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Sweetwater's Microphone Questions & Answers

What is an Omnidirectional Microphone?
An omnidirectional microphone is a mic that picks up sound equally from all directions. It will pick up sound from above, below, in front, behind, and to the side in a 360 degree sphere.

What is a Unidirectional Microphone?
A unidirectional mic is a microphone that picks up sound only from the front. Sound from the sides is reduced and sound from the rear is rejected.

What is a Dynamic Microphone?
A dynamic microphone is a mic that uses a magnet and coil of wire to convert sound waves into electrical signals. Quality dynamic mics have a good sound quality and can take a lot of punishment. They also can handle extreme temperatures and humidity.

What is a Condenser Microphone?
A condenser mic uses a thin piece of plastic or metal (in the form of a *ribbon* or *coil* - names often used for these mics) that is stretched tightly on a flat piece of metal or ceramic called a back plate. This assembly is electrically charged, generating a change in voltage in response to sound waves. This voltage is weak so it must be amplified by a preamp. The preamp can be located in the handle of the mic or in an outboard device and can be powered either by an internal battery or via Phantom Power (see below). Condenser mics can be made very small and they are very sensitive to extreme high and low frequencies. These mics typically have a very crisp, clean sound.

What is Phantom Power?
Phantom powering is a method of supplying power through the mic cable to a condenser microphone using a remote supply. The power supply can be a stand-alone unit or one incorporated in a mixing console. It is called Phantom Power because it comes from a source other than the microphone. You can often find a switch labeled "Phantom Power" or "+48v" at the top of each mixing channel, or on the back of mixers and preamps.

Tips on Miking a Guitar Amplifier:
The most popular microphone choice for electric guitar is a dynamic mic. A dynamic mic can withstand loud sounds without distorting. Place the mic about 1" to a foot away from the speaker. Aim the mic at the center of one of the speaker cones. The closer the mic placement the more bassy the tone will be. Placement in front of the speaker cone sounds bright, placing the mic off center will give a more mellow tone and will reduce the amp hiss.

Tips on Miking a Leslie Organ Speaker:
A typical miking technique is to mike the top and bottom speaker separately, placing the mics a few inches to a foot away. Aim the top mic into the louvers. You may also use a mic on either side of the rotating horn to record in stereo.

Tips on Miking a Snare Drum:
A dynamic or condenser mic both work fine; use whichever sounds best to you. Place the mic about 1" above the rim angled down where the drummer hits. You may also want to aim the mic partly towards the hi-hat to pick up both instruments.

Tips on Miking a Hi-Hat:
Try a condenser mic about 6" above the edge of the hi-hat. Aim the mic at the side farthest from the drummer. To avoid the air puff sound when the hi-hats close, don't mike the edge of the hi-hat. Mike it from above the hi-hat

pointing down.

Tips on Miking Tom-Toms:
Toms can be miked individually or in pairs. Use a dynamic or condenser mic. Place the mic about 1" above the rim. Angle the mic down about 45 degrees toward the drum head. To reduce cymbal leakage remove the bottom heads of the drums and place the mic inside a few inches and off center. The mic placed inside the head will have less attack and more tone.

Tips on Miking a Kick Drum:
A dynamic mic is commonly used for kick drums. Place it inside the drum using a boom stand. Place the mic a few inches from where the beater hits and slightly off center. Mic placement close to the beater picks up more attack, off center placement picks up more head tone, and placement farther away from the head picks up a boomier shell sound.

Tips on Miking Cymbals:
Use condenser mikes placed 1 to 3 feet above the cymbal edges. Place cymbal mics so that they pick up all the cymbals equally. Mics placed close to the cymbals pick up a low-frequency ring.

Tips on Miking an Acoustic Guitar:
A condenser mic is a good choice to use for acoustic guitars. There are several mic placements you can choose from to get the sound you want. Miking near the sound hole will give a boomy, bassy character. It will also give maximum loudness. For a more natural timbre, mike the guitar at a distance of about 12 to 18 inches from the sound hole. Placing the mic 6" over the top above the bridge will give a bright realistic sound. For a more mellow tone place the microphone 4" in front of the bridge.

Tips on Miking Brass Instruments:
A mic placed close to, and in front of the bell picks up a brighter, more edgy sound. For a more natural sound mic the bell at an angle. Use a condenser mic for a lot of sizzle or clarity. For a trumpet close mic placement gives a tight sound. Placement of about 5 feet yields a fuller, more dramatic sound.

Tips on Miking Wind Instruments:
A sax miked near the bell produces a bright, breathy, hard sound. A mic placed off the side picks up a quiet sound with poor isolation. For a more natural sound, mic the sax about one and a half feet away, aiming at the player's left hand. An effective mic placement for a flute is a few inches from the area between the mouthpiece and the first set of finger holes. To reduce breath noise mike farther away.

Tips on using Hand Held Mics:
The microphone should be about 6"-12" from the talker's mouth. The microphone should also be pointed at about a 45-degree angle.With some types of mics, holding them very close about 3"-6" will cause lower frequencies to be louder, resulting in a warmer, bassy sound. To reduce the popping sound on words with the "p" or "t" sounds, use a foam pop filter on or in front of the microphone.

Tips on using Lavalier Mics:
These mics should be clipped to the tie or shirt at breast pocket level for best results. Do not place mic behind the tie or more than one layer of clothing, this may reduce high frequencies resulting in a muffled sound. Also noise from the movement of clothing rubbing against the mic or cable may be heard.

Tips on using Surface Mount Mics:
Position mic on smooth flat surface. If vibrations are a problem put a thin piece of foam or rubber underneath the mic. The sound quality of this mic is affected by the surface it is placed on. Try to use this on a surface at least 3 feet square, a smaller surface area will reduce low frequencies.

Tips on using Shotgun Mics:
Position the mic slightly above, below, or to the side of the sound source. Try to avoid moving the mic rapidly because shotgun mics are sensitive to wind noise. It is also a good idea to use a shock mount and a wind screen.