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Introduction To Modern Electronics – Lesson 3: The Resistor

FORMULAS

The following formulas and information are meant to go with the online lesson found here:
http://www.pyroelectro.com/edu/basics/resistor/

OHM'S LAW

In this lesson we learned about Ohm's law, which explains how electrical resistance is related to electrical voltage and current:

$$Voltage = Current * Resistance$$

$$\boldsymbol{V = i * R}$$

In this equation, electrical voltage is represented by the capitol letter **V**, current by the lowercase **i** and resistance by the capitol letter **R**.

Example:

$$My\ laptop\ requires\ 12V\ and\ 3A\ to\ operate, what\ is\ the\ Internal\ resistance\ of\ my\ laptop?$$

$$\boldsymbol{V = i * R \ \rightarrow \ R = \frac{V}{i} = \frac{12V}{3A} = 4\Omega}$$

RESISTANCE VALUES

Resistance also follows the rules of the metric system. Below is a simple chart that shows you how to convert 1 Ohm or 1Ω between the different multipliers.

micro-Ohm	milli-Ohm	Ohm	kilo-Ohm	mega-Ohm
100,000 μΩ =	1000 mΩ =	1 Ω =	0.001 kΩ =	0.000001 MΩ

Just like meters, liters and grams, the Ohm follows the metric system making it very easy to translate between milli-Ohms and kilo-Ohms or any other multiplier for that matter.

ADDITIONAL INFORMATION

If you have any questions about the formulas or information found in this document, please feel free to head on over to the forums and ask us some questions!
http://www.pyroelectro.com/forums/viewforum.php?f=22