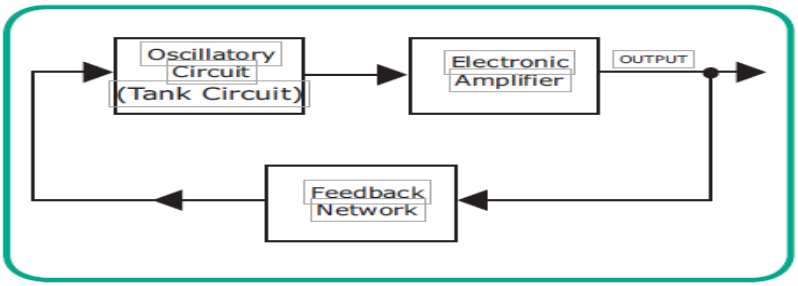
OSCILLATOR

An oscillator is an electronic or mechanical device that produces regular oscillations in the form of electrical or mechanical energy. Modern-day computers, clocks, metal detectors, watches and microcontrollers all utilize oscillators. An atomic clock operates on atomic oscillations, and thus is said to be the most precise chronometer in the world. An oscillator works on the frequency that is determined by quartz crystal.



Block Diagram of an Oscillator

Choppers

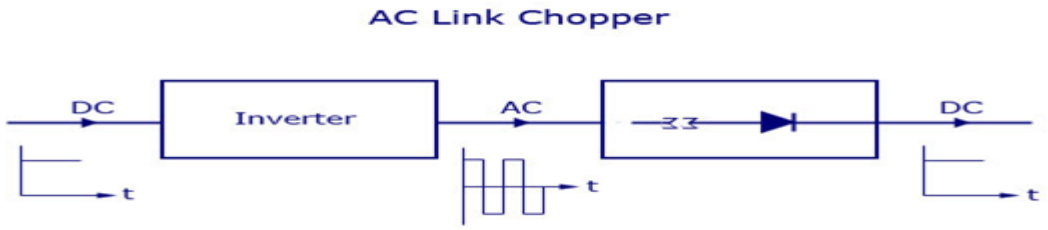
A chopper is basically a dc to dc converter whose main function/usage is to create adjustable dc voltage from fixed dc voltage sources through the use of semiconductors.

Types of choppers

There are two types of choppers – AC and DC.

AC Link Chopper

In the case of an ac link chopper, first dc is converted to ac with the help of an inverter. After that, AC is stepped-up or stepped-down by a transformer, which is then converted back to dc by a diode rectifier. Ac link chopper is costly, bulky and less efficient as the conversion is done in two stages.



DC Chopper

A DC chopper is a static device that converts fixed dc input voltage to a variable dc output voltage directly. A chopper can be said as dc equivalent of an ac transformer as they behave in an identical manner. This kind of choppers are more efficient as they involve one stage conversion. Just like a transformer, a chopper can be used to step up or step down the fixed dc output voltage. Choppers are used in many applications all over the world inside various electronic equipments. A chopper system has a high efficiency, fast response and a smooth control.

Symbol of a Chopper