

## TE2: Quiz #3 Study Guide - Project 4.0 - Electricity

Ohm's Law:

$$I=V/R$$

I=Current (measured in amperes or amps) is the flow of electrons

V=Voltage (measured in volts) is electromotive force or pressure. It is a potential for the flow of current.

R=Resistance (measured in ohms  $\Omega$ ) is anything which restricts or impedes the flow of current.

$$P=IV$$

P=Power (measured in watts)

Understand that resistance can be extrapolated from any resolved power equation due to Ohm's Law.

Parallel circuits divide current through two or more branches.

Voltage remains constant from branch to branch.

Series circuits have no branches, equal current can and must flow equally through all devices.

Resistance in Series Circuits

$$R_{\text{TOTAL}}=R_1+R_2+R_3+\dots$$

Resistance in Parallel Circuits (*"The inverse of the sum of the inverses."*)

$$R_{\text{TOTAL}} = \frac{1}{(1/R_1)+(1/R_2)+(1/R_3)+\dots}$$

Note: The TOTAL value will ALWAYS be smaller than the smallest value.

micro	.000001	$\mu$
milli	.001	m
	1	
kilo	1000	k
mega	1000000	M
giga	1000000000	G

Power=Voltage X Current

$$P=VI$$

An open circuit is one that is broken and is not connected somewhere. For example an open switch (off), a physically cut wire, etc.

A short circuit or device is one that is lacking required resistance. For example, a melted component could allow unrestricted current flow when not appropriate.