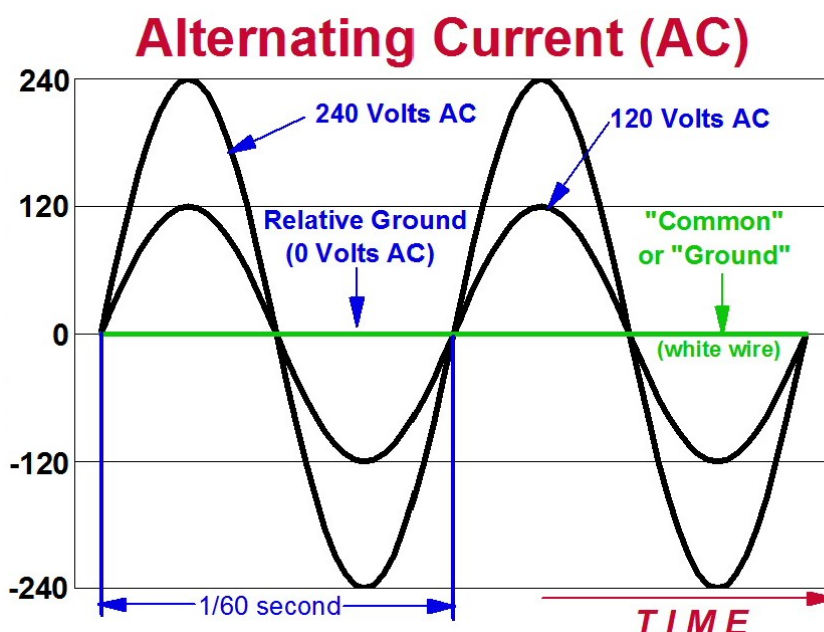
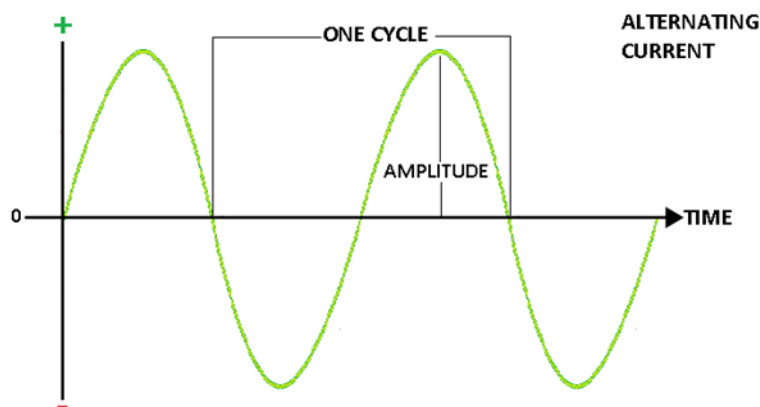


## Alternating current (AC)

Alternating current (AC), is an electric current which periodically reverses direction, whereas direct current (DC, also dc) flows only in one direction. Alternating current is the form in which electric power is delivered to businesses and residences, and it is the form of electric energy that consumers typically use when they plug kitchen appliances, televisions and electric lamps into a wall socket. A common source of DC power is a battery cell in a flashlight. The abbreviations AC and DC are often used to mean simply alternating and direct, as when they modify current or voltage.

The usual waveform of alternating current in most electric power circuits is a sine wave. In certain applications, different waveforms are used, such as triangular or square waves. Audio and radio signals carried on electrical wires are also examples of alternating current. These types of alternating current carry information encoded (or modulated) onto the AC signal, such as sound (audio) or images (video). These currents typically alternate at higher frequencies than those used in power transmission.



We need to convert AC to DC because of below facts:

- AC signals cannot be stored and DC power or signals can be stored. Thus, to store the electrical energy we need to convert it into DC.
- Also, Digital devices require constant voltages, thus to get those constant voltage levels (DC levels) we need to convert AC into DC using Rectifiers. (Now, Rectifier may be full wave or half wave. Also, to get accurate and precise ac to dc conversion (below 0.7V, i.e. cut-off voltage of diode) we can use precision rectifiers.)
- AC can be transported over long distances because of its frequency and dc cannot be transported as dc has zero frequency. Thus, we have AC power supplied in homes, industries. For testing, monitoring any electronic device or system we require dc supply.