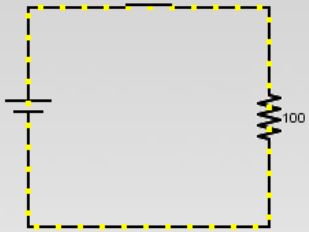
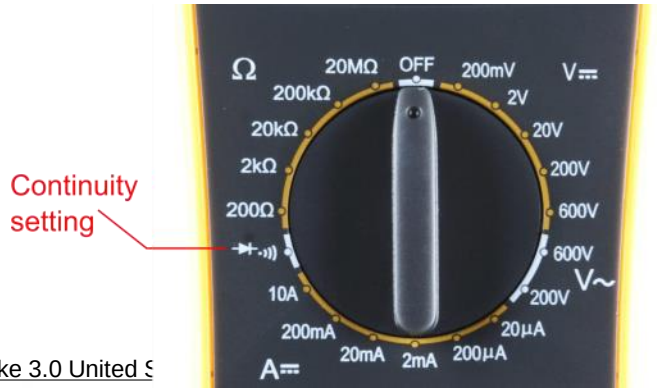
Continuity – Is it a Circuit?

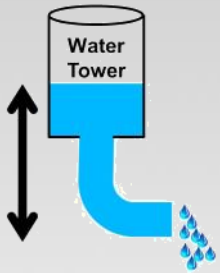


The word “circuit” is derived from the circle. An Electrical Circuit must have a continuous LOOP from Power (V_{cc}) to Ground (GND).

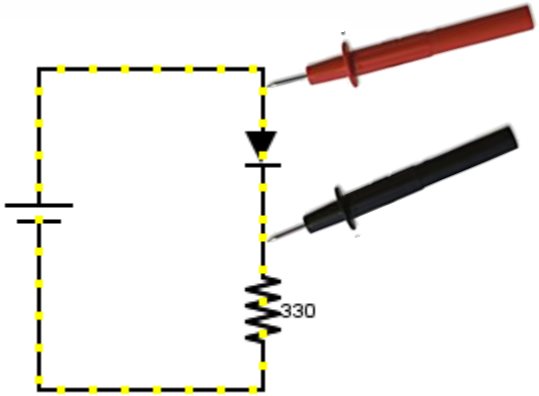
Continuity is important to make portions of circuits are connect. Continuity is the simplest and possibly the most important setting on your multi-meter. Sometimes we call this “ringing out” a circuit.

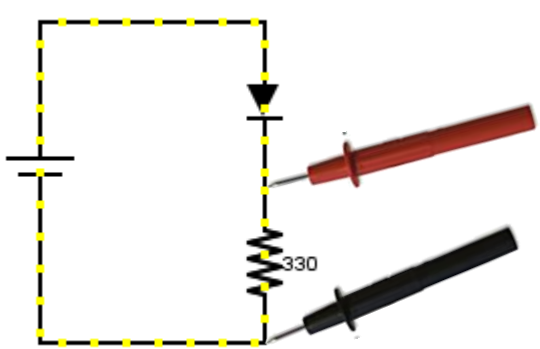


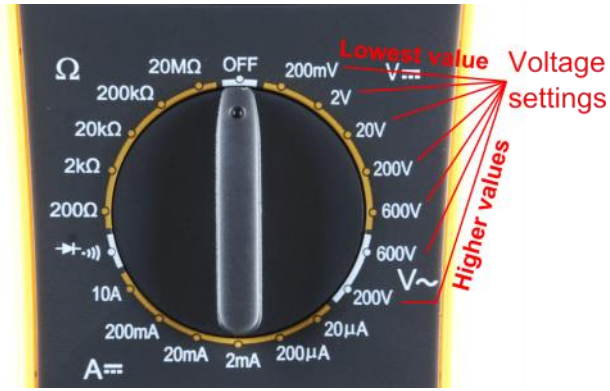
Measuring Electricity – Voltage



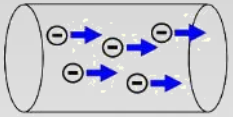
Voltage is a measure of potential electrical energy. A voltage is also called a potential difference – it is measured between two points in a circuit – across a device.





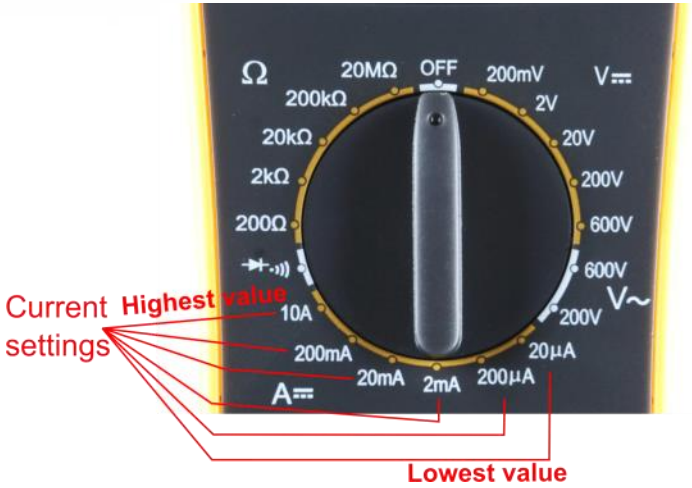


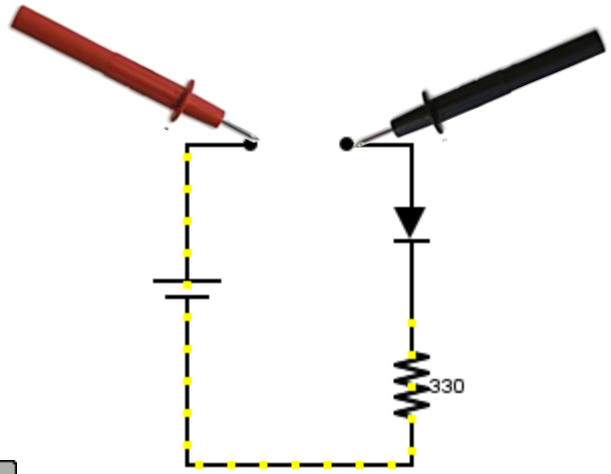
Measuring Electricity -- Current



Current is the measure of the rate of charge flow. For Electrical Engineers – we consider this to be the movement of electrons.

In order to measure this – you must break the circuit or insert the meter in-line (series).





Measuring Electricity -- Resistance

Resistance is the measure of how much opposition to current flow is in a circuit.

Components should be removed entirely from the circuit to measure resistance. Note the settings on the multi-meter. Make sure that you are set for the appropriate range.

Resistance settings

Prototyping Circuits
Solderless Breadboard

One of the most useful tools in an engineer or Maker's toolkit. The three most important things:

- A breadboard is easier than soldering
- A lot of those little holes are connected, which ones?
- Sometimes breadboards break