

Buying guide – MICROPHONES

Introduction

In its most basic form, a [microphone](#) is a device that converts sound energy into electricity. The microphone could also be considered as an electronic device which amplifies the sound emitted from a source and transforms it into electrical impulses that can be recorded. The word "microphone" is derived from the Greek word mikros meaning "small" and phone meaning "voice" or "sound". A microphone is also called a mike or mic. Besides relatively domestic applications such as [telephones](#), tape recorders, and hearing aids, microphones are also used in hi-end audio engineering tasks, movie making, radio and [television](#) broadcasting, and even Voice over Internet Protocol (VoIP) applications. The first practical microphone could have been the carbon microphone, a Thomas Edison invention in October 1876.

Working of a microphone

We will discuss in brief how a microphone performs its task. A microphone detects and traps sound waves in the air, water, and even solid materials and converts them into an electrical signal. A basic microphone uses a thin membrane (diaphragm) which vibrates when 'hit' by sound waves. This vibration is converted into an electrical signal. Contemporary microphones use one of three methods to get electrical signals from vibrations. We have just listed the names of these methods. Explaining them in detail is beyond the scope of this buying guide and could only confuse certain readers who may not be technically inclined. The three methods in use for sound-electricity transformation include:

1. Electromagnetic generation
2. capacitance change
3. Piezoelectric generation

The desired sound output is achieved by the above mentioned membrane called the diaphragm. Sound waves passing through the air cause the diaphragm to vibrate. These vibrations generate an electric current, which in turn is transmitted to an amplifier to generate sound.

What to look for in a microphone

So that you make an informed decision when going in for a microphone, we have listed below some of the popular types of microphones. This information should tell you something of the types of microphones available in the market and will help you to choose the microphone of your choice:

1. Dynamic Microphones:

Dynamic microphones have a diaphragm that is connected to an inductive coil which is placed within the field of a permanent magnet. Every movement of the diaphragm activates the coil, thereby changing the voltage the coil generates. Dynamic microphones are both economical and long lasting even after regular use. These microphones commonly utilized by performance artists.

2. Ribbon Microphones

Ribbon microphones are far more delicate than dynamic microphones. Their functionality is the same as dynamic microphones. The diaphragm in dynamic microphones is replaced

by a thin ribbon in these microphones. Ribbon microphones are most often used in recording studios

3. Piezo Microphones

Piezo microphones function on the principle of piezoelectricity. Piezoelectricity is the generation of voltage when certain materials and crystals are subjected to pressure. This voltage is generated by any vibrations being converted into electrical signals. Piezo microphones are usually used as contact microphones worn by participants of live performances to amplify sound.

4. Laser Microphones

Laser microphones, as the name suggests, use laser technology for sound amplification. A laser microphone incorporates a laser beam that is reflected from glass or some other firm surface which vibrates due to any sound waves in the near vicinity. Thus, sound amplification is achieved by having a vibrating surface near a sound source that in turn reflects the sound into the microphone. Laser microphones are most often used in spying applications.

5. Condenser Microphones

A condenser microphone has a thin conductive diaphragm located near a metal plate known as the backplate. This assembly has a capacitor-like construction. This capacitor is supplied with an electric charge either through phantom power or batteries. Sound waves in the near vicinity cause the diaphragm to vibrate, resulting in distance between the diaphragm and the backplate varying constantly, the output voltage also changing in proportion. The microphone's signal is generated from this varied output. These types of microphones are highly recommended for laboratory and recording studio use.

Making the right decision

It goes without saying that microphones could be considered one of the major inventions of the nineteenth century. When buying a microphone, besides the general technical specifications, the after-sales service offered by the manufacturer as well as the warranty of the product should be some more factors that influence your decision. It would make sense purchasing a microphone from a trusted brand such as [Sony](#). Entry level to mid-range to professional microphones can be viewed by visiting the following links: [\\$50 - \\$100](#), [\\$100 - \\$200](#). After making a prudent decision and making sure that the microphone is maintained and used as per in the information in the manual, this electronic device is set to serve you for years.