

Topics

- .What is Electricity?
- .AC vs DC
- .Voltage, Current, Resistance
- .Static vs Flowing Circuits
- .Ohm's Law

What is Electricity?

Electron Drift Velocity

- current of 5 A that is flowing in a copper wire with a cross section of 0.5 mm^2
- electrons move about a tenth of a millimeter per second

What is Electricity?

e·lec·tric·i·ty

əˌlekˈtrɪsədē/

noun

1.

a form of energy resulting from the existence of charged particles (such as electrons or protons), either statically as an accumulation of charge or dynamically as a current.

synonyms: power, electric power, energy, current, static
"cabins with no electricity"

2.

a state or feeling of thrilling excitement.

What is Electricity?

.Voltage, Current, Resistance

What is Electricity?

• Voltage, Current, Resistance

• Think of Water

- pressure \leftrightarrow voltage
- flow \leftrightarrow current
- crimp \leftrightarrow resistance

AC vs DC Electricity

.AC – Alternating Current

- stuff coming out of wall
- current periodically alternates directions

.DC – Direct Current

- stuff used in computers
- current flows in one direction

What is Electricity?

.Voltage, Current, Resistance

.Think of Water

- pressure \leftrightarrow voltage
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What is Electricity?

.Voltage

- a difference between two points

.Current

- an amount of flow at a point

.Resistance

- resist flow
- drop voltage

Static vs Flowing Electricity

.Static

- NO continuous connection between power and ground
- OPEN circuit

.Flowing

- continuous connection between power and ground
- CLOSED circuit

.Different rules apply

Ohm's Law

$$V = I \times R$$

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