

What is a Resistor?

[0m:0s]



[0m:4s] Hi I'm Josh Bloom, welcome to another video in the RSP Supply education series. If you like these videos, it certainly helps if you can please like and subscribe.

[0m:13s] In today's, video we're going to be taking a look at one of the most common electrical components that we see used in almost every electrical circuit:



[0m:21s] resistors. I am sure that you've heard that name many times, but maybe aren't sure what they are and why we use them.

[0m:27s] We're going to talk about why we use resistors and why they are so important in our electrical system today. Hopefully by the end of this video, you will have a basic understanding of resistors and better understand some of the reasons that they are commonly used.

[0m:41s] When talking about electricity, any substance that electricity can flow through is referred to as a conductor. Some materials conduct electricity better than others such as metals, which is why they are commonly used in electrical circuits. On the other hand, there are other materials that are very poor at conducting electricity. These materials will create much more resistance in the electrical flow you see in a circuit. So, the higher the resistance value of a material, the less current will be able to flow through that material.

[1m:12s] These very non conductive materials are used to make resistors.

[1m:17s] A resistor is a passive component that has two terminal ends. Polarity has no impact when using a resistor. This allows current to flow through them no matter what orientation they are being used in.

[1m:29s] They are designed to resist the flow of electricity. More specifically, they resist the current flow in an electrical circuit. They can also be used to adjust signal levels and divide voltages among many other uses because of their resistive properties.

[1m:45s] Electrical resistance is a measurement that shows us how difficult or easily electrical current can pass through a conductor.

[1m:53s] This resistance is measured in what we call ohms.

[1m:56s] Depending on how resistors are used in an electrical circuit will dictate how much resistance you will see across that circuit. Resistors in series or one after another will behave differently in a circuit than resistors used in parallel or each having their own electrical path.

[2m:13s] For more information on the difference between series and parallel circuits, please reference our other video in which we discuss these principles in much more detail.

[2m:21s] However, a good rule of thumb is this: when in series, all resistors in a circuit will be exposed to the same current level.

[2m:29s] When in parallel, each resistor in a circuit will impact the overall current level for that circuit as well as the current level for each individual segment in that parallel circuit.

[2m:39s] So, let's look more closely at the two most common uses for resistors in electrical circuits today.

[2m:45s] First and foremost, they are used for limiting current. Because of ohm's law we know that if our voltage source remains constant to reduce the amount of current in our circuit we need to add more resistance. We can increase this resistance by simply adding a resistor.

[3m:2s] One reason we do this is because there are many common components that are used in electrical circuitry that are sensitive to current.

[3m:10s] A good example of this is an LED. If too much current is applied to the LED, this can cause the led to burn out or prematurely fail. So, like LEDs, it is common to see resistors used in series with components that may be more sensitive to current.

[3m:26s] Another common use for resistors is to reduce or divide voltage in a circuit.

[3m:32s] If, for example, there was a portion of your circuit that required a smaller amount of voltage than is being supplied, you could use a combination of resistors to reach the correct voltage for that particular segment of your circuit.

[3m:46s] This ability to reduce and divide voltage can give you great flexibility when designing electrical circuits. These two examples that we have discussed today make up the large majority of use cases for resistors. However, there are many other scenarios that you might see resistors being used which we will not discuss today.

[4m:4s] Also, resistors come in many different shapes and sizes and resistance ratings. So, pay attention to the resistors that are being used in your specific applications to ensure that they are performing as intended.

[4m:17s] For a full line of resistors and thousands of other products, please go to our website. For more information or other educational videos, go to RSPSupply.com, the Internet's top source for industrial hardware. Also, don't forget: like and subscribe.

