

Oscillator

Last Updated Friday, 02 February 2007

OSCILLATOR Oscillator Introduction Oscillators are devices that are used to generate repetitive signals. They produce output signals without an input signal. There are two major types of electronic oscillators: harmonic oscillators and relaxation oscillators. Harmonic oscillators produce sine wave outputs. Relaxation oscillators produce non-sine wave outputs such as square wave, rectangular wave, and sawtooth outputs. Learn more about Oscillators Oscillation is the periodic variation, typically in time, of some measure as seen, for example, in a swinging pendulum. The term vibration is sometimes used more narrowly to mean a mechanical oscillation but sometimes is used to be synonymous with oscillation. Oscillations occur not only in physical systems but also in biological systems and in human society.

Oscillations are the origin of the sensation of musical tone. Oscillators, specifically electronic, are commonly found in everyday circuits, ranging from antique radios to TV transmitters. The basic job of an electronic oscillator is to generate an oscillating output. Various outputs can be sine, square, sawtooth, triangle, or complex waveforms. What is an oscillator? An oscillator is a circuit that generates an RF output signal through feedback and amplification. The oscillator contains a path whereby part of the output signal is fed back to the input. A circuit containing an active device with feedback elements must have the feedback signal larger than, and in-phase with, the input signal for the oscillator to sustain oscillation. The most common types of waveforms produced by an oscillator are sinusoidal and square. Oscillators are important in many different types of electronic equipment. For example, a quartz watch uses a quartz oscillator to keep track of what time it is. An AM radio transmitter uses an oscillator to create the carrier wave for the station, and an AM radio receiver uses a special form of oscillator called a resonator to tune in a station. There are oscillators in computers, metal detectors and even stun guns. Types of Oscillator-The LC Oscillator

-Electron-Coupled Oscillator (ECO)

-Armstrong oscillator

-Clapp oscillator

-Colpitts oscillator

-Crystal oscillator

-Electronic oscillator

-Harmonic oscillator

-Hartley oscillator

-Oscillator in cellular automata

-Relaxation oscillator

-Ring oscillator

-Vackár oscillator

-Oscillistor Conclusion

Now you have learned about some of the oscillators used, you can build your own for several purposes such as a radio, a tube tesla coil, a low-power transmitter, etc. Nowadays, the LC oscillator is known as a sinusoidal oscillator. There are many solid-state equivalents to the oscillators explained here, simply the tube is substituted with a transistor or some kind of FET. The circuitry is still used in the same manner as their solid-state equivalents. This site is meant to provide the basic information on Oscillators and type of Oscillator, Which will help the business users to identify the various types of Oscillators, significance of those oscillators and help them in making decision on purchase of oscillators.