to the LED, then we will connect the positive line of the battery to the 1st Terminal of the switch, then we will connect the 2nd Terminal of the switch to the 1st Terminal of the resistor and 2nd Terminal of the resistor to the Positive line of the LED, and your diagram is completed.***

Outro

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