

Drone Physics

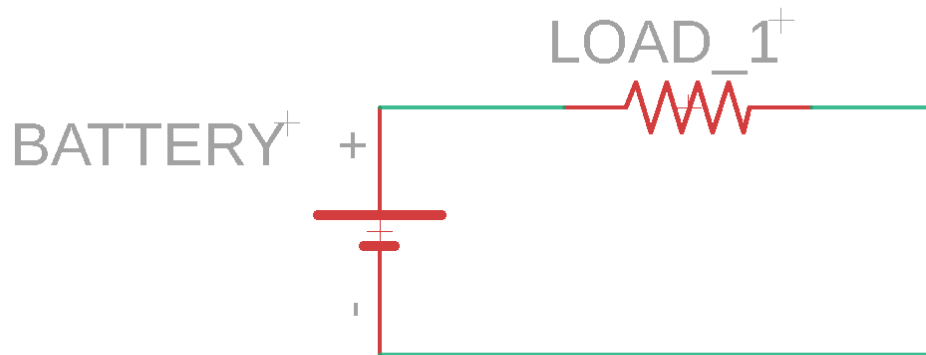
Basic Circuit Theory (In Pictures and Blurbs!)



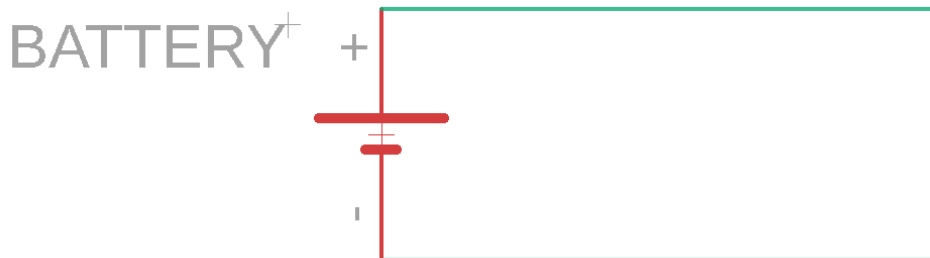
- Above is the most basic circuit it contains a load (a resistor), a battery, and wires (the green lines).
- Current flows from “+” to “-” (ground) through load.
- The “+” is your full voltage (i.e. 9 V for a 9 V battery) and “-” is 0 volts.
- Loads help to dissipate (dispel the electrical energy) the electrical energy provided by the battery in the form of heat (voltage has to be 0 at the ground terminal).
- Wires are conductive; they allow current to flow.
- The amount of current that flows depends on your battery voltage and your load’s resistance. This is known as Ohm’s law and is described mathematically by this equation:

$$A = \frac{V}{\Omega}$$

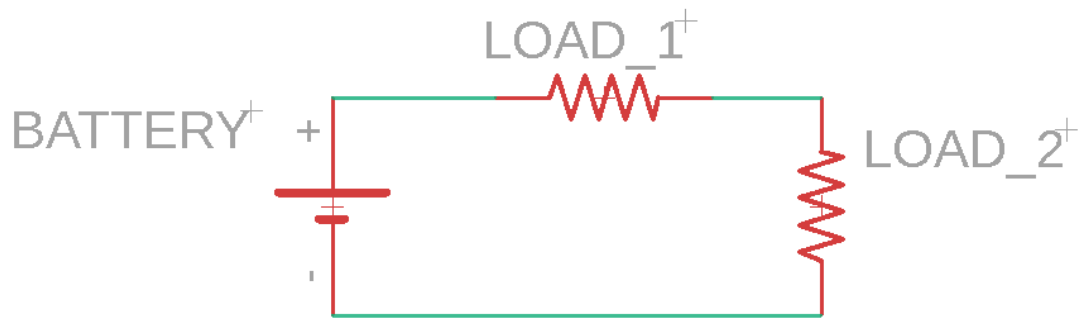
- As your resistance decreases, the amount of current increases, and, as your resistance increases, the amount of current decreases. Therefore, current is inversely proportional to resistance.



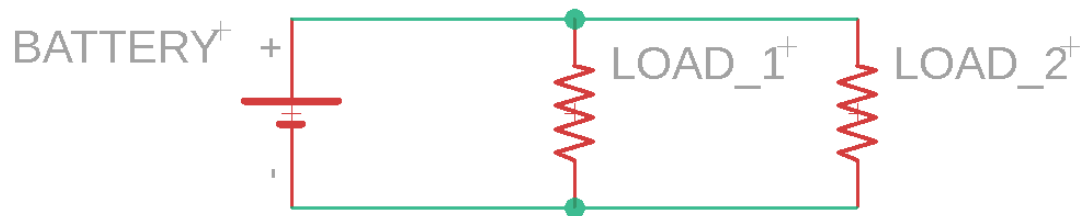
- Above is an open circuit. It does not have a connection between “+” and “-” on your battery.
- No current can flow in an open circuit.
- The open circuit is like having an infinite resistor where the break in the wire is.



- Above is a short circuit, which does not have a load.
- Short circuits are very dangerous. An infinite amount of current flows in this system, causing your battery to potentially burn out and catch fire.



- Above is a series circuit.
- A series circuit has components that connect with one point of connection.



- Above is a parallel circuit.
- A parallel circuit has components that connect with two points of connection.