

Microphones

One of the most important pieces of recording equipment you will use is the microphone. A mic captures sound waves which are amplified through an electrical signal provided by a power source. Mixers may be used to color the sound. There are two kinds of mixers, powered and non-powered. Powered mixers have their own built in amplifiers. Non-powered mixers required an amplifier for sound to play through them.



Selecting Microphones

Two things are important when selecting a microphone quality and cost. In most cases the more you pay, the higher the quality. However, that's not always true. With digital technology, reproducing quality sound with less expensive microphones has become the norm rather than the exception. It is not uncommon to get high quality microphones for as little as \$20 - \$40. These can work great with a laptop or desktop computer. That being said, it remains generally true that higher cost yields greater quality.

Type of Microphones

For our use in recording digital information products and presenting live presentations, we are concerned about 5 basic types of microphones. They are:

- Telephone headsets
- Regular headsets
- Lavalier mics systems
- Stage or dynamic mics
- Studio mics also known as Condenser mics

The Condenser Microphone (Studio Mic)



Condenser microphones must be operated with a phantom power supply. Phantom power is standard on most quality mixers, outboard mic-pres and hard disk recorders.

If necessary an external phantom supply can also be used. The phantom power supply may travel directly from a mic cable when connected to a mixer or other microphone input that includes it. It is sent out of the microphone INPUT, along with the audio signal.

Most mixers have a switch to enable the phantom power. Be sure to check that the phantom power is on. If it is turned off, the condenser mic will not operate.

Directionality or Polar Pattern

The most important characteristic of any microphone is its directionality or what is commonly referred to as its' "pick-up pattern." These fall into three basic categories: omni, bi and uni-directional.

Omni mics pick up sound from all directions.

Bi-Directional (figure 78) mics pick up the sound directly in front and back of the microphone while rejecting the sound on the left and right sides,



Uni-directional (cardioid mics) pick up the sound in front of the microphones.

Microphone Placement

For maximum sound quality, placement of the microphone is important. Microphones, especially unidirectional or cardioid microphones, exhibit a proximity effect." For most vocal applications you'll want to position the microphone directly in front of you.

Setting Up the Signal Level

Most mixers and recorders of reasonable quality will offer a microphone input with mic trim (usually called Trim or Gain) control. The purpose of the mic trim or gain is to optimize the amount of good signal to any noise associated with the mixer's electronics. A good mic pre with trim also will have a PEAK or CLIP LED.



To set a good level on the mic, set the mic in front of the sound source and slowly raise the mic trim control until you see the PEAK LED light up. Then, turn the mic trim control down until the LED does not light any more. On most mixers the ideal setting is that the trim control is turned up as much as possible without lighting the PEAK LED.

P-Popping

P-Popping is that annoying pop that you can get when the microphone diaphragm gets a blast of air from a vocalist pronouncing words with the letter "P" included. There are a few ways to deal with the problem including using an external pop filter. Some famous engineers have relied on an old nylon stocking over a bent clothes hanger, which actually works very well.

You can try placing the microphone slightly off axis (on a slight angle) from the vocalist. This often can solve the problem without using an external pop filter.