

What is a Microphone? Structure and classification of microphone types

Microphones are devices that are used frequently in everyday life. Learn what a microphone is and the common types of microphones.

Microphones are devices that are used frequently in daily life, but do you clearly understand what a microphone is and the common types of microphones? Follow along to see what a microphone is and the types of microphones on the market!

What is a microphone?

Microphone or MIC is considered a device that supports the sound recording process, or an intermediary device connecting the sound source and the listener. In other words, it is an electroacoustic device that senses sound vibrations into electrical vibrations, these vibrations have very small voltage amplitudes and need to be amplified to provide to the **speaker** .

In fact, Microphones are used in many diverse fields. You can find them in recording studios, in film production, computer recording devices, hearing aids, amplifiers. In addition, there are some other fields such as voice recognition and even purposes unrelated to sound such as door knock sensors.



What is the role of Microphone?

Nowadays, microphones are widely used in many fields. This is an important supporting device for people such as speakers, singers or jobs related to social interaction. or simple entertainment such as karaoke singing. Therefore, it is used more and more widely and popularly.

When singing karaoke or recording, the quality of the recording depends on the microphone about 40%. Therefore, in the studio, people are often very careful in choosing the microphone.

How Microphones Work

The microphone will pick up the sound through a vibration recognition device, which is a magnetic membrane or a capacitor layer. When sound waves are transmitted to this capacitor layer, the signal is recognized based on the vibration of the sound waves, then capacitance is generated and the signal is transmitted to the device for processing.

Structure of microphone

Internal structure

The internal structure of a microphone includes: a vibrating membrane, a coil and a magnet. The microphone operates mainly on the principle of electromagnetic induction.

Sound will be transmitted through the microphone's vibrating membrane, which will reflect on the coil to create a magnetic field. Then, the alternating current will be transmitted through the wire to the amplifier and speaker to amplify and create sound.



External structure

The external structure of the microphone consists of 3 parts: head, body and tail.

The head part has the function of protecting the internal parts, the head part is designed with a round mesh covering the inside.

The stem is the part that the person holding the microphone holds when using it. The stem has an up button to turn the microphone on and a down button to turn the microphone off. Some creative users will decorate this part to add more emphasis to the microphone.

The last part is the part where you use a wired microphone, the last part is where you plug in the power or put in the battery if you are using a wireless microphone.

Microphone Classification

Based on many criteria, microphones are classified differently. Based on the operating principle, there are many different types of microphones such as: dynamic microphones, condenser microphones, ribbon microphones, carbon microphones, fiber optic microphones, laser microphones, etc. In which, there are mainly 3 types: dynamic microphones, condenser microphones, piezoelectric microphones.

Dynamic microphone:

It has the same structure as an electrodynamic speaker, in which its membrane is thinned, the coil is wound with many turns and usually has an impedance of up to 300 ohms. It has low sensitivity, limited frequency range (usually from 50 Hz to 16 KHz). This microphone has a soft tone and is often used for singers or in the studio.

This type uses electrodynamics using magnets to change the electric waves. Its characteristic is that there are or are not on/off buttons on the microphone body. Dynamic microphones have good sound recording ability at close distances, do not need a power source to operate and are good for recording one person.

Condenser microphone:

This type is very popular and widely used. The sensitivity of the microphone is quite high with many sizes from large to small, wide sound frequency range. This microphone is often used in phones, wireless microphones.

This microphone works on the principle of using the effect of changing capacitance to change the electric wave. The sensitivity is much greater than dynamic, but it needs a power source to operate. The advantage of the microphone is that it can record from a long distance, and can record with 2-6 people. Therefore, it is often used in lecture halls or large areas.

Piezoelectric microphone:

Microphones are often used to amplify sound from musical instruments, drums, etc. In terms of design and structure, they can be divided into: wired microphones, wireless microphones including handheld microphones, lapel microphones or head-mounted microphones.



What devices have microphones?

Detachable microphone

Detachable microphones are used in recording studios, karaoke singing,. You can also use the mic to record sound when filming videos.

On smartphone, tablet

The microphone on a smartphone is used to record sound when making calls, when recording videos, and also to record sound when talking to a virtual assistant.

On the headphones

For the microphone on headphones , it is often used for chatting. In addition, it is also used for noise cancellation on headphones or active noise cancellation.

On laptop

All laptop devices will be equipped with a microphone to help users easily make video calls or conversations.



On speaker

On speaker devices, microphones are often used for conversations or calling virtual assistants.

On smartwatch

Similar to speakers, the microphone on smartwatches is used for calls and calling virtual assistants.

What are the things to note when buying a microphone?

Determine the purpose of use and the amount of money spent:

You need to know the purpose of buying a microphone for what? Buy a microphone for recording, karaoke singing or teaching. For each purpose, we will choose the appropriate type of microphone. For example, for use in a recording studio, you need quality microphones, and for karaoke singing at home, you can buy a dynamic microphone at a reasonable price.

Pay attention to the specifications of the Micro

Technical specifications include: mic directionality, sensitivity, frequency range. mentioned above. Depending on the purpose and usage requirements, prioritize the mic selection among the factors. It is best to learn carefully about these factors before choosing to buy.

Choose a place to buy quality guaranteed Microphones

Once you know the purpose of buying a microphone, you need to find a reputable, quality sales address to ensure you buy genuine products with full warranty.

The above article has introduced what a microphone is? Classifying popular types of microphones on the market today. Hopefully the article will bring useful information to you. For any questions, please contact hotline **1900 1903** for the best advice and support.

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