

Ohm's Law

API TECH SUPPORT - TS1004

OHM'S LAW is the relationship between current, voltage and resistance. It states that current varies directly with voltage and inversely with resistance.

$$E = I \times R$$

E (Electromotive Force or Voltage) is the electrical potential that exists between two points and is capable of producing a flow of current when a closed circuit is connected between the two points. The unit of measure for Electromotive Force or Voltage is the volt (V). One volt will send one ampere of current through a resistance of one ohm.

I (current) is the flow of electrons past a point in a specified period of time, usually one second. The unit of measure for current is the ampere (A). One ampere of current is 6.24×10^{18} electrons passing a point in one second. Ampere is often shortened to amp.

R (resistance) is the opposition to current flow offered by a resistive component. The unit of measure for resistance is the ohm. One ohm is the resistance through which a current of one ampere will flow when a voltage of one volt is applied.

Ohm's and Watt's Laws

